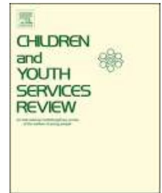
Children and Youth Services Review 116 (2020) 105096

Contents lists available at ScienceDirect

Children and Youth Services Review

journal homepage: www.elsevier.com/locate/childyouth



Interventions for youth homelessness: A systematic review of effectiveness studies

Matthew H. Morton*, Shannon Kugley, Richard Epstein, Anne Farrell

Chapin Hall at the University of Chicago, 1313 E 60th Street, Chicago, IL, United States

A B S T R A C T

Objective: This systematic review synthesizes effectiveness evidence on interventions to prevent and address youth homelessness. It was conducted primarily for a United States policy and practice audience but involved an international synthesis of evidence.
Method: We conducted an international search that included eleven major academic electronic databases, 13 additional relevant institutional web-based publication databases, and a professional outreach for published and unpublished studies of the effectiveness of programs and practices to prevent or address youth homelessness, in Organisation for Economic Co-operation and Development (OECD) countries. We searched databases for studies published or completed between January 1, 2008 and March 19, 2019, and we also reviewed earlier studies synthesized in a similar past systematic review that ended its search in 2008. The review included experimental and quasi-experimental evaluation studies of youth ages 13–25. We included studies that only used pre-post comparisons and denote lower rigor designs clearly in the synthesis.
Results: The search identified 4,387 potentially relevant unique publications. After screening, 66 publications representing 53 unique studies of 54 different interventions remained and were included in this review. The vast majority (83%) of unique studies were conducted in the U.S. Of the 53 unique studies, 22 (42%) involved some type of randomized evaluation. Many studies involved low rigor designs with weak counterfactuals, small sample sizes, and short follow-up periods. Included studies evaluated a range of interventions, and we grouped these into seven broad categories. The largest evidence base on the effectiveness of interventions relates to counseling and treatment interventions to address mental health or health risk behaviors. Overall, these studies showed promising results, but few included long-term follow-up. A small number of studies demonstrated reductions in occurrence of youth homelessness and housing instability, including some intensive case management and support interventions without direct housing assistance components. The field lacks rigorous evaluative evidence of many of the program models on which communities and governments rely to address youth homelessness (for example, street outreach, transitional living programs, youth shelters, host homes, and rapid rehousing). Evaluative evidence is further lacking on how the effects of interventions vary by subpopulations disproportionately impacted by homelessness.
Discussion and conclusion: Policy and community interventions to prevent and end youth homelessness require a robust evidence base to inform decision-making. This systematic review presents an important starting point to inform solutions across a range of intervention areas, and it reveals significant areas in which investments in research and evaluation are urgently needed.

1. Introduction

Youth homelessness in the United States (US) is a serious national challenge. National estimates among adolescents and young adults ages 13–25 indicate that 1 in 30 adolescents (ages 13–17) and nearly 1 in 10 young adults (ages 18–25) experienced some form of homelessness during a 12-month period (Morton et al., 2017). Young people who experience homelessness are at high risk for adverse outcomes such as physical and mental health problems, experience of violence, early pregnancy, early school leaving, substance use, and early death (Auerswald, Lin, Petry, & Hyatt, 2016; Greene, Ennett, & Ringwalt, 1997; Greene & Ringwalt, 1998; Heerde, Hemphill, & Scholes-Balog, 2014; Hodgson, Shelton, Bree, & Los, 2013; Medlow, Klineberg, & Steinbeck, 2014); as such, there is a compelling public health argument for identifying and using effective interventions to avert and reduce its duration and impact. We conducted the current review as part of a national research initiative to inform US policy and practice related to youth homelessness. We opted to include as well international evidence, given the potential relevance of research from other contexts. We hope that it may inform international efforts, too.

Evidence-based decision-making (EBDM) integrates science-based interventions with community preferences to improve population health and related outcomes (Kohatsu, Robinson, & Torner, 2004). Systematic reviews and evidence clearinghouses exemplify attempts to guide public systems, communities, and organizations who increasingly recognize the importance of using the best available evidence to guide

* Corresponding author.
E-mail addresses: mmorton@chapinhall.org (M.H. Morton), skugley@chapinhall.org (S. Kugley), repstein@chapinhall.org (R. Epstein), afarrell@chapinhall.org (A. Farrell).

https://doi.org/10.1016/j.childyouth.2020.105096

Available online 19 May 2020
0190-7409/ © 2020 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license
(http://creativecommons.org/licenses/BY-NC-ND/4.0/).

decisions on the implementation of effective programs and practices. In the case of youth homelessness, there are two reviews of existing literature about what works and does not work for young people: Altena, Brilleslijper-Kater, and Wolf (2010) and Dettlaff et al. (2017). Both involved systematic review of effectiveness evidence on interventions for youth experiencing homelessness. The present review adds value in two main ways. First, it updates the Altena et al. and Dettlaff et al. reviews. The Campbell Collaboration[1] advises that systematic reviews be updated at least every three years. The search strategy conducted by Altena et al. encompassed studies from 1985 to 2008, while Dettlaff et al. conducted their search strategy in February 2014 (although the review authors did not report the actual years searched). These reviews largely found a dearth of rigorous intervention studies, and the years since may have yielded more evidence that could inform policy and practice in this area. Second, the present review includes interventions that were excluded by the Altena et al. and Dettlaff et al. reviews. Exclusions included prevention interventions, school interventions, and those focused on sexual health.

2. Methods

In this section, we outline our inclusion criteria, search strategy, and processes for study selection, data extraction and coding, and analysis and synthesis. We developed a protocol and registered it with the National Institute for Health Research international prospective register of systematic reviews (PROSPERO CRD #420170621) in advance of conducting the review.

2.1. Criteria

To be eligible for inclusion, studies must have evaluated the effects of interventions targeting youth experiencing homelessness or have evaluated an intervention and report youth homelessness as an outcome. Notably, we included process evaluations of programs to prevent or address youth homelessness, but these were set aside for a different type of qualitative synthesis to take place later. The current review focuses on synthesizing evidence from impact evaluations.

We used the PICO (population, intervention, comparison, and outcomes) framework to formulate the review questions. We bifurcated the PICO questions into two parts: interventions for youth homelessness prevention and response: (1) Among youth ages 13–25, what are the effects of any interventions, compared to the absence of intervention or to alternative interventions, on preventing homelessness, and, (2) among youth ages 13–25 who experience homelessness, what are the effects of any interventions, compared to the absence of intervention or to alternative interventions, on any outcomes? The elements of the PICO framework are further elaborated in the following points.

Participants (population): Studies must have explicitly targeted youth ages 13 to 25 who have experienced or are at risk of experiencing homelessness. We excluded studies in which fewer than 75% of participants were between the ages of 13 and 25, or if the mean age of the study population was outside of this range, unless results were disaggregated such that intervention effects for youth between the ages of 13 and 25 could be readily discerned.

To be included, studies must have been conducted with participants in Organisation for Economic Co-operation and Development (OECD) countries.[2] That is, the current review assumes that cultural, institutional, and resource differences between OECD countries and low- and middle-income countries are significant enough that distinct reviews are warranted to cater to these different contexts for this subject matter. Whereas youth homelessness is a significant problem in low- and middle-income countries, the population considered by this review is more typically described as “street children” or “children and adolescents in street situations” (Woan, Lin, & Auerswald, 2013; Watters & O’Callaghan, 2016). Our review excluded non-OECD populations (primarily those in low- and middle-income countries) because, as Watters and O’Callaghan (2016) have argued, evidence of intervention effectiveness from high-income countries may not translate well to more resource limited settings.

Interventions: Any interventions that targeted the study population were eligible for inclusion in this review, as were studies of any interventions that reported one or more outcomes measuring homelessness as an outcome among youth.

Comparisons: Eligible studies involved service-as-usual or alternative intervention comparisons. Service-as-usual means that the youth assigned to the control group were not offered any additional intervention over and above what they could normally access. Alternative intervention comparison means that youth were assigned to two or more intervention groups to compare effects between different intervention options or combinations.

Types of outcome measures: We did not exclude studies based on outcomes measured. A range of outcomes at the individual youth level were included, such as those related to the four core outcome areas of the U.S. Interagency Council on Homelessness (USICH) *Framework to End Youth Homelessness*: stable housing, permanent connections, social-emotional well-being, and education or employment (USICH, 2012).

Types of study designs: To be included in the synthesis of evidence on intervention effectiveness, studies must have used an experimental or quasi-experimental evaluation design, including the following:

a. randomized control trials
b. regression discontinuity designs
c. quasi-experimental, cross-sectional, cohort, or panel designs that use multiple regression analysis and control for some combination of pre-intervention control variables
d. matched control group designs (with or without baseline measurement)
e. unmatched control pre- and post-test designs
f. time-series designs (with at least 25 pre- and 25 post-intervention observations)

The inclusion of non-randomized studies is consistent with broader systematic review trends, particularly when reviewing evidence on interventions for which there is likely a lack of randomized study evidence or randomization is considered infeasible or unethical (Cochrane Effective Practice and Organisation of Care (EPOC), 2017; Wilson, Gill, Olaghere, & McClure, 2016). Eighty-one percent of Campbell Collaboration reviews published between 2012 and 2018 included non-randomized studies (Villar & Waddington, 2019). We recognize that including a wide range of quasi-experimental study designs—particularly pre-post designs that use the baseline as study bases for comparison—may increase the risk of synthesizing biased results. Because of this concern, we clearly delineate evidence according to types of study designs and include appropriate cautions with interpreting results from low-rigor study designs in the synthesis. We opted to include a range of designs because of the dearth of evidence, as outlined in Altena et al. (2010) and Dettlaff et al. (2017), and in light of the pragmatic realities facing policymakers and program implementers. In the absence of a

[1] The Campbell Collaboration is a nonprofit that promotes EBDM through evidence reviews and evidence and gap maps and the application of standards for these processes and products.

[2] OECD countries currently include Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.

body of rigorous evidence, there still remains an urgent and current need to guide investments in more rigorous studies and potential directions for interventions and policy based on emerging evidence from less rigorous studies, while at the same time maintaining transparency about the increased risk for bias associated with, and limitations for drawing conclusions from, such studies.

2.2. Search strategy

The search strategies were executed in January 2018 and updated in March 2019. Because we identified an existing high-quality systematic review of evidence for youth homelessness interventions (Altena et al., 2010), our search strategies were limited to records published in or after 2008, the last year of studies included in the review by Altena. In addition to the records retrieved by the literature searches, we scanned the list of included studies in relevant systematic reviews. We included the primary studies identified as eligible for inclusion in the Altena et al. review. In other words, studies published before 2008 were only included in this review if they were included by Altena et al. We did not place any language restrictions on the eligibility of documents, however, the search of published literature was executed in English.

Our strategy was guided by information retrieval standards provided by Cochrane Collaboration's Effective Practice and Organisation of Care (EPOC) Group (Cochrane Effective Practice and Organisation of Care (EPOC), 2017) and the Campbell Collaboration (Kugley et al., 2016). We derived search terms from the previous relevant reviews and augmented them to minimize the risk of missing relevant studies. Table 1 shows the search terms used, although in some cases we used slight deviations in a given database. As the literature advises for systematic reviews on social interventions (Waddington et al., 2012), to maximize sensitivity, no methodological filters were used, but a broad and diverse set of terms associated with intervention and program evaluations was included in the search strategy to increase specificity to evaluative studies. We searched electronic databases, research registers, and relevant websites. We contacted topic experts and leaders to identify unpublished studies and relevant published studies that were not retrieved by the literature and website searches.

Electronic databases: The investigators searched the following major electronic databases for this review: STM Source (EBSCO), Education Research Complete (EBSCO), Business Source Complete (EBSCO), LGBT Life (EBSCO), OmniFile (EBSCO), Academic Search Complete (EBSCO), CINAHL (EBSCO), Cochrane Library (CENTRAL), ERIC (Institute of Education Sciences), and MEDLINE (PubMed). We ran additional electronic searches in Google and Google Scholar.

Websites: Multiple web-based publication databases specific to youth and family services were searched with varying search strategies depending on the confines of each database. These included the California Evidence Based Clearinghouse, Out-of-School Time Program Research & Evaluation Database (Harvard Family Research Project), Innovation Center, National Clearinghouse on Families & Youth (U.S. Administration of Children & Families), Public/Private Ventures, CrimeSolutions.gov, Search Institute, Blueprints for Healthy Youth Development, the Australian Clearinghouse for Youth Studies (ACYS), National Council for Voluntary Youth Services (NCVYS) Publications, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) Model Programs Guide, the UK Department for Children, Schools and Families (DCSF) Inclusion Development Programme (IDP) Publication Catalogue, and the Urban Institute publications.

Professional outreach: Institutions or individuals who are regarded as professional leaders in the field of youth homelessness, including but not limited to researchers, were contacted directly and asked for any leads on specific studies, or databases likely to include studies, that might meet this review's inclusion criteria. Professional outreach began by contacting a technical advisory group associated with this research, relevant researchers known to the review team, and points of contact for relevant reviews and major studies.

2.3. Study selection

Two expert reviewers used a set of inclusion criteria to assess, based on titles and abstracts, whether the publications returned from the systematic search were potentially eligible for inclusion. To be excluded, an abstract had to be rejected by both reviewers according to any of the screening criteria. Records assessed as possibly eligible or unclear by at least one reviewer were promoted for further review. A senior researcher examined a random sample of 10% of the screened records to confirm accuracy and consistency of the screening decisions.

The full text document was located for all records that we promoted for further review at the title and abstract stage. Two expert reviewers assessed eligibility for inclusion in the review using a pre-specified set of eligibility criteria (see Supplemental Materials for the screening criteria). The screening criteria were used to determine if a publication reported on a study that was eligible for the impact evaluation synthesis (presented in this paper), the process evaluation synthesis (to be conducted and reported later), or both. The co-principal investigator mediated discussion on any inconsistent screening recommendations between reviewers to achieve resolution on each study.

2.4. Data extraction and coding

We extracted information about study conduct, population, intervention(s), comparator(s) and outcomes from each report using a

Table 1
Review search terms for abstract, title, and keyword fields.

Category	Search terms
Population	Homeless ADJ youth$ OR homeless ADJ adolescen$ OR homeless ADJ teen$ OR homeless ADJ student OR homeless AND pediatric$ OR homeless and paediatric$ OR street ADJ youth$ OR street-involved ADJ youth OR street-connected ADJ youth OR runaway$ OR throwaways OR throwaway ADJ youth$ OR unstably ADJ-housed ADJ youth$ OR unstably ADJ-housed ADJ adolescents unstably ADJ-housed ADJ student OR youth$ ADJ1 shelter$ OR unaccompanied ADJ youth$ OR unaccompanied ADJ adolescents OR unaccompanied ADJ teen$ OR houseless ADJ youth OR houseless ADJ adolescen$ OR houseless ADJ teen$ OR couch-surf$ ADJ youth$ OR couch-surf$ ADJ adolescen$ OR couch-surf$ ADJ teen$ OR doubled-up ADJ youth$ OR doubled-up ADJ adolescen$ OR doubled-up ADJ teen$
AND	
Intervention	Program$ OR intervention$ OR service$ OR treatment$ OR therap$ OR activit$ OR outreach
AND	
Comparator	(none)
AND	
Outcome	(none)
AND	
Study design	Evaluation$ OR trial$ OR impact ADJ study OR outcome ADJ study OR process ADJ study OR implementation ADJ study OR impact ADJ assessment OR outcome$ ADJ assessment OR process ADJ assessment OR implementation ADJ assessment OR effectiveness OR efficacy OR RCT OR $-RCT

Note: "$" after the search term instructs the database to search for anything with the stem of the search term—for example, teen$ to retrieve teen, teens, teenagers, etc.

standardized data extraction form. Each outcome was assigned to one of ten pre-specified categories: (1) crime and/or delinquency; (2) education; (3) employment or earnings; (4) health; (5) permanent connections; (6) sexual risk behaviors; (7) social emotional wellbeing; (8) stable housing; (9) substance use/abuse behavior; and (10) violence. Outcomes that did not fit in one of the pre-specified categories were categorized as "other". From the "other" category, we later also coded outcomes separately addressing service connections for the purpose of the final synthesis, as technical experts advised that this can be an important proximal outcome for some interventions such as outreach or case management. Coding discrepancies were resolved by discussion between reviewers, in consultation with the principal investigator.

2.5. Study quality

We classified study designs according to this schematic:

A: Randomized trial comparing an intervention group to a service-as-usual/no intervention comparison group and with overall between-group balance at baseline (at least 80% of reported variables)

B: Well-matched comparison group (i.e., statistical approaches used to match groups based on observable characteristics), robust instrumental variable design, or randomized trial with significant between-group differences at baseline

C: Study with a lower rigor comparison group (for example, not involving successful techniques to match groups based on observable covariates)

D: Pre-post outcomes study, or a comparison study without a service-as-usual/no intervention comparison group, which makes it impossible to infer intervention effects against a counterfactual (that is, the hypothetical absence of the intervention)

Because we included a broad range of study designs that would all require different types of, and tools for, formal quality, reporting, or risk-of-bias appraisals, we did not conduct such appraisals for this overall synthesis. Instead, we indicate and discuss risk of bias more generally with respect to overall evaluation designs, per the aforementioned schematic, and we discuss narratively the particular methodological concerns or limitations of specific studies. In the event of future syntheses and potential meta-analyses with specific subgroups of included studies (e.g., randomized trials or studies for specific intervention categories or outcomes), we would incorporate relevant quality or risk-of-bias appraisals into a coding and sensitivity analysis (Babic et al., 2020).

2.6. Analysis and synthesis

Effectiveness studies were synthesized descriptively and not statistically (that is, with meta-analysis) due to the significant heterogeneity of interventions, evaluation designs, and outcome measures. For summary information, we use a table that indicates basic intervention and study information along with whether studies reported positive, null, adverse, or mixed effects for outcomes falling under the following seven outcome domains, listed with examples:

1. **stable housing:** residential stability, runaway episodes, homelessness experience
2. **permanent connections:** social supports and positive connections to family, other adults, or peers
3. **education**: enrollment, attendance, attainment, achievement
4. **employment or earnings:** employment status, amount of time employed, career advancement, wages
5. **social-emotional well-being**: mental health, prosocial behaviors, psychological well-being, non-cognitive skills
6. **physical health/substance use:** health risk behaviors or knowledge, access to health services, physical well-being, disease or infection
7. **service connections**: quantity or frequency of services accessed

The findings narrative includes results from other outcome areas (for example, delinquency, or juvenile justice involvement) as reported in eligible studies, but we do not summarize them in the tables. In the tables, we indicate a study as showing a positive intervention effect for a given outcome area if the study reported statistically significant ($p < .05$) improvement in at least one outcome within the outcome area. We indicate a study as showing an adverse intervention effect for a given outcome area if the study reported statistically significant worsening in at least one outcome within the outcome area. We indicate a study as showing a mixed intervention effect for a given outcome area if the study reported *both* statistically significant ($p < .05$) improvement in at least one outcome *and* statistically significant worsening in at least one outcome within the outcome area. Finally, we indicate a study as showing a null intervention effect for a given outcome area if the study measured but reported no statistically significant results for any outcomes within the outcome area. If the study involved a service-as-usual or no intervention comparison, we refer to statistically significant between-group differences (either at last follow-up or difference-in-difference estimates, depending on the primary study's analytical approach). If the study lacked a service-as-usual or no intervention comparison, we refer to statistically significant changes between baseline and last follow-up and treated the study as similar to a pre-post design.

Because we did not conduct a statistical meta-analysis in this synthesis, we do not account for multiple comparisons, but we would expect to do so with reference to Cochrane Handbook guidance (Higgins et al., 2019, section 16.7.2) in the event of future studies that synthesize and meta-analyze results from subgroups of the studies included in this review.

3. Results

3.1. Search and screening results

Using the search terms and parameters described above, we searched academic journals and identified potentially relevant studies through prominent academic search engines and research databases, including MEDLINE via PubMed (n = 4,636), multiple databases through EBSCOhost (n = 971), and ERIC (n = 389). An additional 210 publications were identified from other sources, including: Google searches, relevant websites and clearinghouses, and personal outreach to a range of organizations and individual experts. The professional outreach included contacts with 88 experts from universities, research institutes, Federal agencies, advocacy organizations, and others and included both national and international outreach. After discarding duplicate records (n = 1,829) 4,387 were screened for eligibility.

Fig. 1 is a flow diagram documenting the retrieval, screening, and disposition of records. Of the 4,387 screened, we excluded records that did not meet the eligibility criteria (n = 4,284), and studies that addressed process evaluation only (n = 37). We included 66 publications, representing 53 unique studies, for the impact evaluation synthesis. We define a unique study as one with a particular design and sample which could have resulted in one or more included publications (e.g., reporting different analyses, outcomes, or follow-up periods). Appendix A provides the full list of included publications and shows which publications are clustered together as unique studies.

3.2. Characteristics of included studies

3.2.1. Study locations

The vast majority (83%) of unique studies were conducted in the U.S., with the remainder in Australia (n = 2), Canada (n = 5), Mexico (n = 1), South Korea (n = 1), and The Netherlands (n = 1). For many studies (42%), the urbanicity of the sample location(s) was unreported; among those that did report, studies were conducted in mainly urban or suburban locations (not rural).

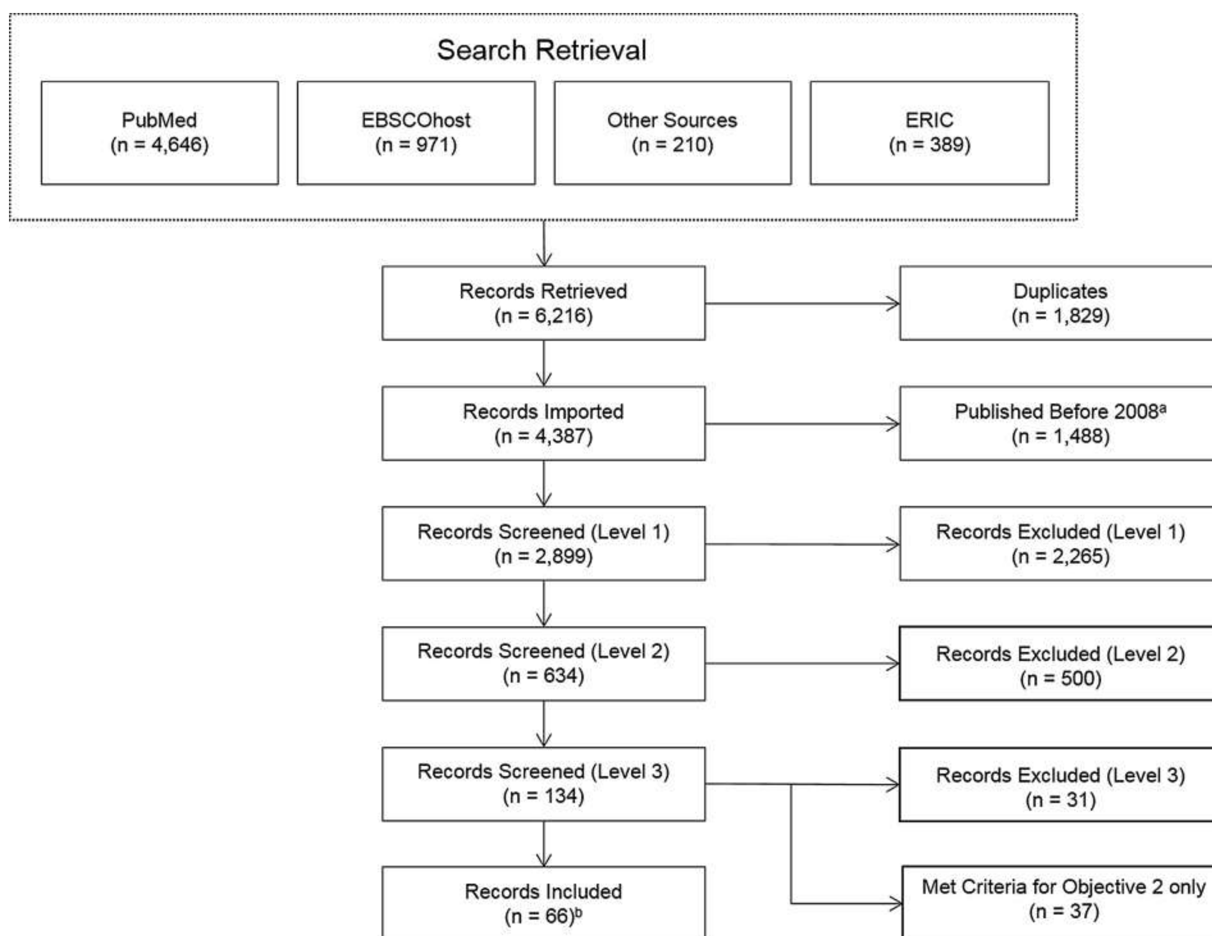


Fig. 1. Flowchart representing the selection process for included publications.

3.2.2. Study designs

Of the 53 unique studies, 22 (42%) involved some type of randomized evaluation. Sixteen of these included a service-as-usual or control study arm; the others only randomly assigned participants to different study interventions. Thirteen (25%) unique studies involved some type of quasi-experimental study design with a comparison group; six of these used well-matched comparison groups (e.g., through statistical matching or instrumental variables) while the other seven used lower-rigor comparisons. Seventeen (32%) included studies used a pre-post design with no comparison group. For the purposes of the summary synthesis in Table 2 and the Appendix A table, we also treated the six unique studies involving randomized trials without a service-as-usual or control study arm as essentially reporting parallel pre-post analyses for different interventions because these randomized studies lacked a counterfactual.

Four of the 53 studies (8%) including two randomized, one quasi-experimental, and one pre-post, reported having published or registered a study protocol. The mean study sample size was 188 (standard deviation [SD]: 214), ranging from 15 to 1,322. The mean sample size for randomized studies was 209 compared with 152 among quasi-experimental studies and 180 in pre-post studies.

3.2.3. Interventions

Altogether, the included effectiveness studies evaluated 54 different interventions. The frequency of intervention types evaluated by the included studies is shown in Fig. 2. We clustered studies by intervention into the following seven categories:

1. **prevention:** interventions that did not target youth experiencing homelessness but did aim to prevent homelessness from occurring;
2. **family strengthening:** interventions that explicitly engaged youths' families in the program as a key focus
3. **transitional, supportive, and subsidized housing programs**: interventions that provided transitional or permanent housing, or housing assistance, as a key feature of the program
4. **individual counseling and treatment**: non-housing, non-family-based interventions primarily focused on delivering therapeutic or health-related counseling or treatment to youth experiencing homelessness
5. **non-housing case management and support**: non-housing interventions that involved case management or mentoring as a key program feature
6. **economic and employment programs**: interventions designed to help youth experiencing homelessness to obtain or improve employment or earnings
7. **outreach and service connection interventions**: interventions that aimed to find and connect youth experiencing homelessness with broader services.

Studies most commonly evaluated individual therapeutic and

Table 2
Synthesis of included evidence on effectiveness by intervention category and outcome area.

Interventions	Outcome areas: Housing stability – Randomized	Housing stability – Non-randomized	Positive connections – Randomized evaluation	Positive connections – Non-randomized	Education – Randomized	Education – Non-randomized	Employment or earnings – Randomized	Employment or earnings – Non-randomized	Social-emotional well-being – Randomized	Social-emotional well-being – Non-randomized	Physical health or substance use – Randomized	Physical health or substance use – Non-randomized	Service connections – Randomized	Service connections – Non-randomized
Prevention (n=3)	⊕ n=1	⊕ n=2	∅ n=1		∅ n=1	⊕ n=1	⊕ n=1		⊕ n=1					
Family strengthening (n=7)		⇄ n=3	⇄ n=2	⇄ n=4	⊕ n=1	∅ n=1		⇄ n=2	∅ n=1	⊕ n=2	⊕ n=2	∅ n=2		⊕ n=1
Transitional, supportive & subsidized housing programs (n=9)	⊕ n=1	⊕ n=6		⇄ n=2		⇄ n=5	⊖ n=1	⇄ n=5	∅ n=1	⇄ n=3	∅ n=1	⊕ n=5	∅ n=1	∅ n=1
Individual or group counseling or treatment (n=23) — *Brief interventions*				⊕ n=1						⇄ n=2	⇄ n=4	⊕ n=5	⊕ n=1	
More intensive health-risk reduction		∅ n=1		⊕ n=1				⊕ n=1	⊕ n=2	⇄ n=2	⊕ n=2	⊕ n=4		
More intensive mental health treatment				⊕ n=2					⊕ n=2	⊕ n=6		∅ n=1		
Non-housing case management & support (n=8)	⊕ n=2	⇄ n=3	⇄ n=3	⇄ n=2	⇄ n=3	⇄ n=3	⇄ n=3	⇄ n=4	⇄ n=4	⇄ n=4	⇄ n=2	⇄ n=4		⇄ n=2
Economic & employment programs (n=4)		⊕ n=1		⇄ n=4				⇄ n=2		⊕ n=4				
Outreach & service connection (n=1)										⊕ n=1		⊕ n=1		⊕ n=1

n = number of unique studies (some unique studies assessed multiple interventions through different treatment arms and/or included multiple publications with different analyses for the same underlying study)
⊕ Positive effects: all included studies showed statistically significant positive (i.e., favorable) results for the given outcome area
⇄ Mixed effects: one or more studies indicated positive effects and one or more studies indicated negative or null effects
⊖ Negative effects: included studies demonstrated statistically significant negative (i.e., adverse) effects and no positive effects
∅ Null effects: no statistically results were demonstrated for measured outcomes applicable to the given outcome area

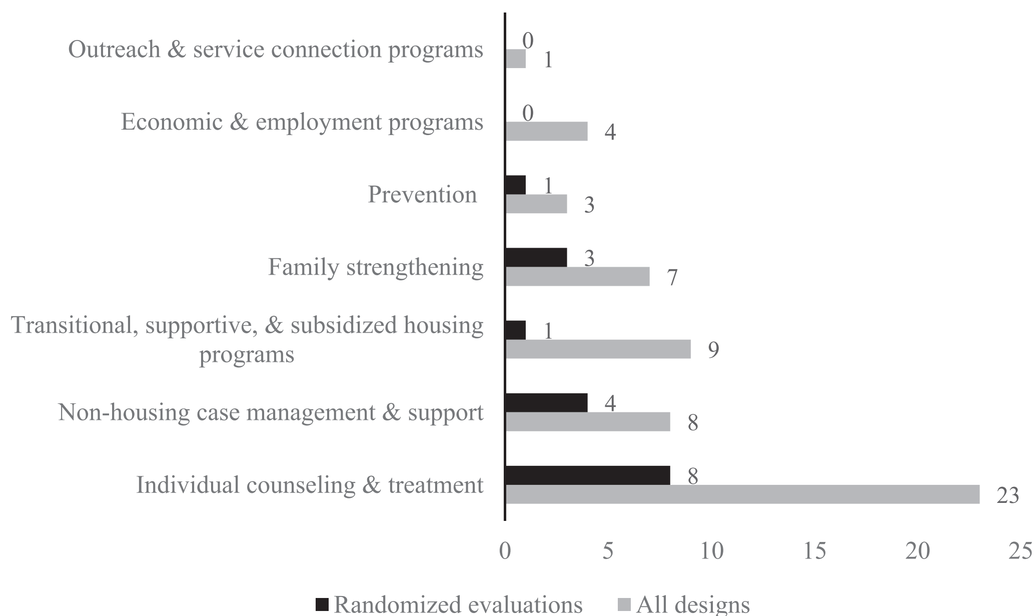


Fig. 2. Number of evaluations by intervention category.

counseling (n = 23), followed by transitional, supportive, and subsidized housing programs (n = 9), non-housing case management and support (n = 8), and family strengthening (n = 7). Considering only randomized evaluations involving service-as-usual comparison groups, none of the included studies rose to this level of rigor for economic and employment programs or for outreach and service connection interventions.

Thirty-three studies reported intervention duration across 41 interventions. Intervention duration and intensity are quite heterogeneous. Duration ranged from one hour to 24 months; 7% (n = 3) had duration of less than one week, 7% (n = 3) were one week to less than one month, 10% (n = 4) were one month to fewer than three months,

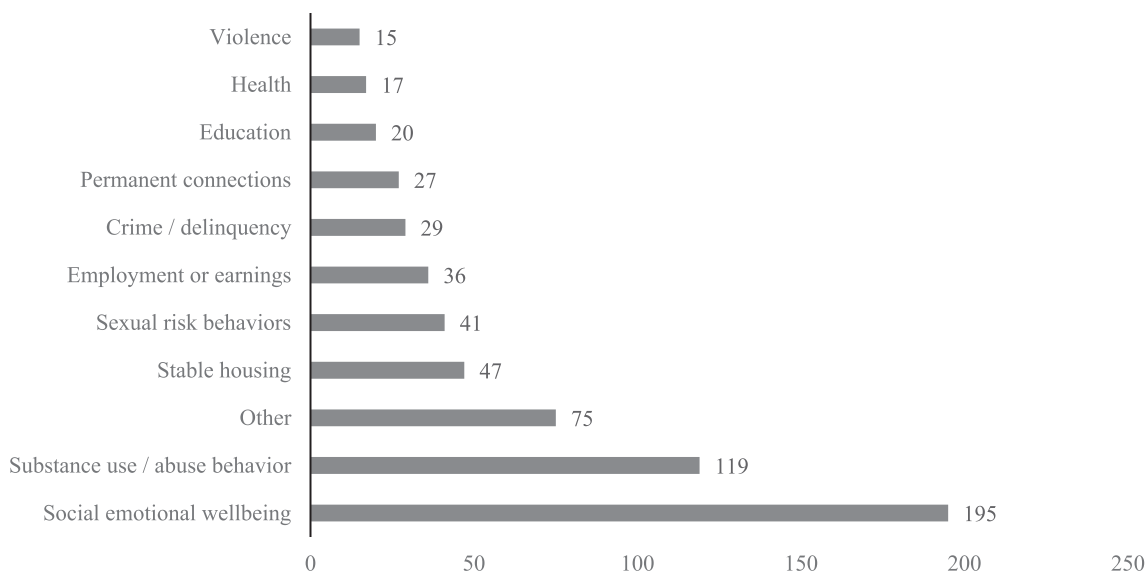


Fig. 3. Outcomes (n = 621) by category among included publications (n = 66).

44% (n = 18) were three months to fewer than nine months, 17% (n = 7) were nine months to fewer than 12 months, and 15% (n = 6) were 12 to 24 months.

3.2.4. Outcomes

Fig. 3 summarizes the types of outcomes against which interventions were evaluated. Reviewers extracted over 600 individual outcomes from 66 eligible publications. Outcomes were assigned to one of ten pre-specified categories (see 2.4 above), or "other" when the outcome did not fit into one of the existing categories. Many publications reported outcomes related to social-emotional wellbeing (e.g., mental health, self-esteem, depression, and life satisfaction; n = 36) and substance use (n = 30). One third of the included reports (n = 21) reported housing outcome measures (e.g., of homelessness or housing stability).

3.3. Effectiveness evidence

This review found evaluations of 54 interventions aimed at either preventing or addressing youth homelessness. A high level synthesis of effectiveness evidence by intervention types and outcome areas is provided in Table 2. Appendix A includes more detailed study-wise outline of interventions, study characteristics, and overall results. The following subsections describe the included studies and their results for each of the seven intervention categories we used to organize the evidence.

3.3.1. Prevention

Number and location of studies: Three unique studies (reported by five publications) evaluated three programs explicitly aimed at primary prevention of youth homelessness. Two evaluations took place in the U.S. (Clark et al., 2008; Skemer & Jacobs, 2016; Valentine, Skemer, & Courtney, 2015) and one in Australia (MacKenzie & Thielking, 2013; MacKenzie, 2018). Several interventions included under other categories (particularly several family interventions) could be considered early intervention strategies to prevent further homelessness among youth having already experienced some degree of homelessness, but the interventions described in this section focus on primary prevention.

Description of evidence: Although each study reported on different measures of housing stability, all three reported improvements. The sole randomized trial (n = 1,322) in this category evaluated YVLifeSet, an intensive case management with supportive services program for youth who transitioned out of juvenile justice or foster care (Skemer & Jacobs, 2016; Valentine et al., 2015). Relative to the control group, the intervention group had lower rates of experiencing homelessness, as well as improvements in other outcomes. A quasi-experimental study in the U.S. evaluated the Behavior Analysis Services Program (BASP), an intervention that used data analytics to identify runaway behaviors among youth in foster care early, understand behavioral patterns, and provide supports to prevent further episodes (Clark et al., 2008); this evaluation showed positive changes in housing stability, the only outcome reported. The third prevention study evaluated The Geelong Project (TGP) in Australia, a coordinated homelessness prevention model among schools and community organizations involving universal screening for student risk for homelessness and tailored case management and support (MacKenzie & Thielking, 2013; MacKenzie, 2018). A longitudinal time series evaluation of TGP reported reductions in the number of students entering the local homelessness system based on administrative data. However, due to the absence of a control condition, further evaluations including a prospective comparison group are needed to confirm that the observed effects on student homelessness are due to TGP and not the result of other conditions or changes.

Both the TGP and YVLifeSet evaluations reported outcomes from other outcome areas, such as staying in school (TGP) and earnings, economic well-being, mental health, and exposure to intimate partner violence (YVLifeSet).

Summary: Overall, the evidence base on prevention is small but promising. There are few evaluations of prevention interventions, including only one randomized trial, but all three studies indicate promising results for prevention strategies to reduce the incidence of homelessness among youth at-risk, primarily through targeting some form of individual casework or counseling.

3.3.2. Family strengthening

Number and location of studies: Seven unique studies (reported by 10 publications) evaluated seven family strengthening programs. Six programs were located in the U.S. (Slesnick & Prestopnik, 2009; Milburn et al., 2012; Trout, Tyler, Stewart, & Epstein, 2012; Slesnick, Erdem, Bartle-Haring, & Brigham, 2013; Slesnick, Guo, & Feng, 2013; Guo, Slesnick, & Feng, 2014; Harper, Tyler, Vance, & Dinicola, 2015; Davis, Sheidow, & McCart, 2015) and one was located in Canada (Winland, Gaetz, & Patton, 2011).

Description of evidence: Three studies involved randomized evaluations comparing family interventions to service-as-usual (Slesnick & Prestopnik, 2009; Milburn et al., 2012; Trout et al., 2012). The three

randomized evaluations [of Ecologically Based Family Therapy (EBFT), Functional Family Therapy (FFT), and Support to Reunite, Involve, and Value Each (STRIVE)] reported significant program effects, especially related to risky or unhealthy behaviors. None of these assessed housing outcomes. Two less rigorous evaluations (lacking credible comparison groups) of family interventions—the Home Free Program (HFP) and Family Reconnect Program (FRP)—found improvements in positive connections between youth and their families and in youth housing stability (Harper et al., 2015; Winland et al., 2011).

Summary: Studies of family interventions involved varying degrees of rigor, but three involved randomized trials. The studies generally showed promising results for outcomes related to youth well-being and behavioral health, but little is known about direct effects of these interventions on preventing or reducing youth homelessness.

3.3.3. Transitional, supportive, & subsidized housing programs

Number and location of studies: Nine unique studies (reported by 10 publications) evaluated seven transitional, supportive, and subsidized housing programs. Seven programs were evaluated in the U.S. (Duncan et al., 2008; Jones, 2011; Pierce, Grady, & Holtzen, 2014; Kroner & Mares, 2011; Lim, Singh, & Gwynn, 2017; Pierce et al., 2014; Raithel, Yates, Dworsky, Schretzman, & Welshimer, 2015; Upshur, 1985; 1986) and two were evaluations conducted in Canada (Kisely et al., 2008; Kozloff et al., 2016).

Description of evidence: Most evaluations involved some form of transitional or supportive housing. Only one study in this category, the Canadian At Home/Chez Soi "Housing First" program evaluation of rental assistance with case management (Kozloff et al., 2016), involved a randomized controlled trial. Our review identified no eligible studies of the effectiveness of approaches such as rapid rehousing or host homes, which the Federal Government has also highlighted for youth (HUD, 2016), or of crisis shelters. Most evaluations found improvements in housing outcomes, but housing stability was either not measured or not readily interpretable from the two evaluations of transitional housing programs for youth.

Relative to comparison groups of youth who did not participate, three supportive housing programs (Phoenix Programs, Chelsea Foyer, and NYNYIII) demonstrated positive effects on housing stability (Kisely et al., 2008; Lim et al., 2017; Raithel et al., 2015). These studies involved quasi-experimental methods with varying degrees of credible counterfactuals. The Kisley et al. (2008) study involved a small sample of supportive housing participants (n = 15) compared to drop-in center service users (n = 30) who were similar on most baseline demographics but were not prospectively or statistically matched, and the authors did not report how treatment group assignments were determined. Lim et al. (2017) and Raithel et al. (2015) used larger samples of administrative data and statistically matched youth who received supportive housing to those who did not.

The At Home/Chez Soi evaluation of rental assistance with case management demonstrated significant positive effects on housing instability among young adults (Kozloff et al., 2016). The trial measured housing stability (and other outcomes) for a 24-month period, the same period for which participants had access to subsidized rent and wraparound services; as such, the evaluation did not measure effects on housing stability beyond the duration of the program. In addition, the intervention group had significantly lower odds of obtaining competitive employment compared to peers in the control group. As the study authors acknowledge, however, the study lacked more detailed measurement on the type of work and on education. It is possible that housing assistance allows some young people to shift from low-wage, low-opportunity employment and into educational and career-oriented activities that might support better jobs and higher income in the long-term. Only one evaluation (Raithel et al., 2015) measured outcomes at least a year after the end of the program, and this quasi-experimental study did not find statistically significant differences between the supportive housing and comparison groups one year after the two-year program.

We identified four evaluations of transitional housing programs, which all lacked rigorous evaluation designs with comparison groups (Duncan et al., 2008; Jones, 2011; Pierce et al., 2014; Upshur, 1985; 1986). These generally reported pre-post improvements across a range of desired outcomes, such as well-being, positive connections, education and employment, and health. Among the two transitional housing evaluations for which attrition information (information about those who left the program before intended) was reported, the rates of youth leaving the programs early were high (57–87%; Duncan et al., 2008; Pierce et al., 2014).

Summary: Overall, rigorous and long-term evaluation of shelter and housing programs for improving young people's housing stability, especially for periods after the programs end, is lacking. Experimental evaluation of a rental assistance and support program and quasi-experimental evaluations of supportive housing programs show promising results for improving housing stability. Low-rigor evaluations of transitional housing programs also reported promising results for various outcomes, but high attrition rates and a lack of comparison group warrant higher degrees of caution with interpretation. Other shelter and housing models lacked evaluation with this population.

3.3.4. Individual counseling and treatment

Number and location of studies: The largest number of included studies in this review evaluated individual counseling and treatment programs, i.e., 23 unique studies (reported by 29 publications) evaluated 21 interventions. Two evaluations took place in Canada, one in Mexico, one in South Korea, and the remaining in the U.S.

Description of evidence: The evaluations of counseling and treatment programs focused on improving mental health, reducing health risk behaviors, or both. The studies were relatively short-term, ranging from less than a week (Peterson, Baer, Wells, Ginzler, & Garrett, 2006; Bender et al., 2016) to about six months (Slesnick et al., 2013b; Slesnick, Prestopnik, Meyers, & Glassman, 2007; Fors & Jarvis, 1995). Intensity ranged from a single session (Peterson et al., 2006) to 24 sessions (McCay et al., 2015). Nearly all interventions were manualized. Interventions were delivered either through individual (n = 11) or group (n = 10) sessions; one intervention (McCay et al., 2015) involved 12 individually administered sessions and 12 group-based sessions. Unlike family interventions, these interventions exclusively focused on youth-level behavioral changes. Most were delivered as complementary interventions to front-end services, such as street outreach programs, drop-in centers, or shelters. The interventions can be broadly sub-grouped according to their length and objectives as: *brief interventions* (involving fewer than six sessions or less than one month of duration), *more intensive health-risk reduction treatment*, and *more intensive mental health treatment*. Across subgroups, nearly all of these interventions showed positive effects on at least some outcomes.

The evidence indicates that brief interventions (usually motivational interventions aimed at using brief contacts and education to encourage specific behaviors) tend to yield short-term improvements in attitudes about risk behaviors and aspects of social-emotional well-being. Notably, there were no randomized evaluations of intensive mental health interventions specifically with youth experiencing homelessness in the U.S. The two randomized evaluations of mental health treatments for youth experiencing homelessness, both of which involved cognitive-behavioral therapies (CBT) with youth in shelters, found positive effects on mental health in Mexico and South Korea (Shein-Szydlo et al., 2016; Hyun, Chung, & Lee, 2005). Health risk reduction interventions (mostly focused on HIV and substance use behaviors) all showed at least some positive effect. While intervention effects for specific subpopulations were rarely analyzed or disaggregated, Grafsky, Letcher, Slesnick, and Serovich (2011) conducted secondary data analysis of a randomized trial of the Community Reinforcement Approach (CRA) with street-living youth and found that gay, lesbian, and bisexual youth reported even greater reductions in

drug use and depressive symptoms than other participants.

Summary: A relatively large number of studies, including several randomized trials, of individual counseling and treatment interventions revealed improvements in mental health and reductions in substance use and sexual risk behaviors among youth experiencing homelessness. Evidence on how these interventions affect homelessness and housing instability, and their long-term outcomes overall, is generally lacking.

3.3.5. Non-housing case management and support

Number and location of studies: Eight studies (reported in nine publications) evaluated eight programs involving youth-centered case management with complementary supports and services with no specific shelter or housing component. Five evaluations took place in the U.S. (Valentine et al., 2015; Skemer & Jacobs, 2016; Theodos, Pergamit, Derian, Edelstein, & Stolte, 2016; Cuace et al., 1994; Haber, Karpur, Deschenes, & Clark, 2008; Powell, Ellasante, Korchmaros, Haverly, & Stevens, 2016), one in the Netherlands (Krabbenborg et al., 2015), and one in Australia (Borland, Tseng, & Wilkins, 2013). Two programs included flexible funds, which provide need-based financial assistance (Valentine et al., 2015; Cauce et al., 1994) and all interventions generally emphasized caring supportive adult relationships with youth, offering individual counseling and service navigation, and providing therapeutic or mental health support.

Description of the evidence: Four evaluations, including two randomized studies (Valentine et al., 2015; Theodos et al., 2016) reported positive results for housing stability outcomes despite the absence of any specific housing intervention. Each of these improvements in housing stability-related outcomes had accompanying improvements in other outcome areas (e.g., mental health, school enrollment, or employment) and null effects in others. These differences were not always consistent between studies.

Two studies examined outcomes for high-risk subpopulations. Although not focused on parents exclusively, approximately one-third of the Promotor Pathway Program evaluation sample were parents (Theodos et al., 2016), and the study found higher program engagement among parents than non-parents. One pre-post study without a comparison group (Powell et al., 2016) was unique in its lesbian, gay, bisexual, transgender, and queer (LGBTQ) subpopulation focus. It evaluated an intensive case management and treatment intervention specifically designed for LGBTQ youth and found improvements in mental health, employment, and housing stability, but the evidence can only be viewed as suggestive without a credible counterfactual.

Unlike the other evaluations of interventions involving case management, one trial of a case management program, YP4, for youth experiencing homelessness in Australia (Borland et al., 2013) found no significant intervention effects despite measurement of a wide range of outcomes over a 36-month period. The authors posited that the absence of effects could have been due to a relatively minimal case management approach and high caseloads due to resource constraints (Borland et al., 2013: 483). At any given time, the YP4 intervention had six to eight case managers assigned to the treatment group across four sites, which translates to caseloads of 30 to 40, with a treatment group target of 240. By comparison, the Transition Specialists in the YVLifeSet program (Valentine et al., 2015) had caseloads ranging from about 8 to 15 youth and the promotores—mentors and advocates for youth—in the PPP model (Theodos et al., 2016) had average caseloads of about 11 youth. Further, with YP4, uptake was relatively low, with 20% of the treatment group never having met with their case manager and more than 50% having met with their case manager on average only once every 6 months during the trial.

Similarly, a trial of an indirect (staff training-based) strengths-based intervention, Houvast, for young adults experiencing homelessness also failed to demonstrate positive intervention effects on any of the measured outcomes (Krabbenborg et al., 2015). This also involved a comparatively minimal intervention inasmuch as it did not entail significant interventions at the individual youth level. Instead, it focused on strengthening the capacity of shelter staff through training to deliver more strength-based programming using existing spaces and resources.

Summary: Of the eight included studies evaluating case management and counseling interventions, four involved randomized trials. These evaluations generally show positive effects on a range of youth outcomes, including reducing homelessness, but effects were frequently mixed (some outcomes positively impacted and others null), and less intensive case management interventions failed to demonstrate positive effects (two studies).

3.3.6. Economic and employment programs

Number and location of studies: Four studies reported in six publications (Ferguson, 2012, Ferguson, Xie, & Glynn, 2012; Ferguson, 2017; Ferguson, 2013; Ferguson, 2018; Ferguson & Xie, 2008), assessed the effects of two economic and employment programs on employment outcomes for youth experiencing homelessness in the U.S. The interventions, Social Enterprise Intervention (SEI) and Individual Placement Support (IPS), included a combination of classroom-based and experiential vocational learning along with mental health services delivered over a 20-month period. The SEI focused on business development and the IPS on wage employment.

Description of evidence: Two studies assessed employment outcomes. Ferguson (2013) found that the group of homeless young adults with mental illness participating in IPS was significantly more likely than the control group to have worked at some point during the 10-month study period and to have worked a greater number of months overall. However, no significant between-group differences were found for weekly working hours or weekly income. The 2018 study reported no statistically significant pre-post changes in employment outcomes for the IPS or SEI group.

The other SEI and IPS studies measured social-emotional well-being outcomes. Ferguson (2012) reported statistically significant positive intervention effects of SEI, compared with control, for life satisfaction and family support and no statistically significant improvements for peer support and depression. Ferguson (2017) found that both the SEI and IPS groups reported statistically significant improvements at follow-up with respect to self-esteem, attention-deficit/hyperactivity disorder (ADHD) problems, and inattention problems. At follow-up, both groups were also less likely to be living in a shelter and more likely to be living in a private residence during the last three months. No statistically significant changes were found for social support, and no statistically significant between-group differences emerged for any outcomes, suggesting a lack of evidence to support favoring one approach over the other for addressing these psychosocial outcomes.

Summary: Very little research assesses the effects of economic and employment interventions with youth experiencing homelessness. The evidence base on youth employment programs for this population is inconclusive.

3.3.7. Outreach and service connection interventions

Number and location of studies: One study (reported in three publications) evaluated two variations of a single outreach program in the U.S. (Slesnick et al., 2016; Slesnick, Zhang, & Brakenhoff, 2017; Guo & Slesnick, 2017) that compared strengths-based street outreach and advocacy combined with linkage either to shelter or drop-in among youth experiencing homelessness. The shelters were primarily adult homeless shelters.

Description of the evidence: Youth receiving the linkage to drop-in centers had higher numbers of service linkages overall and greater improvements in some substance use and HIV-related outcomes compared with youth in crisis shelter (Slesnick et al., 2016). Irrespective of the connection, participants in outreach programs reported decreased substance use and depression along with increased self-efficacy and general physical and mental health (Slesnick et al., 2016). These overall gains imply benefits related to strength-based outreach and advocacy regardless of the origin of the service connection. Because these studies

lacked a control group, however, we cannot rule out the possibility that improvements were due to factors other than the intervention. A secondary analysis indicated that improvements in self-efficacy functioned as statistically significant pathways through which the strengths-based outreach and advocacy intervention appeared to improve housing stability and mental health outcomes (Slesnick et al., 2017).

Summary: Very little research examines the effectiveness of outreach services intended to engage young people who experience homelessness and connect them to services and supports. The evidence base on outreach programs for this population is inconclusive.

4. Discussion

This systematic review offers the most comprehensive and up-to-date synthesis of the effectiveness evidence on interventions to prevent or address youth homelessness. We identified and reviewed nearly 4,400 potentially relevant studies and, following screening, included 66 publications representing 53 unique effectiveness studies of 54 interventions. This reveals a substantial growth in the evaluative evidence base since the completion of a similar review conducted by Altena and colleagues (2008), which included 11 effectiveness studies. Studies completed since Altena's review also reveal new intervention insights, such as the promise of homelessness prevention practices embedded with "upstream" systems (such as schools and child welfare), the value of quality case management for supporting youths' housing stability and well-being, and the promise of rental assistance and youth-centered supportive housing for increasing youths' housing stability.

Despite substantial growth in the evidence base, we identified few rigorous evaluations of interventions to prevent and address youth homelessness, and few studies included long-term follow-up assessments of outcomes. As such, the evidence for what does and what does not work, should be considered emerging and suggestive. Many of the cautions made by Altena and colleagues regarding lack of rigor and conclusiveness from the evidence base remain pertinent. As we discuss below, much more investment is needed in rigorous evaluation of these interventions to inform more conclusive policy and practice decisions about which interventions to employ for particular outcomes, populations, and contexts.

With that important reminder, the growing evidence base does point to some promising directions and approaches warranting additional evaluation. For example, although the prevention evidence base is thin, all three of the interventions that incorporated methods for identifying at-risk populations of youth homelessness and aligning tailored supports and services to meet their needs succeeded in reducing the likelihood of these youth experiencing homelessness. When adequately resourced for individualized relationships and supportive services, intensive case management and mentoring programs had positive effects not only on housing stability, but also on a range of other outcomes. Additionally, various individual counseling and treatment interventions were associated with short-term improvements in risk-related knowledge and behaviors as well as social-emotional well-being. In and of themselves, these gains may be insufficient and too short-lived to help youth escape homelessness without further intervention; nonetheless, the study results suggest that modest interventions can support harm reduction and improve well-being amidst a highly vulnerable time in the lives of young people, and therefore, many of these interventions can serve as useful complements to broader systems of support.

This review also reveals clear evidence gaps and areas for coordinated action by practitioners, funders, policymakers, and researchers. In particular, more rigorous evaluation of the effects of family interventions, developmentally appropriate shelter and housing models, outreach interventions, and education and employment programs on preventing and reducing youth homelessness and contributing to young people's long-term well-being are greatly needed. The evidence base in these areas was weak, lacking rigorous studies, and inconclusive. As advised by the Medical Research Council's Framework for Developing and Evaluating Complex Interventions, it is often appropriate to start with formative research and lower-rigor studies and build up to more large-scale randomized effectiveness evaluations (Craig et al., 2008). This approach could similarly make sense for a range of housing and support interventions for addressing youth homelessness. Lower rigor studies included in this review could serve as useful antecedents to more rigorous, large-scale, and long-term evaluations. This review, however, indicates that progress toward rigorous evaluation of impacts on youth homelessness and related outcomes—especially longer-term effects following the conclusion of programs—has rarely been achieved with most intervention models currently implemented.

Most program evaluations did not focus directly on assessing what might end homelessness among youth who experience it. Only 36% of the included evaluations measured housing outcomes such as housing stability or homelessness. Even fewer (17%) evaluated housing programs. This finding highlights a misalignment between investments in interventions by federal, state, and local government, as well as philanthropy, and their evaluation. The lack of rigorous evaluations of our public investments in shelters and housing to address homelessness means we are missing opportunities to spend our resources effectively and help our young people gain stable housing.

In addition, this review reveals significant evidence gaps with respect to interventions tailored to, or tested for, specific subpopulations and contexts. Recent national evidence demonstrates that certain subpopulations—particularly Black and Hispanic youth, LGBTQ youth, and pregnant and parenting youth—are at significantly higher risk for experiencing homelessness compared to their peers (Morton et al., 2018; Olivet et al., 2018). However, evaluations rarely addressed these disproportionate risks. For example, no included studies involved interventions specifically designed to target or to be culturally sensitive to American Indian or Alaska Native, Black, or Hispanic communities, nor did they conduct moderator analyses based on race or ethnicity to examine whether these subpopulations benefited similarly or differently from interventions compared to their peers. This could be a useful opportunity for secondary data analysis based on many of the existing evaluations.

Two studies specifically evaluated intervention effects for LGBTQ youth (Powell et al., 2016; Grafsky et al., 2011). The studies reported promising improvements in a range of youth outcomes, but one (Powell et al.) lacked a comparison group, and, given the small evidence base, more rigorous evaluation is needed to understand the effects of interventions on LGBTQ young people. The literature has an especially notable absence of evidence on interventions to prevent homelessness among LGBTQ youth given the substantially higher risk for homelessness these youth face in comparison to their non-LGBTQ peers.

Further, we identified no eligible studies of interventions specifically designed for, or tested with, youth experiencing homelessness in rural communities. This is striking considering that recent national evidence shows that youth homelessness is similarly prevalent in rural communities as it is in non-rural communities (Morton et al., 2018). The literature underscores the need for tailored interventions and service delivery models to address youth homelessness in rural contexts given greater hiddenness of these youths' experiences and more limited service infrastructure spread over a wider terrain (Skott-Myhre, Raby, & Nikolaou, 2008).

5. Limitations

Despite the comprehensiveness of this systematic evidence review, there are several limitations. First, the search strategies were conducted in English only, and, while we tried to include international outreach, the majority of the review team's relevant professional network is domestic (and 83% of studies were as well). We may have missed relevant studies available only in other languages. Moreover, although our

professional outreach and online searches for relevant studies were extensive, many local agencies, researchers, and funders produce unpublished studies that are difficult to find and might not be known to national experts.

The comprehensiveness of the review is both a strength and a limitation. On the positive side, we captured and synthesized the evidence from a broad range of evaluations relevant to a variety of stakeholders in the work to end youth homelessness. However, from the standpoint of manageability, the synthesis lacks significant depth for any particular intervention or outcome area and instead aims to summarize more generally the evidence. Going forward, subject to resources, it may be useful to provide deeper analysis of the identified evidence for specific intervention or outcome areas for specific audiences. Relatedly, because of the breadth and heterogeneity of interventions, outcomes, and evaluation designs included, we also did not conduct any statistical meta-analysis of intervention effects and instead used descriptive tables and narrative synthesis to organize, rather than meta-analyze the evidence base within different intervention categories. In addition, we included numerous studies with no and low experimental control; we believe this work can help guide more rigorous future programmatic and research designs. At the same time, we repeat our earlier caution that observational studies must be interpreted with care.

Despite its relative comprehensiveness, the review still had important intentional omissions to keep the endeavor reasonably focused and manageable. For example, we do not synthesize evidence on interventions that addressed probable risk or protective factors for homelessness alone. To be eligible for inclusion, a study must have either tested effects directly on preventing youth homelessness or on other outcomes among youth currently experiencing homelessness. Finally, this review was limited to effectiveness studies. Although we searched for and included process evaluations, we will synthesize and report on those later.

6. Conclusion

Effective and efficient strategies to prevent and end youth homelessness require a robust evidence base to inform decision-making. This review finds that the largest evidence base on the effectiveness of interventions for addressing youth homelessness relates to counseling and treatment interventions to address mental health or health risk behaviors. Overall, these studies showed promising results, but few included long-term follow-up. A small number of experimental and quasi-experimental studies demonstrated that interventions can make a difference in preventing and reducing youth homelessness and housing instability, including through rental assistance with wraparound supports, supportive housing, and even intensive case management without direct housing assistance. Yet, we conclude that the field lacks rigorous evaluative evidence for many of the program models on which communities and governments currently rely to address youth homelessness (for example, street outreach, transitional living programs, youth shelters, host homes, and rapid rehousing). Evaluative evidence is further lacking on how the results of interventions vary by subpopulations inequitably exposed to homelessness, such as Youth of Color, LGBTQ-identifying youth, and pregnant and parenting youth.

Although we decry the lack of rigorous trials, the prevalence of youth homelessness and its attendant concerns necessitate current and immediate action. We cannot await the development of rigorous evidence to fully guide policy and program decisions, and there is a robust community of young people with lived expertise whose input is critical both to policy and program design as well as the attainment of measurable and sustainable solutions. Evidence-based decision-making to help prevent and end youth homelessness requires strategic investments in building the evidence base in these areas.

Availability of data and materials

The data supporting the findings are provided in Appendix A. A database of the search strategy records is available upon request from the corresponding author.

Ethics approval and participation consent

Prior to beginning research, the [**University of Chicago School of Social Service Administration and Chapin Hall**] Institutional Review Board issued a non-human subjects determination for this study (IRB18-0847).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

This research is the result of a collaboration involving the Voices of Youth Count (VoYC) team from Chapin Hall and many partners. The VoYC initiative is made possible through a grant from U.S. Department of Housing and Urban Development Office of Policy Development and Research (PD&R, grant no. RP-16_IL-001) and generous support from Chapin Hall, Arcus Foundation (grant no. G-PGM-1511-1561), Ballmer Group Philanthropy, Campion Foundation, Casey Family Programs (grant no. FY14-1060), Dr. Inger Davis, Elton John AIDS Foundation (grant no. 5202-00-00), Melville Charitable Trust (grant no. 2015-015), Liberty Mutual Foundation, and Raikes Foundation (grant no. 281). This review was also funded by the Family and Youth Services Bureau of the Department of Health and Human Services via a cooperative agreement with the Runaway and Homeless Youth Training and Technical Assistance Center (RHYTTAC) as operated by National Safe Place Network.

Disclaimer

The substance and findings of the work are dedicated to the public. The authors are solely responsible for the accuracy of the opinions, statements, and interpretations contained in this publication, and these do not necessarily reflect the views of the government or any of Chapin Hall's partners.

Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.childyouth.2020.105096.

References

Altena, A. M., Brilleslijper-Kater, S. N., & Wolf, J. R. (2010). Effective interventions for homeless youth: A systematic review. *American Journal of Preventive Medicine, 38*(6), 637–645.

Auerswald, C. L., Lin, J. S, & Parriott, A. (2016). Six-year mortality in a street-recruited cohort of homeless youth in San Francisco, California. PeerJ, Apr 14, 4:e1909.

Babic, A., Vuka, I., Saric, F., Proloscic, I., Slapnicar, E., Cavar, J., ... Puljak, L. (2020). Overall bias methods and their use in sensitivity analysis of Cochrane reviews were not consistent. *Journal of Clinical Epidemiology, 119*, 57–64. https://doi.org/10.1016/j.jclinepi.2019.11.008.

Cochrane Effective Practice and Organisation of Care (EPOC). (2017). How to develop a search strategy for an intervention review. EPOC Resources for review authors. epoc.cochrane.org/resources/epoc-resources-review-authors (accessed August 1, 2018).

Cochrane Effective Practice and Organisation of Care (EPOC). (2017). What study designs can be considered for inclusion in an EPOC review and what should they be called? EPOC Resources for review authors. epoc.cochrane.org/resources/epoc-resources-review-authors (accessed February 14, 2020).

Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: The new medical research council guidance. *BMJ, 337*, a1655.

Dettlaff, A. J., McCoy, H., Holzman, J., Fulambarker, A., Repp, A., & Ibrahima, A. (2017). *Outcomes of interventions for youth experiencing homelessness in stable housing, permanent connections, education, employment, and well-being: A systematic review.* Chicago, IL: Jane Addams College of Social Work, University of Illinois at Chicago.

Greene, J. M., & Ringwalt, C. L. (1998). Pregnancy among three national samples of runaway and homeless youth. *Journal of Adolescent Health, 23*(6), 370–377. https://

doi.org/10.1016/S1054-139X(98)00071-8.
Greene, J. M., Ennett, S. T., & Ringwalt, C. L. (1997). Substance use among runaway and homeless youth in three national samples. *American Journal of Public Health, 87*(2), 229–235.
Heerde, J. A., Hemphill, S. A., & Scholes-Balog, K. E. (2014). 'Fighting'for survival: A systematic review of physically violent behavior perpetrated and experienced by homeless young people. *Aggression and Violent Behavior, 19*, 50–66.
Higgins, J. P. T., Thomas, J., Chandler, J., Cumpston, M., Li, T., Page, M.J., & Welch, V. A. (Eds.). Cochrane handbook for systematic reviews of interventions version 6.0 (updated July 2019). Cochrane, 2019. Available from www.training.cochrane.org/handbook.
Hodgson, K. J., Shelton, K. H., Bree, M. B. M. v. d., & Los, F. J. (2013). Psychopathology in young people experiencing homelessness: A systematic review. American Journal of Public Health, 103(6), e24-e37. doi:10.2105/ajph.2013.301318.
Kohatsu, N. D., Robinson, J. G., & Torner, J. C. (2004). Evidence-based public health: An evolving concept. *American Journal of Preventive Medicine, 27*(5), 417–421.
Kugley, S., Wade, A., Thomas, J., Mahood, Q., Jørgensen, A. M. K., Hammerstrøm, K., & Sathe, N. (2016). *Searching for studies: A guide to information retrieval for Campbell.* Campbell Systematic Reviews.
Medlow, S., Klineberg, E., & Steinbeck, K. (2014). The health diagnoses of homeless adolescents: A systematic review of the literature. *Journal of Adolescence, 37*(5), 531–542. https://doi.org/10.1016/j.adolescence.2014.04.003.
Morton, M. H., Dworsky, A., & Samuels, G. M. (2017). *Missed opportunities: Youth homelessness in America. National estimates.* Chicago, IL: Chapin Hall at the University of Chicago.
Morton, M. H., Dworsky, A., Matjasko, J. L., Curry, S. R., Schlueter, D., Chávez, R., & Farrell, A. F. (2018). Prevalence and correlates of youth homelessness in the United States. *Journal of Adolescent Health, 62*(1), 14–21. https://doi.org/10.1016/j.jadohealth.2017.10.006.
Olivet, J., Dones, M., Richard, M., Wilkey, C., Yampolskaya, S., Beit-Arie, M., & Joseph, L. (2018). *Phase one study findings: Supporting partnerships for anti-racist communities (SPARC).* Boston, MA: Center for Social Innovation.
Skott-Myhre, H. A., Raby, R., & Nikolaou, J. (2008, April). "Towards a delivery system of services for rural homeless youth: A literature review and case study." In Child & Youth Care Forum (Vol. 37, No. 2, pp. 87-102). Springer US.
U.S. Department of Housing and Urban Development (HUD). (2016). Ending Youth Homelessness: Promising Program Models. Washington, DC: Author.
U.S. Interagency Council on Homelessness (USICH). (2012). Federal Framework to End Youth Homelessness. Washington, D.C.: Author.
Villar, P. F., & Waddington, H. (2019). Within study comparisons and risk of bias in international development: Systematic review and critical appraisal. *Campbell Systematic Reviews, 15*(1–2), e1027. https://doi.org/10.1002/cl2.1027.
Waddington, H., White, H., Snilstveit, B., Hombrados, J. G., Vojtkova, M., Davies, P., ... Tugwell, P. (2012). How to do a good systematic review of effects in international development: A tool kit. *Journal of Development Effectiveness, 4*(3), 359–387. https://doi.org/10.1080/19439342.2012.711765.
Watters, C., & O'Callaghan, P. (2016). Mental health and psychosocial interventions for children and adolescents in street situations in low-and middle-income countries: A systematic review. *Child Abuse & Neglect, 60*, 18–26.
Wilson, D. B., Gill, C., Olaghere, A., & McClure, D. (2016). Juvenile curfew effects on criminal behavior and victimization: A systematic review. *Campbell Systematic Reviews, 2016*, 3.
Woan, J., Lin, J., & Auerswald, C. (2013). The health status of street children and youth in low-and middle-income countries: A systematic review of the literature. *Journal of Adolescent Health, 53*(3), 314–321.

References for included studies

Bender, K. A., DePrince, A., Begun, S., Hathaway, J., Haffejee, B., & Schau, N. (2016). Enhancing risk detection among homeless youth: A randomized clinical trial of a promising pilot intervention. *J Interpers Violence*.
Borland, J., Tseng, Y.-P., & Wilkins, R. (2013). Does coordination of welfare services delivery make a difference for extremely disadvantaged jobseekers? Evidence from the 'YP4' trial. *Economic Record, 89*(287), 469–489.
Cauce, A. M., Morgan, C. J., Wagner, V., Moore, E., Sy, J., Weeden, K., ... Tomlin, S. (1994). Effectiveness of intensive case management for homeless adolescents: Results of a 3-month follow-up. *Journal of Emotional and Behavioral Disorders, 2*(4), 219–227.
Clark, H. B., Crosland, K. A., Geller, D., Cripe, M., Kenney, T., Neff, B., & Dunlap, G. (2008). A functional approach to reducing runaway behavior and stabilizing placements for adolescents in foster care. *Research on Social Work Practice, 18*(5), 429–441.
Davis, M., Sheidow, A. J., & McCart, M. R. (2015). Reducing recidivism and symptoms in emerging adults with serious mental health conditions and justice system involvement. *The Journal of Behavioral Health Services & Research, 42*(2), 172–190. https://doi.org/10.1007/s11414-014-9425-8.
Duncan, B., Harris, G., Reedy, J., Krahe, S., Gillis, R., & Laguna, M. (2008). Common/unity: An innovative program to address 3 root causes of many of the social ills seen in adolescents. *Clin Pediatr (Phila), 47*(3), 280–288.
Ferguson, K., Xie, B., & Glynn, S. (2012). Adapting the individual placement and support model with homeless young adults. *Child & Youth Care Forum, 41*(3), 277–294.
Ferguson, K. M. (2012). Merging the fields of mental health and social enterprise: Lessons from abroad and cumulative findings from research with homeless youths. *Community Mental Health Journal, 48*(4), 490–502.
Ferguson, K. M. (2013). Using the social enterprise intervention (SEI) and individual placement and support (IPS) models to improve employment and clinical outcomes of homeless youth with mental illness. *Soc Work Ment Health, 11*(5).
Ferguson, K. M. (2017). Nonvocational outcomes from a randomized controlled trial of two employment interventions for homeless youth. *Research on Social Work Practice, 1–16*. https://doi.org/10.1177/1049731517709076.
Ferguson, K. M. (2018). Employment outcomes from a randomized controlled trials of two employment interventions with homeless youth. *Journal of the Society for Social Work and Research, 9*(1).
Ferguson, K. M., & Xie, B. (2008). Feasibility study of the social enterprise intervention with homeless youth. *Research on Social Work Practice, 18*(1), 5–19.
Fors, S. W., & Jarvis, S. (1995). Evaluation of a peer-led drug abuse risk reduction project for runaway/homeless youths. *Journal of Drug Education, 25*(4), 321–333. https://doi.org/10.2190/tu92-lx8w-g7fd-9lem.
Grafsky, E. L., Letcher, A., Slesnick, N., & Serovich, J. M. (2011). Comparison of treatment response among GLB and non-GLB street-living youth. *Children & Youth Services Review, 33*(5), 569–574.
Guo, X., & Slesnick, N. (2017). Reductions in hard drug use among homeless youth receiving a strength-based outreach intervention: Comparing the long-term effects of shelter linkage versus drop-in center linkage. *Substance Use & Misuse, 52*(7), 905–915. https://doi.org/10.1080/10826084.2016.1267219 Epub 2017 Feb 22.
Guo, X., Slesnick, N., & Feng, X. (2014). Reductions in depressive symptoms among substance-abusing runaway adolescents and their primary caretakers: A randomized clinical trial. *Journal of Family Psychology, 28*(1), 98–105.
Haber, M. G., Karpur, A., Deschenes, N., & Clark, H. B. (2008). Predicting improvement of transitioning young people in the partnerships for youth transition initiative: Findings from a multisite demonstration. *The Journal of Behavioral Health Services & Research, 35*(4), 488–513.
Harper, G. W., Tyler, D., Vance, G. J., & Dinicola, J. (2015). A family reunification intervention for runaway youth and their parents/guardians: The home free program. *Child & Youth Services, 36*(2), 150–172.
Hyun, M. S., Chung, H. I., & Lee, Y. J. (2005). The effect of cognitive-behavioral group therapy on the self-esteem, depression, and self-efficacy of runaway adolescents in a shelter in South Korea. *Applied Nursing Research, 18*(3), 160–166. https://doi.org/10.1016/j.apnr.2004.07.006.
Jones, L. (2011). The impact of transitional housing on the post-discharge functioning of former foster youth. *Residential Treatment for Children & Youth, 28*(1), 17–38.
Kisely, S. R., Parker, J. K., Campbell, L. A., Karabanow, J., Hughes, J. M., & Gahagan, J. (2008). Health impacts of supportive housing for homeless youth: A pilot study. *Public Health, 122*(10), 1089–1092.
Kozloff, N., Adair, C. E., Lazgare, L. I. P., Poremski, D., Cheung, A. H., Sandu, R., & Stergiopoulos, V. (2016). "Housing first" for homeless youth with mental illness. *Pediatrics, 138*(4), e20161514.
Krabbenborg, M. A. M., Boersma, S. N., van der Veld, W. M., van Hulst, B., Vollebergh, W. A. M., & Wolf, J. R. L. M. (2015). A cluster randomized controlled trial testing the effectiveness of houvast: A strengths-based intervention for homeless young adults. *Research on Social Work Practice,* 1–14.
Kroner, M. J., & Mares, A. S. (2011). Living arrangements and level of care among clients discharged from a scattered-site housing-based independent living program. *Children & Youth Services Review, 33*(2), 405–415. https://doi.org/10.1016/j.childyouth.2010.11.001.
Lim, S., Singh, T. P., & Gwynn, R. C. (2017). Impact of a supportive housing program on housing stability and sexually transmitted infections among New York City young adults aging out of foster care. *American Journal of Epidemiology*. https://doi.org/10.1093/aje/kwx046.
MacKenzie, D. (2018). Interim report: The geelong project 2016-2017. Melbourne, Australia.
MacKenzie, D., & Thielking, M. (2013). The geelong project: A community of schools and youth services model for early intervention. Melbourne, Australia.
McCay, E., Carter, C., Aiello, A., Quesnel, S., Langley, J., Hwang, S., ... Karabanow, J. (2015). Dialectical behavior therapy as a catalyst for change in street-involved youth: A mixed methods study. *Children & Youth Services Review, 58*, 187–199.
Milburn, N. G., Iribarren, F. J., Rice, E., Lightfoot, M., Solorio, R., Rotheram-Borus, M. J., ... Duan, N. (2012). A family intervention to reduce sexual risk behavior, substance use, and delinquency among newly homeless youth. *Journal of Adolescent Health, 50*(4), 358–364.
Peterson, P. L., Baer, J. S., Wells, E. A., Ginzler, J. A., & Garrett, S. B. (2006). Short-term effects of a brief motivational intervention to reduce alcohol and drug risk among homeless adolescents. *Psychology of Addictive Behaviors, 20*(3), 254–264. https://doi.org/10.1037/0893-164x.20.3.254.
Pierce, S., Grady, B., & Holtzen, H. (2014). Impact evaluation and roadmap to youth housing. Retrieved from Dayton, OH.
Powell, C., Ellasante, I., Korchmaros, J. D., Haverly, K., & Stevens, S. (2016). iTEAM: Outcomes of an affirming system of care serving LGBTQ youth experiencing homelessness. *Families in Society: The Journal of Contemporary Social Services, 97*(3), 181–190.
Raithel, J., Yates, M., Dworsky, A., Schretzman, M., & Welshimer, W. (2015). Partnering to leverage multiple data sources: Preliminary findings from a supportive housing impact study. *Child Welfare, 94*(1), 73–85.
Shein-Szydlo, J., Sukhodolsky, D. G., Kon, D. S., Tejeda, M. M., Ramirez, E., & Ruchkin, V. (2016). A randomized controlled study of cognitive-behavioral therapy for post-traumatic stress in street children in Mexico City. *Journal of Traumatic Stress, 29*(5), 406–414.
Skemer, M., & Jacobs, E. (2016). *Striving for independence: Two-year impact findings from the youth villages transitional living evaluation.* New York: MDRC.
Slesnick, N., Erdem, G., Bartle-Haring, S., & Brigham, G. S. (2013). Intervention with substance-abusing runaway adolescents and their families: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 81*(4), 600–614.
Slesnick, N., Feng, X., Guo, X., Brakenhoff, B., Carmona, J., Murnan, A., ... McRee, A. L.

(2016). A test of outreach and drop-in linkage versus shelter linkage for connecting homeless youth to services. *Prevention Science, 17*(4), 450–460.
Slesnick, N., Guo, X., & Feng, X. (2013). Change in parent- and child-reported internalizing and externalizing behaviors among substance abusing runaways: The effects of family and individual treatments. *Journal of Youth and Adolescence, 42*(7), 980–993.
Slesnick, N., & Prestopnik, J. L. (2009). Comparison of family therapy outcome with alcohol-abusing, runaway adolescents. *J Marital Fam Ther, 35*(3), 255–277.
Slesnick, N., Prestopnik, J. L., Meyers, R. J., & Glassman, M. (2007). Treatment outcome for street-living, homeless youth. *Addictive Behaviors, 32*(6), 1237–1251. https://doi.org/10.1016/j.addbeh.2006.08.010.
Slesnick, N., Zhang, J., & Brakenhoff, B. (2017). Personal control and service connection as paths to improved mental health and exiting homelessness among severely marginalized homeless youth. *Children & Youth Services Review, 73*, 121–127.
Theodos, B., Pergamit, M., Derian, A., Edelstein, S., & Stolte, A. (2016). *Solutions for youth: An evaluation of the latin american youth center's promotor pathway program.* Washington, D.C.: Urban Institute.
Trout, A. L., Tyler, P. M., Stewart, M. C., & Epstein, M. H. (2012). On the way home: Program description and preliminary findings. *Children & Youth Services Review, 34*(6), 1115–1120.
Upshur, C. C. (1985). Independent living demonstration. Retrieved from Boston, MA.
Upshur, C. C. (1986). Residential independent living project evaluation. Second year follow-up report. Retrieved from Boston, MA.
Valentine, E. J., Skemer, M., & Courtney, M. (2015). Becoming adults: One-year impact findings from the youth villages transitional living evaluation. New York: MDRC.
Winland, D., Gaetz, S., & Patton, T. (2011). Family matters: Homeless youth & Eva's initiative's family reconnect program. Canadian Homelessness Research Network.