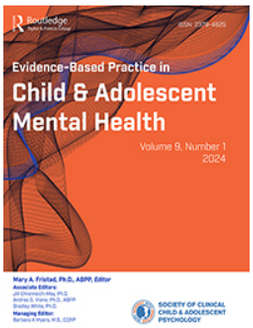

Routledge
Taylor & Francis Group

Evidence-Based Practice in Child and Adolescent Mental Health

ISSN: 2379-4925 (Print) 2379-4933 (Online) Journal homepage: www.tandfonline.com/journals/uebh20

Mental Health Prevention and Treatment Programs for Infants Experiencing Homelessness: A Systematic Review

Megan M. Hare, Taylor D. Landis, Melissa Hernandez & Paulo A. Graziano

To cite this article: Megan M. Hare, Taylor D. Landis, Melissa Hernandez & Paulo A. Graziano (2024) Mental Health Prevention and Treatment Programs for Infants Experiencing Homelessness: A Systematic Review, Evidence-Based Practice in Child and Adolescent Mental Health, 9:1, 162-172, DOI: 10.1080/23794925.2023.2169971

To link to this article: https://doi.org/10.1080/23794925.2023.2169971

EVIDENCE-BASED PRACTICE IN CHILD AND ADOLESCENT MENTAL HEALTH
2024, VOL. 9, NO. 1, 162–172
https://doi.org/10.1080/23794925.2023.2169971

Routledge
Taylor & Francis Group

Mental Health Prevention and Treatment Programs for Infants Experiencing Homelessness: A Systematic Review

Megan M. Hare[a], Taylor D. Landis[a,b,c], Melissa Hernandez[a], and Paulo A. Graziano[a]

[a]Center for Children and Families, Department of Psychology, Florida International University, Miami, FL, USA; [b]Department of Pediatrics, Baylor College of Medicine, Houston, TX, USA; [c]Psychology Service, Texas Children's Hospital

ABSTRACT

Experiencing homelessness in infancy has been linked to negative physical and mental health outcomes. Parental well-being and the parent–infant relationship can also be negatively impacted by experiencing homelessness. While numerous parent-based infant mental health programs have been identified by a recent review, the goal of this study was to further determine the extent to which these existing programs were developed and/or examined with at-risk populations such as families experiencing homelessness. Out of 60 programs identified by Hare et al., 2023, only three had been implemented specifically in shelter settings with infants 0–12 months (Parent-Infant Psychotherapy, New Beginnings, and My Baby's First Teacher). Additionally, when examining programs that began in later infancy (after 12 months), only 2 programs were implemented in shelter settings (Incredible Years and Parent–Child Interaction Therapy). Implications for research, policy, and clinicians regarding implementation of evidence-based prevention/treatment programs for parents and their infants experiencing homelessness are discussed.

Infancy (i.e., birth to 2 years) is a sensitive and critical developmental period (Bagner et al., 2012; Uylings, 2006). During this time, neural plasticity occurs at greater rates establishing important circuitry architecture in the brain (Uylings, 2006). Environmental stressors, such as experiencing homelessness, can have longstanding deleterious impacts on children's health and development (Clark et al., 2019; Fanning, 2021). Therefore, maximizing environmental support to optimize development during the first 2 years of life and/or buffer the negative effects of environmental stressors is of utmost importance. The goal of this brief report is to evaluate how well homelessness is represented among infant mental health prevention and treatment programs recently identified by a systematic review (Hare et al., 2023).

Significance of experiencing homelessness for infant outcomes

Infancy is the period when a person is most likely to experience homelessness (Shaw, 2019). A resounding 2.5 million children, or 1 in 30, in the United States (US) experience homelessness every year, with 10% of children being under the age of 1 (Bassuk et al., 2015; Trends, 2019). Poverty and homelessness are among the social conditions most consistently linked to negative health outcomes, with homelessness having a significantly greater impact on infants than low income alone (Clark et al., 2019). These young children experience more internalizing problems, externalizing behaviors, and overall mental health difficulties (Fanning, 2021; Park et al., 2011). More specifically, experiencing homelessness during this critical and sensitive period can have substantial direct and indirect consequences to children's cognitive functioning, behavior, language, and social-emotional development (Knudsen, 2004; Uylings, 2006). Additionally, infants experiencing homelessness are at greater risk for poor nutrition, growth, health outcomes, and developmental delays (Clark et al., 2019; Lieberman & Osofsky, 2009; Madigan et al., 2007; Wood et al., 1990). These negative effects can persist throughout development, creating lifelong consequences (Schilling et al., 2007), and may even result in earlier death (Kerker et al., 2011).

CONTACT Paulo A. Graziano pgrazian@fiu.edu Center for Children and Families & Department of Psychology, Florida International University, 11200 SW 8th Street, AHC 4 Rm. 459, Miami, FL 33199

For families experiencing homelessness, there is an increased risk for maternal mental health problems, substance abuse, and exposure to violence (Gewirtz et al., 2009), with parental mental health being one of the most salient predictors of child mental health problems (Seifer et al., 2000). Mothers experiencing homelessness have greater rates of mental health problems, including high symptoms of trauma (Bassuk et al., 1998; Weinreb et al., 2006; Zima et al., 1996) and greater levels of hopelessness, especially regarding resources and services available (Tischler et al., 2007). These disruptions to parental well-being, and potentially the parent–infant relationship, can lead to an increased risk for language and cognitive impairments, school difficulties, and mental health problems for infants (Goodman et al., 2011; Smith, 2004). Thus, programs targeting infant mental health in shelter settings must incorporate parenting and/or the parent–infant relationship to maximize outcomes. Yet, little work has systematically examined parent-based interventions during infancy within families experiencing homelessness.

The current study

Experiencing homelessness early in life can be detrimental to infant mental health and the parent–infant relationship, making it particularly important to provide parenting interventions to this vulnerable population. However, prior work has not adequately reviewed the extent to which existing programs were developed and/or examined with at-risk populations, such as families with infants experiencing homelessness. Understanding which existing programs may best serve those experiencing homelessness has significant implications not only clinically but also for informing future research and policy. While a recent systematic review examined all parenting programs developed to treat infants 12 months or younger (Hare et al., 2023), the study did not describe how these programs have been examined in vulnerable populations, such as those experiencing homelessness. Therefore, using the list of programs compiled by Hare et al., 2023, the goal of the current study was to describe which of those parenting programs were implemented within a shelter setting and/or included families experiencing homelessness. Examining parenting programs for this vulnerable population is critically important given not only the consistent rise in the number of homeless infants and families but also the well-established higher rates of mental health problems in this population.

Method

The current study examined the 60 prevention and treatment parenting programs included in Hare's systematic review (Hare et al., 2023). All programs included a parenting component and started at or before 12 months of age. The previous systematic review evaluated all programs for level of empirical support, specific to indicators of infant mental health and/or parent–infant relationship/attachment outcomes based on Brownson's typology (Brownson et al., 2009) for classifying programs (see Hare et al., 2023 for full inclusion/exclusion criteria and detailed program descriptions). Brownson's typology was chosen as it emphasizes the weight of evidence and a wider range of considerations beyond efficacy, while placing greater emphasis on evidence from clinical research, especially randomized controlled trials (RCTs). Further, this typology focuses on the implementation of principles of evidence-based public health as being critical for bridging the gap between the discovery of new knowledge and its application. Programs were placed into five categories ranging from least to most effective: Ineffective, Emerging, Promising, Effective, Evidence-based. Programs were classified as ineffective if they met all inclusion criteria, but published studies revealed no improvements in infant mental health or parent–infant relationship/attachment outcomes at post-treatment. Emerging programs included studies with at least one single measure or scale showing infant mental health or parent–infant relationship/attachment improvement pre- to post-treatment or in relation to a comparison group, but did not have to include an RCT. Programs were classified as promising if they included at least 1 RCT, were theoretically grounded, and demonstrated intervention improvements in infant mental health and/or the parent–infant relationship/attachment pre- to post-treatment, or in relation to a comparison group within an RCT, even if only within one single measure or scale. The effective category was defined by having at least 2 RCTs, being theoretically grounded, and demonstrating positive improvements from pre- to

post-treatment or in relation to the comparison group within an RCT for at least 50% of the infant mental health or the parent–infant relationship/attachment outcomes across studies. Lastly programs were classified as evidence-based if they met all criteria for an effective program, with at least three RCTs, and included a meta-analysis or review paper, which demonstrated explicit systematic methods in order to limit bias and reduce chance effects (Oxman & Guyatt, 1993). Further, the meta-analysis or review needed to demonstrate overall positive findings for indicators of infant mental health and/or the parent–infant relationship/attachment outcomes.

Results: implementation in shelter settings/ homelessness

Across all 60 programs identified in the systematic review (Hare et al., 2023), only eight programs (13.3%) included studies that specifically stated they included participants experiencing homelessness. Further, out of those eight programs, four programs have been implemented specifically in shelter settings, with only three (5.0%) being implemented in infants 0–12 months: Parent-Infant Psychotherapy (PIP; Main et al., 1985), New Beginnings (Baradon et al., 2008), and My Baby's First Teacher (MBFT; Herbers & Henderson, 2019; see Table 1).

Table 1. Summary of evidence for reviewed programs.

Program	Age	Research Samples	Total # RCTs (different samples)	# RCTs, children 0-2 (different samples)	Parent-Infant Relationship/Attachment & Infant Mental Health Outcomes	Level of Scientific Evidence
*Attachment and Biobehavioral Catch-Up (ABC)**	6–48 months	White, Black/African American, foster care, domestic violence, homeless, child protective services	6	6	Improved attachment, self-regulation (executive functioning, inhibitory control), improved regulation, less internalizing and externalizing behavior	Evidence-Based
*ACT – Raising Safe Kids**	0-10 years	White, Black/African American, Hispanic/Latinx, families involved with child welfare. Implemented in 80+ communities across world	5	2	Decreased conduct problems, behavioral and emotional problems	Effective
*Nurse Family Partnership**	0–2 years	Dutch, White, Hispanic, Black/African American, low educational level, young first-time mothers	6	6	Decreased internalizing and externalizing problems, improved mother-infant relationship	Effective
*Triple P**	0–16 years	Internationally diverse (e.g., Black/ African American, Asian, Swiss, indigenous Australians) Poverty, foster care, child welfare	50+	10+	Decreased behavior problems, child maltreatment, internalizing problems	Effective
*Healthy Families America (HFA)/The Healthy Start Program/Home Visiting Program**	0–3 years	White, African American, Hispanic, American Indian, expectant parents/parents who are deemed to be at risk for child abuse or neglect	10+	10+	Decreased internalizing and externalizing problems	Promising
*My Baby's First Teacher**	0–12 months	Black/African American; homeless	1	1	Improved parent – infant relationship/ attachment	Promising
*New Beginnings **	0–2 years	White, South Africa, UK	2	2	Improved parent – infant relationship/ attachment	Promising
*Parent-Infant Psychotherapy (PIP)**	0–3 years	Diverse samples, including caregiver domestic abuse, homeless	10+	10+	Improved parent-infant/attachment	Promising
Level of evidence base for programs that include infants but programs start at older than 12 months						
*Parent-Child Interaction Therapy (PCIT)**	18 months –7 years	Multicultural, international, maternal psychopathology, high-risk, trauma	50+	10+	Decreased externalizing behavior problems, improved parent-infant relationship/attachment	Evidence-Based
*Incredible Years (IY)**	2–12 years	Culturally diverse (Hispanic/Latinx, Asian, Black, new migrant families, Singapore, etc.), Poverty, mothers with depression	50+	10+	Decreased behavior problems, internalizing problems, and conduct problems, Improved social-emotional functioning	Effective

*indicates programs that included participants experiencing homelessness, while rows shaded in gray indicate programs were implemented in a shelter setting.
RCT = randomized control trials.

Programs with study participants experiencing homelessness

The four programs with studies that included, but were not exclusively comprised of, participants experiencing homelessness were: Attachment and Biobehavioral Catch-Up (ABC; Dozier et al., 2006), ACT – Raising Safe Kids (Silva, 2007), Nurse Family Partnership (Olds, 2002), and Healthy Families America (HFA; Daro & Harding, 1999).

ABC is a program developed to meet the needs of infants experiencing early adversity by targeting secure attachment and healthy biological regulation, and was categorized as an evidence-based parenting program for high-risk families demonstrating a wide range of positive outcomes for infant mental health. Within some of these studies, children receiving the ABC intervention showed more typical cortisol production (Bernard et al., 2015), higher rates of compliance (Lind et al., 2020), and a buffering effect on children's emotion regulation from additional risks associated with remaining in the home following Child Protective Services (CPS) involvement (Labella et al., 2020). While researchers have yet to examine the effectiveness of ABC in shelter settings, studies examining the effects of ABC more broadly have included families experiencing homelessness, though the specific number or percentage from the total sample were not included. In addition, although not specific to families experiencing homelessness, Bernard et al. (2015) stated that "sessions were typically conducted in parents' homes, or in shelters or other facilities as needed." No other studies provided information on any adaptations made to meet the specific needs of families experiencing homelessness.

ACT is a program designed to promote positive parenting and safety to prevent child exposure to abuse and violence and was categorized as effective. One study evaluating ACT included participants who are experiencing homelessness, with results demonstrating parental improvement in their own anger management, social problem solving, nonaggressive discipline, and media violence literacy (Porter & Howe, 2008). However, the number of families experiencing homelessness within the total sample were not included, thus limiting generalizability of these results. Although the study did not describe any specific adaptations made for families experiencing homelessness, given that the entire sample was parents of low income, experiencing multiple stressors, the intervention was conducted at a local church and families were provided with free dinner and child care.

The Nurse Family Partnership is a home-visiting intervention focused on education and access to social support and social services and was categorized as effective. Studies that have included families experiencing homelessness or emergency housing have demonstrated improved mother–infant relationships with decreases in emergency department visits for the infant and in infant language delays (Olds et al., 2002). At follow-up, results have demonstrated reduced infant internalizing symptoms, externalizing behaviors, and household domestic violence (Olds et al., 2004, 2014). Further, while Robling et al. (2016) specified how many families had ever been homeless in their sample (treatment: 18%; usual care group: 21%), they did not report on the number of families currently experiencing homelessness or examine treatment differences. Additionally, while Olds et al. (2002) also reported the number of families who utilized emergency services (emergency housing + emergency food banks; sample: 9%; control: 6%), they only compared results across delivery personnel (nurses verse paraprofessionals) and not across the effectiveness of the intervention itself in this population. Importantly, none of the studies above provided information if adaptations were made for families experiencing homelessness at the time of the intervention.

Lastly, HFA is a home visiting program aimed at preventing child maltreatment by promoting positive parenting skills and was categorized as promising. Across the US, different states have implemented various versions of the program while following the core model. Within studies including participants experiencing homelessness, results demonstrated parents who received HFA were more likely to read to their children and have lower self-reported parental stress (Green et al., 2016). Further, LeCroy and Lopez (2020) reported that retention rates at follow-up were impacted due to families becoming homeless, while Green et al. (2016) reported the impacts of lifetime homelessness via cost-effectiveness

analyses. Yet, the effectiveness of HFA exclusively among participants experiencing homelessness remains unexplored. Further, no studies reported how the HFA program was adapted for families experiencing homelessness.

Programs with studies implemented in shelter settings

As mentioned above, only four programs have been implemented specifically in shelter settings, with only three being implemented in infancy. First, New Beginnings is a 12-week mother – infant group, which was originally developed for mothers who are incarcerated, but has been implemented within a homeless shelter and was categorized as promising. Across two shelters in Africa, Bain (2014) examined the impact of New Beginnings compared to a control group (who later received the intervention) for caregivers and infants (age range = 9 days – 2.5 years). Each session was 90 min and started with a "settling in" period, where mothers and their babies settle themselves on cushions on the floor. Sessions included topics such as the mothers' pregnancy, aspects of her own childhood, managing their own difficult feelings, and how mothers can help their infants to manage their feelings (Baradon, 2010). Within each session, space was created to explore any issue that arose, with a particular focus on interactions between mothers and infants. Results showed improved maternal ability to structure interactions with their infants as well as improved infant speech abilities for the treatment group, both related to the number of sessions attended (Bain, 2014).

MBFT, also categorized as promising, is a five-week program designed specifically for parents with infants staying in emergency homeless shelters. Broadly, it is an educational curriculum designed to teach at-risk parents, such as those experiencing homelessness, the importance of their role during infancy (Herbers & Henderson, 2019). The program uses a self-teaching module designed to be flexible, with varied infrastructure, length of stay, and program requirements. This flexibility is intentional to aid in staff's ability to deliver a basic, consistent program despite potential barriers to implementing programs in shelter settings, such as turnover or limited access to transportation. The program materials include a series of videos to guide the lessons and a manual for the facilitator, combing core modules with room for individualization. Caregivers and their infants [age range = 0–12 months (M_{age} = 6.07 months)] in the US were randomized to MBFT or care as usual across three family shelters (Herbers et al., 2020). Results demonstrated that families who received MBFT showed improvements in observed parent–infant relationship, which was rated by coders on the degree of mutually responsive orientation (i.e., close, mutually binding, cooperative, and affectively positive interactions). There were no significant findings for parenting stress or parent distress, although trends suggested higher scores for intervention families. This intervention may be particularly appealing for shelter settings to implement, as the detailed facilitator manual and video-guided lessons may result in quick and cost-effective training, which can be delivered by agency staff without advanced degrees.

PIP is a relationship-oriented parenting program and was also categorized as promising, due to limited studies demonstrating positive effects. The effectiveness of PIP was compared across an intervention hostel (infant M_{age} = 7.5 months) and four comparison hostels (infant M_{age} = 9.4 months). The intervention hostel was facilitated by a multidisciplinary team, comprised of the specialist health visitor, parent – infant psychotherapist, and other health service baby clinic staff. Families in the comparison hostels had access to universal baby clinics and other services within the community, but did not have the multi-disciplinary and specialized clinic. Results demonstrated improvements in cognitive and motor development of the infants in the intervention hostel, while no group effects were found across indexes of the parent–infant relationship. Although this study demonstrated developmental improvements within the intervention hostel, the longer length of the intervention (i.e., 6 months), may not be practical for shelter settings.

Lastly, Triple P is a set of programs designed to support parents and children ages 0–16 years and categorized as effective for infant mental health outcomes. Although two feasibility studies (Haskett et al., 2018; Wessels & Ward, 2016) and one pre- to post-treatment design were conducted

within shelter settings, they only included older children (age range 3-6-year-olds; Armstrong et al., 2021; Haskett et al., 2018; age range 2–6 years [$M = 3.67$]; Wessels & Ward, 2016; age not reported;)

Secondary outcomes: implementation in shelter settings/homelessness for older infants

The systematic review (Hare et al., 2023) also presented data on additional programs beginning in infancy, but after 12 months, which were not included in main outcomes. Across the seven programs identified, two have been implemented within shelter settings: Incredible Years (IY; Webster-stratton et al., 2008) and Parent–Child Interaction Therapy (PCIT; Eyberg et al., 1995). It includes a series of compatible programs (i.e., child, parent, teacher, adjunctive home-visiting services) designed to prevent and treat child (ages 2–12) mental health difficulties. Since IY only includes the upper bounds of infancy (i.e., 2 years), it was classified as an effective program for older infants. Regarding homelessness, there was only a single case study illustrating the successful application of an IY intervention with a 4-year-old girl and her family in the context of a homeless shelter, which describes qualitative improvements in externalizing behavior problems and trauma symptoms (Williams, 2016). Broader conclusions about the effectiveness of IY in shelter settings, especially in infancy, cannot be drawn.

PCIT is a behavioral parent training program originally designed for children (18 months – 7 years) with clinically elevated behavior problems. The overall goals of PCIT are to improve caregiver warmth, the parent–child relationship, and child compliance. There is no set number of sessions in traditional PCIT, as the number of treatment sessions required to complete PCIT varies as progression through the program is data-driven and dependent on parental mastery of skills. As PCIT typically starts around 18 months, it was categorized as evidence-based for older infants. A recent RCT was conducted comparing 12 sessions of time-limited PCIT to Child Parent Psychotherapy (CPP) within a women's homeless shelter, with children ranging from 18 months to 5 years ($M_{age} = 3.48$; Graziano et al., 2020). Results demonstrated that time-limited PCIT resulted in greater reductions in maternal negative verbalizations and parenting stress, and greater increases in maternal positive verbalizations relative to time-limited CPP. At the child-level, both PCIT and CPP resulted in significant decreases in children's post-traumatic stress symptoms; however, only PCIT resulted in significant improvements in behavior problems.

Discussion

Although many programs included in (Hare et al., 2023) systematic review have demonstrated improvements in infant mental health in high-risk samples (e.g., foster care, low income), the current study finds that very few of these programs have been implemented in infants within shelter settings. Although MBFT and New Beginnings were classified as promising for overall infant mental health outcomes, they may be viable options for younger infants in shelter settings, while PCIT may be more suitable for older infants. While these studies are a step in the right direction, the dearth of literature raises concern, as infants are among the highest risk for experiencing homelessness, with data suggesting that having a child under 2 years old puts families at an elevated risk for entering the shelter system (Shaw, 2019; Shinn et al., 2013). Further, many children in shelters experience emotional problems at levels requiring professional care, but few receive any treatment (Bassuk et al., 2005; Spiegel et al., 2022). Therefore, examining the feasibility and efficacy of parenting programs for families experiencing homelessness in terms of promoting infant mental health remains a critical and understudied area for research.

While four programs reported on study participants who were experiencing homelessness, few of these studies included the specific number of families, with none comparing outcomes of the intervention across groups, limiting the ability to interpret results in the context of homelessness exclusively. Additionally, almost no studies reported if any changes or adaptations to the programs were made for families experiencing homelessness. Given that some of these programs are designed to take place in a family's home, this is an important gap in understanding how current

programs can meet the needs of families experiencing homelessness.

It may also be the case that other programs compiled in the systematic review did include families experiencing homelessness. However, due to the low base rate or given that it was not the focus of the study, percentages of families experiencing homelessness may not have been specified when describing the overall sample. Further, some studies used broad language (e.g., families experiencing housing difficulties, unstable housing; Barlow et al., 2007; E. Haroz et al., 2019; Irvine et al., 2021), or included homelessness as a small part of a cumulative risk measure (Rosenblum et al., 2020; Van Doesum et al., 2008), also limiting the interpretation of results and ability to draw conclusions for this population. Additionally, there may be a lack of studies examining infants, as younger children may be placed in foster care or with other family members (Wulczyn et al., 2002). For example, most studies examining ABC focused on children involved in the welfare system or foster care. However, given the detrimental impact homelessness can have on parental mental health, and the sequelae impaired parental mental health can have on child outcomes (Goodman et al., 2011; Smith, 2004), parenting programs are still strongly recommended even if the infant is not present. Finally, due to the specific criteria and outcomes of interest of the systematic review (Hare et al., 2023), it is important to acknowledge that there may be programs examining families experiencing homelessness that were not included in the original systematic review (e.g., Ovrebo et al., 1994).

Considerations for shelter settings

Given the many complexities of shelter settings, including lack of transportation to off-site treatment, funding agencies and policymakers should consider embedding programs within the shelter setting. The shelter system already embeds physical health, social work, and assists families with food, employment, and housing, as well as caregiver mental health, such as substance use (Kushel, 2015; SAMHSA, 2020). However, parenting programs are generally not embedded within shelter settings, which is an important area for future policy efforts given the added parent and infant mental health stressors that occur in this setting (Gewirtz et al., 2009; Lieberman & Osofsky, 2009). When considering programs for implementation in homeless shelters, cost-effectiveness, length of program, and delivery method are important factors given high turnover rates in shelter settings (HUD, 2012). For example, while larger group treatments have been shown to be more cost-effective in other settings (French et al., 2008; Hare & Graziano, 2020), structured groups may not always be a feasible option within homeless shelters.

Other factors, such as trust with providers and shelter resources, should be considered when implementing programs in shelter settings. For example, Bain (2014) noted that "trust was an issue in the groups, given the mothers' histories and current circumstances." Further, the authors noted that "race also emerged as a trust factor, and the fact that all the therapists were White, middle-class women and that all the mothers were poor, Black women needed to be addressed in the groups." These factors should be considered when planning recruitment and implementation strategies. Further, within shelters, many staff members do not have advanced degrees or specialized training in child development or therapeutic interventions. As stated by Herbers and Henderson (2019), "while passionate about their work, they are frequently underpaid, overworked, and prone to burn-out and high turnover." Therefore, programs that do not require staff to have any special qualifications combined with programs that require less training and/or can be easily implemented serve as the best potential options for shelter implementation (e.g., MBFT). Lastly, programs targeting high-risk families should also assess for and monitor families' housing situations. For example, Family Spirits, a program for Native American mothers and their children to reduce health and behavioral risk, conducted surveys with key stakeholders and implementers. As part of a future precision approach of Family Spirits, alerts are triggered for participants who are identified as homeless or with housing concerns at the start of, and throughout treatment. If a family notes housing concerns, this will alert staff to help connect families to local resources to identify housing options (E. E. Haroz et al., 2020).

Limitations

The limitations of the referenced systematic review (Hare et al., 2023) and current study highlight the need for policy change and future research. The World Association for Infant Mental Health published a task force report examining the burden of mental health during infancy (Lyons-ruth et al., 2017). This report established global priorities to address infant mental health that include 1) global education about signs of disorder in infancy and toddlerhood, 2) enhancing intervention availability for infants and caregivers, and 3) developing infant and toddler mental health data for developing and war-torn countries, where children and their families often become displaced or homeless. While some attention has been paid to the difficulties and extreme stressors faced by individuals experiencing homelessness (SAMHSA, 2020), many of these focused interventions do not mention or specifically target children. The findings of this review align with the goal of enhancing intervention availability, and further support the need for future work on dissemination of interventions for infant mental health, specifically to vulnerable populations such as families experiencing homelessness. Further, while beyond the scope of the current study, a recent systematic review (Morton et al., 2020) examined interventions to prevent or address youth homelessness (e.g., rapid rehousing) and found most studies utilized low rigor designs with weak counterfactuals and small sample sizes. Additionally, the review only focused on interventions for youth ages 13–25, further highlighting the gap of knowledge for infants and their families experiencing homelessness.

Conclusion

Infants experiencing homelessness possess a wide range of needs, compounded by stressors preceding and including homelessness, that negatively affect the wellbeing of children, parenting, and the parent–child relationship. Yet in shelter settings, only three programs, with only two RCTs, have been published to date for infants aged 12 months or earlier. While current infrastructure provides physical health care, job training, and food to families in shelters, the same importance has not been placed on infant mental health. More work is needed to examine the effectiveness of current programs for infants within shelter settings. Programs targeting parenting have the potential to mitigate detrimental lifelong impacts of the social-emotional and behavioral difficulties associated with the homeless experience.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This work was supported by the National Institute of Mental Health under Grant [R01MH112588] and the National Institute on Drug Abuse under Grant [T32DA043449]. The opinions expressed are those of the authors and do not represent the views of NIH. We would like to acknowledge the support of Sundari Foundation, Inc. dba Lotus House Women's Shelter who inspired us to conduct this study.

References

Armstrong, J. M., Owens, C. R., & Haskett, M. E. (2021). Effects of a brief parenting intervention in shelters for mothers and their children experiencing homelessness. *Journal of Child and Family Studies*, *30*(9), 2097–2107. https://doi.org/10.1007/s10826-021-02021-2

Bagner, D. M., Rodríguez, G. M., Blake, C. A., Linares, D., & Carter, A. S. (2012). Assessment of behavioral and emotional problems in infancy: A systematic review. *Clinical Child and Family Psychology Review*, *15*(2), 113–128. https://doi.org/10.1007/s10567-012-0110-2

Bain, K. (2014). "New beninnings" in South African shelters for the homeless: Piloting of a group of psychotherapy intervention for high risk mother-infant dyads. *Infant Mental Health Journal*, *35*(6), 591–603. https://doi.org/10.1002/imhj.21457

Baradon, T. (2010). *New beginnings programme* (Unpublished Manual). The Anna Freud Centre.

Baradon, T., Fonagy, P., Bland, K., Lénárd, K., & Sleed, M. (2008). New Beginnings–an experience-based programme addressing the attachment relationship between mothers and their babies in prisons. *Journal of Child Psychotherapy*, *34*(2), 240–258. https://doi.org/10.1080/00754170802208065

Barlow, J., Davis, H., McIntosh, E., Jarrett, P., Mockford, C., & Stewart-Brown, S. (2007). Role of home visiting in improving parenting and health in families at risk of abuse and neglect: Results of a multicentre randomised controlled trial and economic evaluation. *Archives of Disease in Childhood*, *92*(3), 229–233. https://doi.org/10.1136/adc.2006.095117

Bassuk, E. L., Buckner, J. C., Perloff, J. N., & Bassuk, S. S. (1998). Prevalence of mental health and substance use disorders among homeless and low-income housed mothers. *The American Journal of Psychiatry*, *155*(11), 1561–1564. https://doi.org/10.1176/ajp.155.11.1561

Bassuk, E. L., Friedman, S. M., Batia, K., Holland, J., Kelly, A., & Olson, L. (2005). *Facts on trauma and homeless children*. National Child Traumatic Stress Network Homelessness and Extreme Poverty Working Group. National Centre for Family Homelessness.

Bassuk, E. L., Richard, M. K., & Tsertsvadze, A. (2015). The prevalence of mental illness in homeless children: A systematic review and meta-analysis. *Journal of the American Academy of Child & Adolescent Psychiatry*, *54*(2), 86–96. e82. https://doi.org/10.1016/j.jaac.2014.11.008

Bernard, K., Dozier, M., Bick, J., & Gordon, M. K. (2015). Intervening to enhance cortisol regulation among children at risk for neglect: Results of a randomized clinical trial. *Development and Psychopathology*, *27*(3), 829–841. https://doi.org/10.1017/S095457941400073X

Brownson, R. C., Fielding, J. E., & Maylahn, C. M. (2009). Evidence-based public health: A fundamental concept for public health practice. *Annual Review of Public Health*, *30*, 175–201.

Clark, R. E., Weinreb, L., Flahive, J. M., & Seifert, R. W. (2019). Infants exposed to homelessness: Health, health care use, and health spending from birth to age six. *Health Affairs*, *38*(5), 721–728. https://doi.org/10.1377/hlthaff.2019.00090

Daro, D. A., & Harding, K. A. (1999). Healthy families America: Using research to enhance practice. *The Future of Children*, *9*(1), 152–176. https://doi.org/10.2307/1602726

Dozier, M., Peloso, E., Lindhiem, O., Gordon, M. K., Manni, M., Sepulveda, S., Ackerman, J., Bernier, A., & Levine, S. (2006). Developing evidence-based interventions for foster children: An example of a randomized clinical trial with infants and toddlers. *The Journal of Social Issues*, *62*(4), 767–785. https://doi.org/10.1111/j.1540-4560.2006.00486.x

Eyberg, S. M., Boggs, S. R., & Algina, J. (1995). Parent-child interaction therapy: A psychosocial model for the treatment of young children with conduct problem behavior and their families. *Psychopharmacology Bulletin*, *31*(1), 83–91.

Fanning, K. (2021). What about the babies? A critical review of infants' and toddlers' absence in homelessness scholarship. *Infant Behavior & Development*, *64*, 101625. https://doi.org/10.1016/j.infbeh.2021.101625

French, M. T., Zavala, S. K., McCollister, K. E., Waldron, H. B., Turner, C. W., & Ozechowski, T. J. (2008). Cost-effectiveness analysis of four interventions for adolescents with a substance use disorder. *Journal of Substance Abuse Treatment*, *34*(3), 272–281. https://doi.org/10.1016/j.jsat.2007.04.008

Gewirtz, A. H., DeGarmo, D. S., Plowman, E. J., August, G., & Realmuto, G. (2009). Parenting, parental mental health, and child functioning in families residing in supportive housing. *The American Journal of Orthopsychiatry*, *79*(3), 336–347. https://doi.org/10.1037/a0016732

Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal depression and child psychopathology: A meta-analytic review. *Clinical Child and Family Psychology Review*, *14*(1), 1–27. https://doi.org/10.1007/s10567-010-0080-1

Graziano, P. A., Spiegel, J. A., & Arcia, E. (2020). Early Assessment and Intervention for Families Experiencing Homelessness: A randomized trial comparing two parenting programs. medRxiv. https://doi.org/10.1101/2020.12.07.20245563

Green, B. L., Tarte, J., Sanders, M. B., & Waller, M. S. (2016). Testing the Effectiveness of Healthy Start-Healthy Families Oregon: Outcomes and Cost-Benefits. *Child Abuse & Neglect Prevention*, *2*. https://pdxscholar.library.pdx.edu/childfamily_abuse/2

Hare, M. M., & Graziano, P. A. (2020). The Cost-Effectiveness of Parent–Child Interaction Therapy: Examining Standard, Intensive, and Group Adaptations. *Administration and Policy in Mental Health and Mental Health Services Research*, *48*(3), 1–15. https://doi.org/10.1007/s10488-020-01083-6

Hare, M. M., Landis, T. D., Hernandez, M. L., & Graziano, P. A. (2023). A systematic review of infant mental health prevention and treatment programs. *Evidence-Based Practice in Child and Adolescent Mental Health*, *9*(1), 138–161. https://doi.org/10.1080/23794925.2022.2140458

Haroz, E., Ingalls, A., Kee, C., Goklish, N., Neault, N., Begay, M., & Barlow, A. (2019). Informing precision home visiting: Identifying meaningful subgroups of families who benefit most from family spirit. *Prevention Science*, *20*(8), 1244–1254. https://doi.org/10.1007/s11121-019-01039-9

Haroz, E. E., Ingalls, A., Wadlin, J., Kee, C., Begay, M., Neault, N., & Barlow, A. (2020). Utilizing broad-based partnerships to design a precision approach to implementing evidence-based home visiting. *Journal of Community Psychology*, *48*(4), 1100–1113. https://doi.org/10.1002/jcop.22281

Haskett, M. E., Armstrong, J., Neal, S. C., & Aldianto, K. (2018). Perceptions of triple P-positive parenting program seminars among parents experiencing homelessness. *Journal of Child and Family Studies*, *27*(6), 1957–1967. https://doi.org/10.1007/s10826-018-1016-5

Herbers, J. E., Cutuli, J., Fugo, P. B., Nordeen, E. R., & Hartman, M. J. (2020). Promoting parent–infant responsiveness in families experiencing homelessness. *Infant Mental Health Journal*, *41*(6), 811–820. https://doi.org/10.1002/imhj.21868

Herbers, J. E., & Henderson, I. (2019). My baby's first teacher: Supporting parent-infant relationships in family shelters. *Zero to Three*, *39*(4), 35–41. https://par.nsf.gov/servlets/purl/10099596

Irvine, A., Rawlinson, C., Bor, W., & Hoehn, E. (2021). Evaluation of a collaborative group intervention for mothers with moderate to severe perinatal mental illness and their infants in Australia. *Infant Mental Health Journal*, *42*(4), 560–572. https://doi.org/10.1002/imhj.21922

Kerker, B. D., Bainbridge, J., Kennedy, J., Bennani, Y., Agerton, T., Marder, D., Forgione, L., Faciano, A., & Thorpe, L. E. (2011). A population-based assessment of the health of homeless families in New York City, 2001–2003. *American Journal of Public Health*, *101*(3), 546–553. https://doi.org/10.2105/AJPH.2010.193102

Knudsen, E. I. (2004). Sensitive periods in the development of the brain and behavior. *Journal of cognitive neuroscience*, *16*(8), 1412–1425. https://doi.org/10.1162/0898929042304796

Kushel, M. (2015). The first step is the hardest: Overcoming barriers to primary care. *Journal of General Internal Medicine*, *30*(7), 868–869. https://doi.org/10.1007/s11606-015-3279-5

Labella, M. H., Lind, T., Sellers, T., Roben, C. K., & Dozier, M. (2020). Emotion regulation among children in foster care versus birth parent care: Differential effects of an early home-visiting intervention. *Journal of Abnormal Child Psychology*, *48*(8), 995–1006. https://doi.org/10.1007/s10802-020-00653-4

LeCroy, C. W., & Lopez, D. (2020). A randomized controlled trial of healthy families: 6-month and 1-year follow-up. *Prevention Science*, *21*(1), 25–35. https://doi.org/10.1007/s11121-018-0931-4

Lieberman, A. F., & Osofsky, J. D. (2009). Poverty, trauma, and infant mental health. *Zero to Three*, *30*(2), 54.

Lind, T., Bernard, K., Yarger, H. A., & Dozier, M. (2020). Promoting compliance in children referred to child protective services: A randomized clinical trial. *Child Development*, *91*(2), 563–576. https://doi.org/10.1111/cdev.13207

Lyons-ruth, K., Todd Manly, J., Von Klitzing, K., Tamminen, T., Emde, R., Fitzgerald, H., Paul, C., Keren, M., Berg, A., & Foley, M. (2017). The worldwide burden of infant mental and emotional disorder: Report of the task force of the World Association for infant mental health. *Infant Mental Health Journal*, *38*(6), 695–705. https://doi.org/10.1002/imhj.21674

Madigan, S., Moran, G., Schuengel, C., Pederson, D. R., & Otten, R. (2007). Unresolved maternal attachment representations, disrupted maternal behavior and disorganized attachment in infancy: Links to toddler behavior problems. *Journal of Child Psychology and Psychiatry*, *48*(10), 1042–1050. https://doi.org/10.1111/j.1469-7610.2007.01805.x

Main, M., Kaplan, N., & Cassidy, J. (1985). Security in infancy, childhood, and adulthood: A move to the level of representation. *Monographs of the Society for Research in Child Development*, *50*(1/2), 66–104. https://doi.org/10.2307/3333827

Morton, M. H., Kugley, S., Epstein, R., & Farrell, A. (2020). Interventions for youth homelessness: A systematic review of effectiveness studies. *Children and Youth Services Review*, *116*, 105096.

Olds, D. L. (2002). Prenatal and infancy home visiting by nurses: From randomized trials to community replication. *Prevention Science*, *3*(3), 153–172. https://doi.org/10.1023/A:1019990432161

Olds, D. L., Holmberg, J. R., Donelan McCall, N., Luckey, D. W., Knudtson, M. D., & Robinson, J. (2014). Effects of home visits by paraprofessionals and by nurses on children: Follow-up of a randomized trial at ages 6 and 9 years. *JAMA Pediatrics*, *168*(2), 114–121. https://doi.org/10.1001/jamapediatrics.2013.3817

Olds, D. L., Robinson, J., O'Brien, R., Luckey, D. W., Pettitt, L. M., Henderson, C. R., Jr., Ng, R. K., Sheff, K. L., Korfmacher, J., & Hiatt, S. (2002). Home visiting by paraprofessionals and by nurses: A randomized, controlled trial. *Pediatrics*, *110*(3), 486–496. https://doi.org/10.1542/peds.110.3.486

Olds, D. L., Robinson, J., Pettitt, L., Luckey, D. W., Holmberg, J., Ng, R. K., Isacks, K., Sheff, K., & Henderson, C. R., Jr. (2004). Effects of home visits by paraprofessionals and by nurses: Age 4 follow-up results of a randomized trial. *Pediatrics*, *114*(6), 1560–1568. https://doi.org/10.1542/peds.2004-0961

Ovrebo, B., Ryan, M., Jackson, K., & Hutchinson, K. (1994). The homeless prenatal program: A model for empowering homeless pregnant women. *Health Education Quarterly*, *21*(2), 187–198. https://doi.org/10.1177/109019819402100205

Oxman, A. D., & Guyatt, G. H. (1993). The science of reviewing research a. *Annals of the New York Academy of Sciences*, *703*(1), 125–134. https://doi.org/10.1111/j.1749-6632.1993.tb26342.x

Park, J. M., Fertig, A. R., & Allison, P. D. (2011). Physical and mental health, cognitive development, and health care use by housing status of low-income young children in 20 American cities: A prospective cohort study. *American Journal of Public Health*, *101*(S1), S255–261. https://doi.org/10.2105/AJPH.2010.300098

Porter, B., & Howe, T. (2008). Pilot evaluation of the "ACT parents raising safe kids" violence prevention program. *Journal of Child & Adolescent Trauma*, *1*(3), 193–206. https://doi.org/10.1080/19361520802279158

Robling, M., Bekkers, M. -J., Bell, K., Butler, C. C., Cannings-John, R., Channon, S., Martin, B. C., Gregory, J. W., Hood, K., & Kemp, A. (2016). Effectiveness of a nurse-led intensive home-visitation programme for first-time teenage mothers (building blocks): A pragmatic randomised controlled trial. *The Lancet*, *387*(10014), 146–155. https://doi.org/10.1016/S0140-6736(15)00392-X

Rosenblum, K. L., Muzik, M., Jester, J. M., Huth-bocks, A., Erickson, N., Ludtke, M., Weatherston, D., Brophy-herb, H., Tableman, B., & Alfafara, E. (2020). Community-delivered infant–parent psychotherapy improves maternal sensitive caregiving: Evaluation of the Michigan model of infant mental health home visiting. *Infant Mental Health Journal*, *41*(2), 178–190. https://doi.org/10.1002/imhj.21840

Schilling, E. A., Aseltine, R. H., & Gore, S. (2007). Adverse childhood experiences and mental health in young adults: A longitudinal survey. *BMC Public Health*, *7*(1), 1–10. https://doi.org/10.1186/1471-2458-7-30

Seifer, R., & Dickstein, S. (2000). Parental mental illness and infant development. In C. H. Zeanah Jr. (Ed.), *Handbook of infant mental health* (pp. 145–160). The Guilford Press.

Shaw, S. (2019). Current data on infants and toddlers experiencing homelessness. *Zero to Three*, *39*(4), 11–19.

Shinn, M., Greer, A. L., Bainbridge, J., Kwon, J., & Zuiderveen, S. (2013). Efficient targeting of homelessness prevention services for families. *American Journal of Public Health*, *103*(S2), S324–330. https://doi.org/10.2105/AJPH.2013.301468

Silva, J. (2007). *Parents raising safe Kids: ACT 8-week program for parents*. American Psychological Association.

Smith, M. (2004). Parental mental health: Disruptions to parenting and outcomes for children. *Child & Family Social Work*, *9*(1), 3–11. https://doi.org/10.1111/j.1365-2206.2004.00312.x

Spiegel, J. A., Graziano, P. A., Arcia, E., Cox, S. K., Ayala, M., Carnero, N. A., & O'Mara, N. L. (2022, September). Addressing mental health and trauma-related needs of sheltered children and families with trauma-focused cognitive-behavioral therapy (TF-CBT). *Administration and Policy in Mental Health*, *49*(5), 881–898. https://doi.org/10.1007/s10488-022-01207-0

Substance Abuse and Mental Health Services Administration (SAMHSA). (2020). *Housing and shelter*. https://www.samhsa.gov/homelessness-programs-resources/hpr-resources/housing-shelter

Tischler, V., Rademeyer, A., & Vostanis, P. (2007). Mothers experiencing homelessness: Mental health, support and social care needs. *Health & Social Care in the Community*, *15*(3), 246–253. https://doi.org/10.1111/j.1365-2524.2006.00678.x

Trends, C. (2019). *Children and youth experiencing homelessness*. https://www.childtrends.org/indicators/homeless-children-and-youth

U.S. Department of Housing and Urban Development Office of Community Planning and Development (HUD). (2012). *A guide to counting sheltered homeless people*. https://www.hudexchange.info/sites/onecpd/assets/File/A-Guide-to-Counting-Sheltered.pdf

Uylings, H. B. (2006). Development of the human cortex and the concept of "critical" or "sensitive" periods. *Language Learning*, *56*, 59–90. https://doi.org/10.1111/j.1467-9922.2006.00355.x

Van Doesum, K. T., Riksen-walraven, J. M., Hosman, C. M., & Hoefnagels, C. (2008). A randomized controlled trial of a home-visiting intervention aimed at preventing relationship problems in depressed mothers and their infants. *Child development*, *79*(3), 547–561. https://doi.org/10.1111/j.1467-8624.2008.01142.x

Webster-stratton, C., Jamila Reid, M., & Stoolmiller, M. (2008). Preventing conduct problems and improving school readiness: Evaluation of the incredible years teacher and child training programs in high-risk schools. *Journal of Child Psychology and Psychiatry*, *49*(5), 471–488. https://doi.org/10.1111/j.1469-7610.2007.01861.x

Weinreb, L. F., Buckner, J. C., Williams, V., & Nicholson, J. (2006). A comparison of the health and mental health status of homeless mothers in Worcester, Mass: 1993 and 2003. *American Journal of Public Health*, *96*(8), 1444–1448. https://doi.org/10.2105/AJPH.2005.069310

Wessels, I., & Ward, C. L. (2016). Battered women and parenting: Acceptability of an evidence-based parenting programme to women in shelters. *Journal of Child & Adolescent Mental Health*, *28*(1), 21–31. https://doi.org/10.2989/17280583.2015.1132425

Williams, M. E. (2016). Integrating early childhood mental health and trauma-informed care for homeless families with young children. *Pragmatic Case Studies in Psychotherapy*, *12*(2), 113–123. https://doi.org/10.14713/pcsp.v12i2.1968

Wood, D. L., Valdez, R. B., Hayashi, T., & Shen, A. (1990). Health of homeless children and housed, poor children. *Pediatrics*, *86*(6), 858–866.

Wulczyn, F., Hislop, K. B., & Harden, B. J. (2002). The placement of infants in foster care. *Infant Mental Health Journal*, *23*(5), 454–475. https://doi.org/10.1002/imhj.10028

Zima, B. T., Wells, K. B., Benjamin, B., & Duan, N. (1996). Mental health problems among homeless mothers: Relationship to service use and child mental health problems. *Archives of General Psychiatry*, *53*(4), 332–338. https://doi.org/10.1001/archpsyc.1996.01830040068011