

How Do Housing Interventions For Families Experiencing Homelessness Affect Children's Functioning?

By

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Dissertation

Submitted to the Faculty of the

Graduate School of Vanderbilt University

in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

Community Research and Action

August 31, 2021

Nashville, Tennessee

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## Acknowledgements

This dissertation work was funded with support from the National Institute of Child and Human Development, grant #5R01HD066082. The larger randomized evaluation study, *The Family Options Study*—Impact of Housing and Services Interventions for Homeless Families, was funded by contract C-CHI-00943, Task Orders T-0001 and T-0003, from the Department of Housing and Urban Development to Abt Associates. The author was supported by a Doris Duke Dissertation Fellowship Award.

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## **Introduction to the Dissertation**

Family homelessness remains a persistent social problem, with 147,000 families staying in homeless shelters and over one million school-aged children experiencing some form of homelessness each year (National Center for Homeless Education, 2020; Solari et al., 2017). The threat homelessness poses to children's development is well-established from three decades of research, but little attention has been given to whether interventions to end homelessness promote positive developmental outcomes (Buckner, 2008; Cutuli & Herbers, 2014). Child functioning appears to recover to some degree after an experience of homelessness, but with wide variation in outcomes and potentially difference by children's age (Cutuli et al., 2013; Shinn et al. 2008, 2015). Yet we lack evidence on what predicts whether children fare well or poorly after experiencing homelessness, with the potential role of access to housing interventions being a particularly striking gap. Whether housing assistance is a promising approach to promote better outcomes for children who experience homelessness is an open question, as findings from current research on how housing affects child development may not generalize well to the context of homelessness. Further, the two key theoretical frameworks used in research on homelessness and child development diverge in their predictions.

The first framework, the Continuum of Risk model, views homelessness as falling on an extreme end of a continuum of socioeconomic risk. Homelessness then serves as both a marker of both acute developmental risk during episodes of homelessness and of more enduring risks connected to poverty. The fact that the majority of families who stay in homeless shelters do so once and do not return (Culhane et al., 2007) may support this view of homelessness itself being

an acute risk factor. If this is the case, interventions that focus on resolving homelessness would not be hypothesized to have strong effects on child outcomes unless they additionally target or indirectly affect the more enduring poverty-related risks.

A second framework, an ecological-developmental model proposed by Haber & Toro (2004), hypothesizes a continuum of resources. In this framework, lack of resources in families' environments explain negative influences of homelessness on children, with the family system being an important mediator between resource losses and actual changes in child functioning. The developmental timing of changes in housing-related resources also matter in this framework, as children's dependency on caregivers and the saliency of developmental contexts outside the home changes with age. In support of this perspective, qualitative research indicates many ways in which both homeless shelter environments and low-quality housing can disrupt adaptive family processes that could potentially mitigate the effects of a lack of housing resources on children. Research on housing and child development also finds that associations of housing instability and poor housing quality with developmental outcomes varies by child age (Coley et al., 2013). In this framework, housing interventions would be hypothesized to promote better child functioning to the extent that they increase resources in families' environment, with effects being mediated through family systems and any concurrent changes in resources outside the home that are connected to families' housing. A weakness of Haber and Toro's ecological-development model is that it does not provide specific, testable mechanisms linking changes in families' housing environments to children's developmental outcomes.

Leventhal and Newman (2010) provide a conceptual framework linking housing and children's developmental outcomes that can be used within Haber and Toro's general approach to specify how changes in families' housing resources may promote better child outcomes. Much

of the existing empirical research on housing and child development has been correlational in nature, making it difficult to parse factors that influence selection into housing arrangements from the effects of housing itself (Leventhal & Newman, 2010). The extent to which findings from even the most rigorous studies of the effects of housing assistance on child development would translate to families experiencing homelessness is not clear. For example, reductions in housing instability may be one plausible mechanism, but offers of housing assistance in prior randomized studies generally resulted in families moving to use their assistance, resulting in more moves among families offered assistance in the short run (Mills et al., 2006; Sanbonmatsu et al., 2011). In contrast, housing in homeless shelters is time limited, and all families have to leave whether offered assistance or not, so assistance and housing instability are not confounded in the same way. Similarly, whether prior findings on changes in housing quality from studies of assistance offered to conventionally housed families apply in the context of homelessness, which is defined by non-conventional housing arrangements, is also unclear. Research on housing interventions offered to families who experience homelessness then can help fill gaps in the current literature on the mechanisms by which housing affects child development as well as inform policy as to what role housing interventions may play in supporting healthy development for children who experience homelessness.

### **Dissertation Context and Aims**

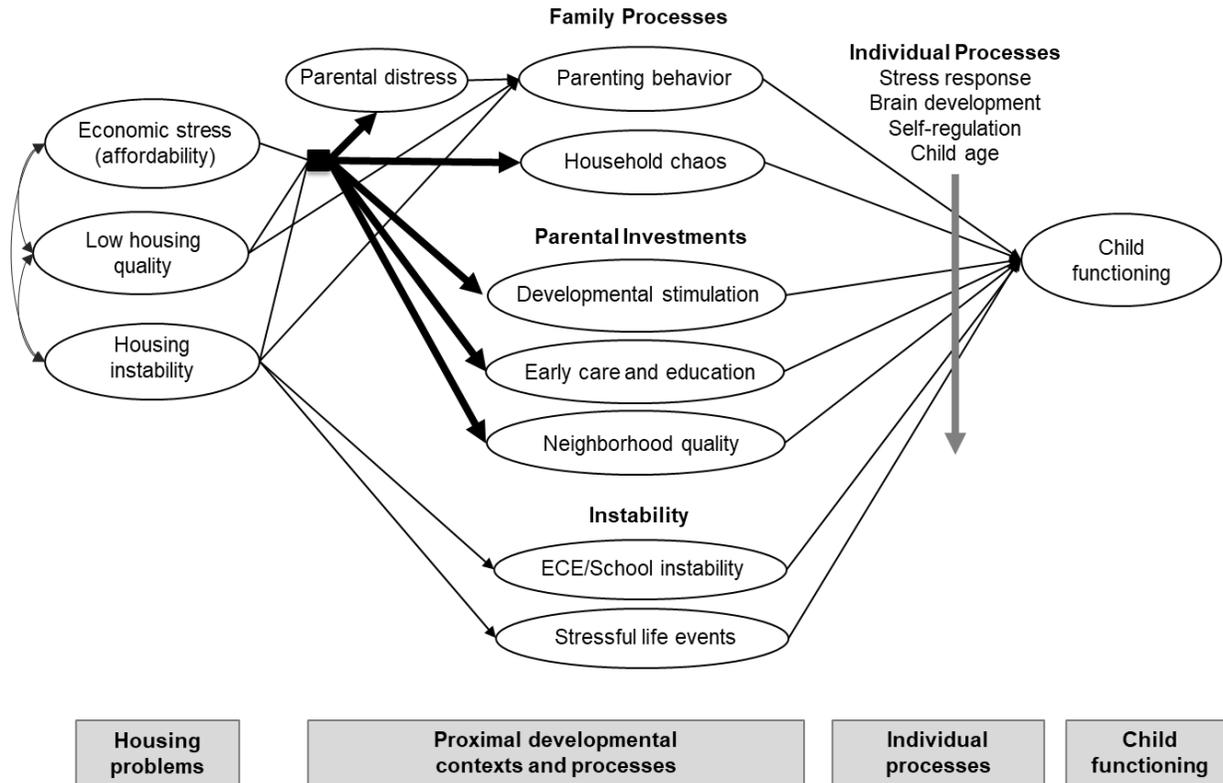
This dissertation aims to address the gaps in research and knowledge on the effects of housing interventions on the outcomes of children who experience homelessness and on how housing affects children's outcomes using quantitative and qualitative data from a randomized

control trial of housing interventions for families experiencing homelessness. Housing is linked to multiple contexts and processes of child development. As a result, housing interventions are diffuse in nature, likely to affect a broad range of developmental outcomes through multiple mechanisms within and outside the home. Ecological-developmental theory (Bronfenbrenner & Morris, 2007) provides a useful conceptual lens for organizing the multiple contexts connected to children's housing—including the family, home environment, educational organizations, and neighborhoods—and the key theorized developmental processes embedded in each of those contexts. This framework also assumes that the salience of each context and developmental process varies as children age. For example, infants often spend more time in their home environment than school-aged children, so developmental processes linked to the home environment may have a stronger influence on infants.

Figure 1 below proposes a conceptual framework grounded in ecological-developmental theory that links housing problems connected to homelessness to children's functioning through more proximal developmental processes within these contexts. These contextual processes, in turn, influence individual-level developmental processes. This model integrates Haber and Toro's (2004) broad conceptualization of homelessness as a lack of resources with the key dimensions of housing that affect children's development identified by Leventhal and Newman (2010). It augments the model by suggesting potential salient individual-level developmental mechanisms tied to proximal contexts, although these individual-level mechanisms are not studied here. With this model as an overarching framework, I briefly review key theoretical mechanisms linking housing to children's outcomes through each of these contexts.

**Figure 1**

*Conceptual Model for Potential Mediating Processes Between Housing Instability, Low Housing Quality, and Economic Stress and Child Functioning*



*Note.* Black bolded lines reflect paths associated with economic stress, low housing quality, and housing instability, collectively, for parsimony. Grey bolded line indicates that each of the proximal processes are moderated by individual-level processes.

### **Housing and Family Processes**

Homelessness reflects both a housing crisis and economic stress from being unable to afford housing, which can place enormous strain and pressure on families and caregivers and disrupt normal family processes. Conger and Elder’s (1994) family stress model

hypothesizes that economic stress is detrimental to children's functioning through adverse influences on parental mental health and subsequent negative effects on parenting behaviors. Economic stress predicts child behavioral problems over and above income through family stress processes (Conger et al., 2010; Gershoff et al., 2007). Recent research indicates that housing instability and poor housing quality can also negatively affect children's behavioral and educational outcomes via the same paths. Housing instability is indirectly associated with behavioral problems via family stress mechanisms across childhood and adolescence (Coley et al., 2013). Poor housing quality is also indirectly associated with child behavior and cognitive functioning through family stress, with particularly detrimental associations among adolescents relative to younger children (Coley et al., 2013). Yet no research to date has included both housing and economic stress in tests of the family stress model. Families experiencing homelessness often navigate undesirable tradeoffs between housing quality and economic stress as they attempt to leave shelters (Fisher et al., 2014), but the implications of these tradeoffs for family stress and children's outcomes is unclear.

Homelessness also may disrupt family processes through increased exposure to environmental interference and disorganized home environments, termed household chaos. Household chaos is negatively associated with cognitive, behavioral, and physical health outcomes for children over and above the effects of poverty (Dumas et al., 2005; Evans et al., 2005). Qualitative research documents how living in homeless shelters, temporary shared arrangements with family or friends, and low-quality housing can increase families' exposure to chaotic environments, disrupt family routines, and reduce parental autonomy (Bartlett, 1998; Bush & Shinn, 2017; Friedman, 2000; Mayberry et al., 2014). The relationship between exposure to chaos during homelessness and child functioning has not been examined.

## **Housing and Parental Investments**

Parental investment of resources into children is an important predictor of developmental outcomes, particularly for educational and cognitive development. Parents may invest in children through housing, with housing costs typically reflecting both the physical quality of the unit and resources tied to its location—i.e., neighborhood quality. Housing is typically one of the largest components of families' budgets, so spending on housing also directly affects financial resources available for other kinds of investments in children's development.

Physical and social qualities of children's immediate home environment are an important source of developmental stimulation and support connected to children's cognitive and behavioral functioning (Bradley et al., 2001). Unaffordable housing is associated with reduced parental expenditures on developmentally enriching goods and activities (Newman & Holpuka, 2014). In turn, reduced developmental stimulation is negatively associated with early developmental outcomes, verbal and math skills, and behavioral health, especially for young children (Bradley et al., 2001). Both the deep poverty and housing challenges experienced during homelessness suggest developmental stimulation in the home environment is a plausible mediating mechanism, but research on the residential environments of children who experience homelessness is lacking (Buckner, 2008).

The location of children's housing also matters, as neighborhood quality is an important influence on a wide range of child and adolescent outcomes (Ellen et al., 2001; Leventhal & Brooks-Gunn, 2000; Sastry, 2012). Neighborhood poverty rates are a particularly robust indicator of quality that is causally linked to children's longer-term outcomes (Chetty et al.,

2016; Sanbonmatsu et al., 2011). The quality of neighborhoods children live in during and after an experience of homelessness and its relationship to child outcomes has not been studied.

A large body of research has demonstrated that high-quality center-based early care and education (ECE) has positive impacts on children's cognitive outcomes at school entry, with greater benefits for children living in poverty, and mixed evidence of effects on behavioral outcomes (Duncan & Magnuson, 2013; Yoshikawa et al., 2013). However, families in poverty often cannot afford access to high-quality center-based care. Federal policies attempt to ensure that families experiencing homelessness can access early care and education through Head Start and Child Care Development Fund subsidies. Yet virtually no research exists on links between housing instability and enrollment in center-based ECE or whether these policies have affected ECE enrollment for families who experience homelessness. Center-based ECE enrollment during homelessness and 20 months after a shelter stay were contemporaneously associated with higher developmental competencies (Brown et al., 2017; Schteingart et al., 1995), but whether ECE enrollment for children who experience homelessness improves school readiness by the time children enter school has not been studied.

### **Housing and Instability in Proximal Contexts**

A considerable body of literature relates school instability to children's educational outcomes and trajectories (Mehana & Reynolds, 2004). Residential and school mobility are related but not identical for children who experience homelessness (Fantuzzo et al., 2012); in the general population about a quarter of residential moves lead to a change of school (Swanson & Schneider, 1999). Reviews find that school mobility is associated with poor academic

achievement and school dropout, with effects strongest for mobility in the early elementary and high school years (Mehana & Reynolds, 2004). Research on school mobility and child functioning among children who experience homelessness has been largely confined to elementary school students (Cutuli & Herbers, 2014), so little is known about these relationships among older children and adolescents.

For young children, instability in childcare placements has been linked to behavioral problems (Pilarz & Hill, 2014). Potential relationships between housing instability and childcare instability have gone largely unexamined. A qualitative study on homelessness and early care and education found co-occurring instability, with families often prioritizing finding stable housing above maintaining continuity in childcare placements (Taylor et al., 2015).

Stressful life events in children’s families—disruptive experiences such as deaths, arrests, family illnesses, job or income loss, and changes in household composition—are another aspect of instability frequently associated with homelessness. Several studies, including two that followed up with children after they had been re-housed, found children’s exposure to recent stressful life events was more strongly predictive of their mental health than was recent homelessness (Buckner et al., 2004; Masten et al., 1993; Shinn et al., 2008). The influence of ongoing housing instability after an experience of homelessness may also be mediated through differences in children’s exposure to stressful life events within their family.

### **How Do Proximal Processes Affect Individual Developmental Processes?**

How the environmental processes connected to housing “get under the skin” to influence child functioning vis a vis individual-level developmental processes has received less attention in

housing research. Research to date has primarily focused on links between exposure to harmful physical elements in the home (e.g., lead, mold, asbestos) and physiological development (Weitzman et al., 2013). However, many other important, interrelated individual developmental processes may also be plausibly linked to children's housing and the mediating contextual factors previously discussed. Here, I focus on three key interrelated processes that may be particularly salient in the context of homelessness and housing instability – stress physiology, brain development, and self-regulatory capabilities. With early childhood being a period of rapid developmental change, greater dependency on immediate environments and caregivers, and greater risk for experiencing homelessness, I also consider potential differences in developmental timing of exposure to homelessness in these processes.

Homelessness is a highly stressful experience for families, but multiple contextual factors may influence children's physiological stress response and its implications for longer-term developmental processes. Children typically display one of three basic kinds of physiological responses to stress, differentiated both by the intensity and duration of the stress response and the capacity of adult caregivers to buffer children from stress (Shonkoff et al., 2012). *Positive stress* responses tend to be brief and mild or moderate in intensity, with a caring adult typically aiding the child in coping and returning from the stress response to their initial state. *Tolerable stress* responses typically are associated with events of greater intensity that fall outside of ordinary experience. Such events have the potential to produce excessive activation of stress responses, but risk of physiological harm is greatly reduced when supportive adults are available to provide protection. *Toxic stress* reflects “strong, frequent, or prolonged activation of the body's stress systems” and typically occurs in the absence of supportive adult relationships or with inadequate buffering of the stressors from adult relationships. Toxic stress is thought to contribute to

hyperactivity in the amygdala, which is a critical region for emotional and self-regulation, leading to experiences of hypervigilance and ineffective emotional regulation. Developmental timing also may matter. In early childhood, synaptic loss and changes in dendritic branching from toxic stress can impair brain morphology and connectivity to the prefrontal cortex, serving as early neural indicators for emotional dysregulation and risk for later psychiatric disorders (Klump et al., 2014). In adolescence, the release of pubertal hormones is associated with heightened sensitivity to stress (Gunnar et al., 2009), which may increase risk for adverse stress responses and associated mental health conditions when exposed to chronically stressful environments.

The duration and intensity of exposure to homelessness and the extent to which it disrupts key environmental contexts all may be important contributors to whether children have tolerable or toxic stress responses. For example, a brief period of housing instability may induce a tolerable stress response if families are quickly re-housed and normative family processes can be adequately maintained. Persistent and intense instability may be more likely to produce toxic stress responses through reduced parental capacity for buffering stressors, prolonged disruption of family processes, and lack of stability in adult relationships in other key contexts that could also potentially serve as buffers. Toxic stress responses could potentially produce more enduring physiological changes that influence subsequent development and behavioral functioning, particularly during infancy and adolescence as periods of increased sensitivity to stress.

Brain development may also be an important individual mediating factor. Because brain development occurs at an uneven pace in childhood, there also may be greater sensitivity to developmental timing of homelessness in this mediating process. Infancy and adolescence are both periods of rapid brain growth and malleability, where the brain is both highly sensitive and

adaptive to environmental demands (Ismail et al., 2017; Selemon, 2013). With respect to parental investments, even relatively small differences in family income among lower-income households are associated with large differences in young children's cortical surface area, which is linked to cognitive development (Nobel et al., 2015). With respect to family processes, chaotic home environments in early childhood are associated with deficits in prefrontal cortical function (Brown et al., 2009), which is associated with self-regulation and behavioral functioning. Young children typically spend more time in their housing environments and with their primary caregiver at the same time when rapid development is occurring in the brain, which may be one reason why younger children's functioning appears to be more sensitive to housing problems than older children's. Brain development then may be an important pathway linking parental investment mechanisms to cognitive outcomes and family processes to behavioral outcomes, particularly in infancy and adolescence.

Self-regulatory capabilities include a set of cognitive and physiological processes that shape individuals' ability to navigate and adapt to their environments (McClelland et al., 2017). As such, they are intimately related to both brain development and exposure to environmental stressors. Early childhood is a particularly sensitive period for the development of self-regulation and associated executive functioning skills, as children transition from near total dependence on their caregivers as newborns toward growing self-control and independence as they approach the transition to formal schooling (McClelland et al., 2017). Early childhood then may also be a period of greater sensitivity to instability in housing and immediate contexts, given their greater dependence on predictability in their environments and on caregiver availability and sensitivity to regulate their physiological arousal, behavior, and emotions.

Adolescence marks another period of sensitivity for self-regulation. The onset of puberty triggers rapid growth in the brain's sensitivity to novel experiences, perception of rewards and threats, and peer evaluations in the limbic regions whereas cognitive control functions in the cortical regions grow at a slower pace (Casey, 2015). This mismatch in timing of brain development is theorized to help explain why adolescence is also a sensitive period for the development of self-regulation, particularly with respect to emotional management. Instability in adolescents' environments and social contexts may be more likely to strain their self-regulatory capabilities and influence their emotional and behavioral functioning given their increased sensitivity to environmental inputs. Conversely, stronger self-regulation skills may be an important protective factor. Youth in high-poverty families who have stronger adaptive self-regulation skills are more likely to be able to cope with stressful life events and fare better on development outcomes (Buckner et al., 2009).

The Family Options Study largely did not collect data regarding these individual-level processes of child development, so I am unable to test these potential linkages empirically in the present study. However, study findings may help us to understand both the ages at which children are most vulnerable to stressors associated with homelessness and which processes are most promising for closer study in future research.

## **Research Aims**

The preceding review indicates that ongoing homelessness can disrupt children's development through multiple mechanisms connected to their housing and suggests that helping families regain stable, adequate, and affordable housing should help promote positive outcomes,

with specific mechanisms potentially varying by children's age. Whether the housing interventions available to families experiencing homelessness influence child outcomes or these theorized intervening mechanisms, however, is unclear. The Family Options Study, a large-scale randomized control trial of housing interventions for families experiencing homelessness, provide a unique opportunity for understanding intervention effects and mechanisms and how they may vary by children's age due to its scope, experimental design, and breadth of data collected on families and children.

The three proposed dissertation papers each examine three research questions using different sources of data from the Family Options Study, with the data and approach used in each paper to answer these questions described below. A concluding chapter will synthesize findings on these three questions across the papers.

First, how are children faring three years after experiencing homelessness in multiple aspects of their development? Paper 1 uses qualitative interviews to assess how mothers characterize their children's behavioral and educational functioning during and after a shelter stay. Paper 2 uses latent class analysis of parent and child survey data to identify patterns of children's functioning three years after a shelter stay in educational, behavioral, and physical health outcomes among children age 8 to 17 at the time of assessment. Paper 3 uses a similar analytic approach to identify patterns of functioning in early development, cognitive, and behavioral outcomes using developmental assessment and parent survey data collected for children age 3 to 7. A key question is whether children's functioning after an experience of homelessness continues to be characterized by either higher and lower overall functioning across an array of outcomes, as found in studies of children in shelters, or whether there are other patterns, with higher functioning in some domains but not others. Additionally, I examine

whether the number and characterization of latent classes vary by child age in Papers 2 and 3, as prior longitudinal studies have found age differences in outcomes.

Second, do housing interventions promote better functioning for children after an experience of homelessness? In Paper 1, I assess qualitative differences in parental perceptions of the factors affecting how their children were faring after a shelter stay by the housing interventions they received using in-depth interviews. Papers 2 and 3 use the randomized design of the Family Options Study to examine whether there is causal evidence that housing interventions improve child outcomes three years after a shelter stay. Based on prior intervention research, I expect that effects will be stronger among the youngest children and weaken as age increases.

Third, how do housing interventions affect child functioning? Particularly, to what extent are intervention effects mediated through effects on housing? In Paper 1, qualitative exploration of mother's perspectives on how interventions and changes in housing affected their children's outcomes will be used to explore and refine the conceptual model specified in Figure 1. Papers 2 and 3 adapt the general model presented in Figure 1 to test age-specific hypothesized mechanisms in mediation analyses, based on theory, prior research on housing and child development, and available measures of key constructs. The model for Paper 2 reflects that children age 8 to 17 at the three-year follow-up were school-aged when their families entered shelter, whereas the model for Paper 3 reflects that children were not yet in school at this time, with access to early care and education being of particular interest.

## Study Design: The Family Options Study

The Family Options Study is the first large-scale randomized control trial of housing interventions available to families who experience homelessness. Prior studies had not been able to disentangle the contribution of these interventions to family and child outcomes from program selection criteria and hard-to-observe factors that lead families to accept or decline assistance. Many housing programs available to families who experience homelessness have eligibility criteria that affect selection of families, ranging from sobriety requirements to exclusion of male adult family members to income and employment requirements (Shinn et al., 2017). Families also actively weigh their options and may turn down offers of assistance for a variety of reasons (Fisher et al., 2014). A key contribution of the study is using randomization of priority offers of these interventions to eligible families to eliminate differences due to programmatic and family factors that influence who is accepted to and uses these interventions.

Study interventions were not model programs, but represented existing, community-based implementations of the interventions in 12 communities in the United States: Alameda County (California); Atlanta, Baltimore, Boston, Denver, Honolulu, Louisville, Kansas City (Missouri); New Haven and Bridgeport (Connecticut); Minneapolis, Phoenix, and Salt Lake City. The four treatment conditions, described below, consisted of three interventions and a usual care condition:

- 1) *Long-term housing subsidy*: Long-term housing subsidies were primarily housing choice vouchers. The Housing Choice Voucher program is a federal rental assistance program administered by local public housing authorities. Families offered vouchers have a minimum of 60 days to find a rental unit that meets minimum housing quality standards. Families pay 30 percent of their income toward rent, with the program subsidy covering

the remainder up to a maximum rent payment standard based on market rents and number of bedrooms. Families can continue receiving the subsidy so long as their income remains below program eligibility cut-offs and they comply with program regulations. The implicit intervention theory is that long-term subsidies reduce homelessness by keeping housing affordable for families in high-cost markets or with very low incomes.

- 2) *Short-term housing subsidy*: Short-term housing subsidies were provided through community-based rapid rehousing programs. Families receive time-limited rental subsidies and light housing-focused case management, often in conjunction with one-time assistance for moving costs or security deposits. Families are encouraged to quickly increase their incomes so they can afford their own housing when assistance ends. Case managers conduct regular interim assessments of family income and assess families' need for further financial assistance. The implicit intervention theory is that homelessness is often a temporary crisis, instigated by housing or financial difficulties. Thus, providing "just enough" assistance to help families get out of shelters quickly and back in their own housing to stabilize is sufficient to promote longer-term housing stability.
- 3) *Project-based transitional housing*: Project-based transitional housing provides families with housing in a centralized location or complex in combination with intensive psycho-social services, typically lasting between 18 and 24 months. Programs usually provide private bedrooms, but facilities can range from apartments with independent bathrooms and kitchens to private rooms with shared bathroom and kitchen facilities. Intensive psycho-social services and case management target perceived barriers to family self-sufficiency and ability to afford their own housing after exiting the program. Services provided by transitional housing providers include case management, employment,

parenting and life skill classes, on-site childcare or dedicated referrals to external childcare providers, health services, and substance abuse and mental health services. Programs rules vary, but most have minimum service participation requirements, communal meals, and curfews. The implicit intervention theory is that homelessness is a symptom of deep unmet family needs that need to be addressed to prevent a cycle of ongoing housing instability. In this model, housing is a means of enabling a holistic, therapeutic approach to addressing factors perceived as barriers to family self-sufficiency.

- 4) *Usual care*: Families offered usual care continued to work with shelter staff to find housing. Shelters often provide some of the same services found in transitional housing, though the maximum length of stay is typically much shorter. Families could use any available community resources for housing, including the intervention described above, but were not given priority access.

The study randomly assigned approximately 2,300 families living in homeless shelters to a priority offer of one of the interventions described above or to usual care. To be eligible for the study, all families had to have at least one child age 15 or younger with them in the shelter and have been in their current shelter for at least 7 days. To avoid sending families to programs that would turn them down, families were screened prior to randomization for intervention eligibility for providers with openings at the time of enrollment based on criteria provided to the study team by these service providers. Families had to be eligible for at least one available intervention in addition to usual care to enroll. Families were then randomly assigned among the interventions with openings for which they had been deemed eligible (see Gubits et al., 2013, 2018 for additional information on study implementation and eligibility processes). Families assigned to

one of the three active interventions were offered priority access to that intervention, which was provided by an existing program in the community recruited for the study. These families were compared to the subset of usual care families who were also eligible for the intervention but who were randomized to usual care. These procedures created three pairwise experiments with different, but largely overlapping groups of usual care families who are well-matched to the active intervention.

### **Dissertation Structure**

The remainder of this dissertation is divided into four chapters – three empirical papers and a concluding discussion chapter. Having previously described how each paper addresses the research aims of this dissertation, I briefly describe each chapter below, with the remainder of the dissertation providing greater detail on the rationale and methods used.

Paper 1 draws on 80 in-depth interviews with families conducted an average of 7 months after shelter entry to provide in-depth exploration from parents' perspective of how children fare during and after a shelter stay and what influenced their functioning. Specifically, I examine to what extent parents attributed higher and lower functioning to families' housing experiences relative to other factors and the perceived influence of the housing interventions they were offered and received.

Paper 2 draws on parent surveys and child surveys conducted with 1,242 children who were age 8 to 17 three years after shelter entry and thus were school-aged (5 years or older) at shelter entry. Profiles of higher and lower functioning in educational, behavioral, and physical health outcome are identified using latent class analysis. Because the same measures are used

across this age range, the extent to which the profiles of children on the younger end of this age range are comparable to those who are older is examined. Regression analyses are used to estimate the effect of housing intervention offers on children being in classes characterized by higher functioning in one or more outcomes. Mediation analyses are used to assess the extent to which any intervention effects are explained by effects on children's housing and subsequent mediators tied to their housing.

Paper 3 draws on parent survey and child developmental assessments conducted with 1,198 children age 3 to 7 three years after a shelter stay who were under age 5 at the time of shelter entry. A similar analytic approach is used, though differing developmental assessments used for different age subsets of children mean the profiles for younger and older children are not directly comparable. This leads to differing methods being used to examine potential age differences. The hypothesized mediation model also differs to reflect differences in the contexts and mediating processes most salient for children not yet in school, with enrollment in early care and education being of particular interest.

The concluding chapter of the dissertation integrates the contributions each paper makes to understanding how children fare after experiencing homelessness. Taken together, this dissertation aims to advance our understanding of how homelessness and housing are related to children's functioning at different ages, what role housing interventions may play in promoting higher functioning, and what mechanisms help children fare well despite experiencing the adversities of homelessness.

## References

- Bartlett, S. (1998). Does inadequate housing perpetuate children's poverty? *Childhood*, 5, 403–420.
- Bradley, R. H., Corwyn, R. F., Burchinal, M., McAdoo, H. P., & García Coll, C. (2001). The home environments of children in the United States Part II: Relations with behavioral development through age thirteen. *Child Development*, 72, 1868–1886.  
<https://doi.org/10.1111/1467-8624.t01-1-00383>
- Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (6th Ed., pp. 793–828). John Wiley & Sons. <https://doi.org/10.1002/9780470147658.chpsy0114>
- Brown, D. W., Anda, R. F., Tiemeier, H., Felitti, V. J., Edwards, V. J., Croft, J. B., & Giles, W. H. (2009). Adverse childhood experiences and the risk of premature mortality. *American Journal of Preventive Medicine*, 37(5), 389–396.  
<https://doi.org/10.1016/j.amepre.2009.06.021>
- Brown, S. R., Shinn, M., Khadduri, J. (2017). *Well-being of young children after experiencing homelessness*. OPRE Report No. 2017-06. U.S. Department of Health and Human Services, Office of Policy Research and Evaluation.
- Buckner, J. C. (2008). Understanding the impact of homelessness on children: Challenges and future research directions. *American Behavioral Scientist*, 51, 721–736.  
<https://doi.org/10.1177/0002764207311984>
- Buckner, J. C., Beardslee, W. R., & Bassuk, E. L. (2004). Exposure to violence and low income children's mental health: Direct, moderated, and mediated relations. *American Journal of Orthopsychiatry*, 74, 413–423. <https://doi.org/10.1037/0002-9432.74.4.413>

- Buckner, J. C., Mezzacappa, E., & Beardslee, W. R. (2009). Self-regulation and its relations to adaptive functioning in low-income youth. *American Journal of Orthopsychiatry*, *79*(1), 19–30. <https://doi.org/10.1037/a0014796>
- Bush, H., & Shinn, M. (2017). Families' experiences of doubling up after homelessness. *Cityscape*, *19*(3), 331-356.
- Casey, B. J. (2015). Beyond simple models of self-control to circuit-based accounts of adolescent behavior. *Annual Review of Psychology*, *66*, 295–319. <https://doi.org/10.1146/annurev-psych-010814-015156>
- Chetty, R., Hendren, N., & Katz, L. F. (2016). The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment. *American Economic Review*, *106*(4), 855-902. <https://doi.org/10.1257/aer.20150572>
- Coley, R. L., Leventhal, T., Lynch, A. D., & Kull, M. (2013). Relations between housing characteristics and the well-being of low-income children and adolescents. *Developmental Psychology*, *49*, 1775–1789. <https://doi.org/10.1037/a0031033>
- Conger, R. D., & Elder, G. H., Jr. (1994). *Families in troubled times: Adapting to change in rural America. Social institutions and social change*. Aldine de Gruyter.
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family*, *72*, 685–704. <https://doi.org/10.1111/j.1741-3737.2010.00725.x>
- Culhane, D. P., Metraux, S., Park, J. M., Schretzman, M., & Valente, J. (2007). Testing a typology of family homelessness based on patterns of public shelter utilization in four US jurisdictions: Implications for policy and program planning. *Housing Policy Debate*, *18*, 1-28. <https://doi.org/10.1080/10511482.2007.9521591>

- Cutuli, J. J., Desjardins, C. D., Herbers, J. E., Long, J. D., Heistad, D., Chan, C. K., Hinz, E., & Masten, A. S. (2013). Academic achievement trajectories of homeless and highly mobile students: Resilience in the context of chronic and acute risk. *Child Development, 84*, 841–857. <https://doi.org/10.1111/cdev.12013>
- Cutuli, J. J., & Herbers, J. E. (2014). Promoting resilience for children who experience family homelessness: Opportunities to encourage developmental competence. *Cityscape, 16*, 113–140.
- Duncan, G. J., & Magnuson, K. (2013). Investing in preschool programs. *The Journal of Economic Perspectives, 27*, 109–132. <https://doi.org/10.1257/jep.27.2.109>
- Dumas, J. E., Nissley, J., Nordstrom, A., Smith, E. P., Prinz, R. J., & Levine, D. W. (2005). Home chaos: sociodemographic, parenting, interactional, and child correlates. *Journal of Clinical Child and Adolescent Psychology, 34*, 93–104.
- Ellen, I. G., Mijanovich, T., & Dillman, K. N. (2001). Neighborhood effects on health: Exploring the links and assessing the evidence. *Journal of Urban Affairs, 23*, 391–408. <https://doi.org/10.1111/0735-2166.00096>
- Evans, G. W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children's socioemotional adjustment. *Psychological Science, 16*, 560–565. <https://doi.org/10.1111/j.0956-7976.2005.01575.x>
- Fantuzzo, J. W., LeBoeuf, W. A., Chen, C. C., Rouse, H. L., & Culhane, D. P. (2012). The unique and combined effects of homelessness and school mobility on the educational outcomes of young children. *Educational Researcher, 41*, 393–402. <https://doi.org/10.3102/0013189X12468210>
- Fisher, B. W., Mayberry, L. S., Shinn, M., & Khadduri, J. (2014). Leaving homelessness behind:

- Housing decisions among families exiting shelter. *Housing Policy Debate*, 24, 364–386.  
<https://doi.org/10.1080/10511482.2013.852603>
- Friedman, D. H. (2000). *Parenting in public: Family shelter and public assistance*. Columbia University Press.
- Gershoff, E. T., Aber, J. L., Raver, C. C., & Lennon, M. C. (2007). Income is not enough: Incorporating material hardship into models of income associations with parenting and child development. *Child Development*, 78, 70–95. <https://doi.org/10.1111/j.1467-8624.2007.00986.x>
- Gubits, D., Shinn, M., Wood, M., Brown, S. R., Dastrup, S. R., & Bell, S. H. (2018). What interventions work best for families who experience homelessness? Impact estimates from the family options study. *Journal of Policy Analysis and Management*, 37(4), 835–866. <https://doi.org/10.1002/pam.22071>
- Gubits, D., Spellman, B., Dunton, L., Brown, S., & Wood, M. (2013). *Family Options Study: Interim report*. U.S. Department of Housing and Urban Development.
- Gunnar, M. R., Wewerka, S., Frenn, K., Long, J. D., & Griggs, C. (2009). Developmental changes in hypothalamus-pituitary-adrenal activity over the transition to adolescence: Normative changes and associations with puberty. *Development and Psychopathology*, 21(1), 69–85. <https://doi.org/10.1017/S0954579409000054>
- Haber, M. G., & Toro, P. A. (2004). Homelessness among families, children, and adolescents: An ecological-developmental perspective. *Clinical Child and Family Psychology Review*, 7, 123–164. <https://doi.org/10.1023/B:CCFP.0000045124.09503.f1>
- Ismail, F. Y., Fatemi, A., & Johnston, M. V. (2017). Cerebral plasticity: Windows of opportunity in the developing brain. *European Journal of Paediatric Neurology*, 21(1), 23–48.

<https://doi.org/10.1016/j.ejpn.2016.07.007>

- Klumpp, H., Keutmann, M.K., Fitzgerald, D.A., Shankman, S.A., and Phan, K.L. (2014). Resting-state amygdala-prefrontal connectivity predicts symptom change after cognitive behavioral therapy in generalized social anxiety disorder. *Biology of Mood & Anxiety Disorders*, 4(1), 14. <https://doi.org/10.1186/s13587-014-0014-5>
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin*, 126, 309–337. <https://doi.org/10.1037/0033-2909.126.2.309>
- Leventhal, T., & Newman, S. (2010). Housing and child development. *Children and Youth Services Review*, 32, 1165–1174. <https://doi.org/10.1016/j.childyouth.2010.03.008>
- Masten, A. S., Miliotis, D., Graham-Bermann, S. A., Ramirez, M., & Neemann, J. (1993). Children in homeless families: risks to mental health and development. *Journal of Consulting and Clinical Psychology*, 61, 335–343. <https://doi.org/10.1037/0022-006X.61.2.335>
- Mayberry, L. S., Shinn, M., Benton, J. G., & Wise, J. (2014). Families experiencing housing instability: The effects of housing programs on family routines and rituals. *American Journal of Orthopsychiatry*, 84, 95–109. <https://doi.org/10.1037/h0098946>
- McClelland, M., Geldhof, J., Morrison, F., Gestsdottir, S., Cameron, C., Bowers, E., Duckworth, A., Little, T., & Grammar, J. (2017). Self-regulation. In N. Halfon, C. B. Forrest, R. M. Lerner, & E. M. Faustman (Eds.). *Handbook of life course health development [Internet]* (pp.275–298). Springer. [https://doi.org/10.1007/978-3-319-47143-3\\_12](https://doi.org/10.1007/978-3-319-47143-3_12)
- Mehana, M., & Reynolds, A. J. (2004). School mobility and achievement: A meta-analysis. *Children and Youth Services Review*, 26, 93–119.

<https://doi.org/10.1016/j.chilyouth.2003.11.004>

Mills, G., Gubits, D., Orr, L., Long, D., Feins, J., Kaul, B., & Wood, M. (2006). *Effects of housing vouchers on welfare families*. U.S. Department of Housing and Urban Development.

National Center for Homeless Education. (2020). *Federal data summary school years 2015-16 through 2017-18: Education for homeless children and youth*.

Newman, S. J., & Holupka, C. S. (2014). Housing affordability and investments in children. *Journal of Housing Economics*, 24, 89–100. <https://doi.org/10.1016/j.jhe.2013.11.006>

Noble, K. G., Houston, S. M., Brito, N. H., Bartsch, H., Kan, E., Kuperman, J. M., Akshoomoff, N., Amaral, D. G., Bloss, C. S., Libiger, O., Schork, N. J., Murray, S. S., Casey, B. J., Chang, L., Ernst, T. M., Frazier, J. A., Gruen, J. R., Kennedy, D. N., Van Zijl, P., Mostofsky, S., ... Sowell, E. R. (2015). Family income, parental education and brain structure in children and adolescents. *Nature Neuroscience*, 18(5), 773–778. <https://doi.org/10.1038/nn.3983>

Pilarz, A. R., & Hill, H. D. (2014). Unstable and multiple child care arrangements and young children's behavior. *Early Childhood Research Quarterly*, 29(4), 471–483. <https://doi.org/10.1016/j.ecresq.2014.05.007>

Sanbonmatsu, L., Katz, L. F., Ludwig, J., Gennetian, L. A., Duncan, G. J., Kessler, R. C., Emma, A., McDade, T. W., & Lindau, S. T. (2011). *Moving to opportunity for fair housing demonstration program: Final impacts evaluation*. U.S. Department of Housing and Urban Development.

Sastry, N. (2012). Neighborhood effects on children's achievement: A review of recent research. In R. King & V. Maholmes (Eds.) *The Oxford Handbook of Poverty and Child*

- Development* (pp. 423–447). <https://doi.org/10.1093/oxfordhb/9780199769100.013.0024>
- Schteingart, J. S., Molnar, J., Klein, T. P., Lowe, C. B. & Hartmann, A. E. (1995). Homelessness and child functioning in the context of risk and protective factors moderating child outcomes, *Journal of Clinical Child Psychology*, 24(3), 320-331.  
[https://doi.org/10.1207/s15374424jccp2403\\_9](https://doi.org/10.1207/s15374424jccp2403_9)
- Selemon L. D. (2013). A role for synaptic plasticity in the adolescent development of executive function. *Translational Psychiatry*, 3(3), e238. <https://doi.org/10.1038/tp.2013.7>
- Shinn, M., Brown, S. R., Spellman, B. E., Wood, M., Gubits, D., & Khadduri, J. (2017). Mismatch between homeless families and the homelessness service system. *Cityscape*, 19(3), 293–307.
- Shinn, M., Samuels, J., Fischer, S. N., Thompkins, A., & Fowler, P. J. (2015). Longitudinal impact of a Family Critical Time Intervention on children in high-risk families experiencing homelessness: A randomized trial. *American Journal of Community Psychology*, 56, 205–216. DOI 10.1007/s10464-015-9742-y
- Shinn, M., Schteingart, J. S., Williams, N. C., Carlin-Mathis, J., Bialo-Karagis, N., Becker-Klein, R., & Weitzman, B. C. (2008). Long-term associations of homelessness with children's well-being. *American Behavioral Scientist*, 51, 789–809.  
<https://doi.org/10.1177/0002764207311988>
- Shonkoff, J. P., Garner, A. S., Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, & Section on Developmental and Behavioral Pediatrics (2012). The lifelong effects of early childhood adversity and toxic stress. *Pediatrics*, 129(1), e232–e246.  
<https://doi.org/10.1542/peds.2011-2663>

- Solari, C. D., Shivji, A., de Sousa, T., Watt, R., & Silverbush, M. (2017). *The 2016 Annual Homelessness Assessment Report to Congress Part 2: Estimates of homelessness in the United States*. U.S. Department of Housing and Urban Development.
- Swanson, C. B., & Schneider, B. (1999). Students on the move: Residential and educational mobility in America's schools. *Sociology of Education*, 72, 54–67.
- Taylor, J., Gibson, B., & Hurd, K. (2015). Parental preschool choices and challenges when young children and their families experience homelessness. *Children and Youth Services Review*, 56, 68–75. <https://doi.org/10.1016/j.childyouth.2015.06.010>
- Weitzman, M., Baten, A., Rosenthal, D. G., Hoshino, R., Tohn, E., & Jacobs, D. E. (2013). Housing and child health. *Current Problems in Pediatric and Adolescent Health Care*, 43(8), 187–224. <https://doi.org/10.1016/j.cppeds.2013.06.001>
- Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., Ludwig, J., Magnuson, K., Phillips, D., & Zaslow, M. J. (2013). Investing in our future: The evidence base on preschool education. Society for Research in Child Development.

# **Paper 1: Mothers' Perceptions of How Homelessness and Housing Interventions Affect Their Children's Behavioral and Educational Functioning**

## **Abstract**

Children who experience homelessness display substantial variation in outcomes, but little attention has been given to potential mechanisms linking their housing experiences to their functioning. This study explores these mechanisms using 80 in-depth interviews with parents participating in a randomized control trial of housing interventions for families experiencing homelessness. Interviews were conducted an average of 7 months after families entered a homeless shelter, when most families had exited shelters to a variety of other housing options. The majority of children were described as faring poorly on behavioral and educational outcomes while in shelters but displaying improvement after leaving the shelter. Parents commonly viewed shelters as contributing to behavioral disruptions, with restored autonomy and routines after exiting shelters contributing to recovery in functioning. Parents offered long-term rental subsidies viewed being able to afford an adequate place of their own as helping their children to fare better from reduced family stress, improved routines, and changes in children's expectations about stability. Better understanding of the housing mechanisms linking homelessness and children's functioning suggests multiple avenues for reducing disruptions to family routines during experiences of homelessness and how expanding access to long-term rental subsidies could help improve outcomes for children.

## Introduction

Three decades of studies have consistently identified homelessness as a threat to children's development in multiple domains (Buckner, 2008; Cutuli & Herbers, 2014). More recent research has identified striking variation in functioning among children experiencing homelessness, with many displaying high functioning in spite of high risk (Cutuli et al., 2013; Huntington et al., 2008; Obradovic, 2010). After being re-housed, children's educational and behavioral functioning tend to improve on average, though specific trends appear to vary by age and outcomes assessed (Cutuli et al., 2013; Shinn et al., 2008, 2015). Despite growing evidence that children who experience homelessness are not a homogenous group, we know little about the specific ways homelessness threatens healthy development or why some children function well despite experiencing homelessness. Better understanding of the correlates of variation in how homelessness affects children can inform policy and intervention efforts to support healthy development among children who experience homelessness. The present paper uses in-depth interviews with 80 parents participating in the Family Options Study, a randomized control trial of housing interventions for families experiencing homelessness, to examine how children are faring during and after stays in homeless shelters, parental perceptions of how their housing experiences affected their children, and how these factors may vary across housing interventions.

Despite homelessness being defined by families' housing arrangements, the extent to which housing explains the influence of homelessness on children's functioning is not clear. Most research on childhood homelessness has focused on homelessness as a family characteristic, serving as a general marker for developmental risk. However, treating homelessness as a family characteristic confounds selection processes that influence which families experience homelessness with developmental processes directly affected by

homelessness. A growing body of evidence indicates that specific housing features—such as quality, affordability, and stability—influence children’s development independently of poverty (Leventhal & Newman, 2010), but have not been studied among families who experience homelessness. Research on families in homeless shelters has identified notable variation in shelter environments, including quality, privacy, and restrictiveness of shelter rules, and their influence on family routines but has not specifically examined the implications of this variation for children’s functioning (Buckner, 2008; Mayberry et al., 2014). This paper aims to elucidate specific processes influencing children’s functioning during and after a shelter stay from the perspective of their parents and the extent to which parents attribute changes in children’s functioning to their housing experiences.

Better understanding of how homelessness affects children also is needed to inform policy, as the main intervention models being used to end family homelessness target different mechanisms and expose children to different kinds of housing environments. One model of assistance, transitional housing, generally assumes that homelessness reflects underlying problems with families that lead to difficulties with affording housing and self-sufficiency. This model provides congregate housing with intensive services for 18 to 24 months (including services to enhance parenting), aiming to enable families to afford housing of their own when they transition out of the program. An alternative intervention model views housing affordability as the primary problem, with rental assistance as an appropriate intervention. Two main program models are used in providing rental assistance for families experiencing homelessness. One program model, community-based rapid rehousing, provides short-term rental subsidies and light case management targeting immediate barriers to finding housing with private landlords in the community. This approach encourages families to quickly increase their income to afford

housing on their own after the time-limited assistance ends. A second (less common) program model provides long-term housing subsidies. These consist primarily of housing vouchers to private landlords that fix housing payments to a percentage of family income up to a local rent threshold and require housing quality inspections prior to move-in. This paper capitalizes on systematic differences in children's housing experiences induced by the random assignment design of the Family Options Study to explore the processes by which parents perceive homelessness, housing experiences, and housing intervention programs affecting their children's functioning.

### **How Does Homelessness Affect Child Functioning?**

Homelessness is primarily defined by families' housing conditions, but the most commonly used framework for understanding its influence on children's outcomes, the continuum of risk model, does not directly assess families' housing arrangements. Within this framework, homelessness is understood primarily as an acute risk occurring within the context of more enduring risks associated with poverty (Cutuli & Herbers, 2014). Lending support to this notion, an analysis of administrative data in four U.S. cities found that 70 to 80 percent of families who had entered a homeless shelter had a single, brief stay over a three-year period (Culhane et al., 2007). Families may increasingly resemble the broader population of families in poverty as time passes after an acute housing crisis (Shinn et al., 2008). A key limitation of the continuum of risk framework for understanding how homelessness and housing interventions affect children is that it conceptualizes homelessness as a status characteristic, a kind of social address. It is agnostic as to whether variation or changes in child functioning may be linked to

differences in families' housing environments or in other risk factors associated with homelessness. Moreover, the continuum of risk model does not distinguish among housing, family, and other sources of risk. As such, this framework provides little guidance on mechanisms that would explain differences in outcomes among these differing intervention approaches.

A second framework posits an ecological-developmental model for the influence of homelessness on children that addresses some limitations of the continuum of risk model with respect to contextual factors (Haber & Toro, 2004). This framework hypothesizes a continuum of resources, rather than risk, with homelessness being a manifestation of a lack of resources. Lack of resources in families' environments or poor person-environment fit, rather than individual deficiencies or limitations, predicts differences in children's well-being and adaptation, and the family system mediates resource losses. This framework also incorporates broader contexts outside of the family, including communities or public policy, and how these may influence person-environment fit. For example, changes in national policy to support children experiencing homelessness may have reduced differences over time between children who have and have not been homeless (Buckner, 2008). A key limitation of this ecological-developmental model is that it does not identify what specific aspects of families' living environments produce poor person-environment fit.

If homelessness is viewed as an interrelated set of housing problems, prior research on housing and child development suggests multiple processes by which homelessness may affect children's behavioral and educational outcomes. Three key sets of processes identified in this literature include family processes (emphasizing family stress theories and household chaos), parental investments (emphasizing developmental stimulation), and instability in children's

developmental contexts (Coley et al., 2013; Huston & Bentley, 2010; Leventhal & Newman, 2010). Yet this body of research has primarily focused on conventionally housed families and rarely captured the intensity of housing problems often experienced during homelessness. Whether processes previously linked to families' housing may operate in qualitatively different ways in the context of homelessness and non-conventional housing arrangements, such as congregate living facilities or temporary shared housing, is unclear. Additional processes may be salient for families experiencing homelessness. The remainder of this section considers what is known about how the housing problems families experience during homelessness may affect children's functioning.

### **Homelessness and Family Processes**

Families who experience homelessness face significant economic and housing stress, which can disrupt family processes. Family stress models provide a framework for understanding how these stressors may influence child outcomes through family processes. Studies of economic stress and housing problems have commonly applied Conger and Elder's (1994) family stress model, which hypothesizes that economic stress negatively affects children's outcomes through negative effects on parental mental health, particularly for behavioral health outcomes, and subsequent influence on parenting. These studies have found that these family stress mechanisms partially mediate the influence of economic stress (Gershoff et al., 2007) and of poor housing quality and housing instability (Coley et al., 2013) on child behavioral outcomes, over and above the influence of income alone. No studies of family homelessness have formally tested this family stress model, though some have established relationships among parts of the model.

Homelessness is negatively associated with parental psychological functioning (Bassuk & Beardslee, 2014; Masten et al., 1993). Among families who have experienced homelessness, parental stress is associated with negative parenting practices (Torquati, 2002) and parenting quality is associated with child educational and behavioral outcomes (Herbers et al., 2011).

Family processes also may be sensitive to environmental contexts. Environmental interferences and disorganization in the home, termed *chaos*, is predictive of child behavioral problems over and above family poverty (Evans et al., 2005; Evans & Wachs, 2010). Poor housing quality, particularly in the context of shared or congregate living spaces, may increase children's exposure to chaos during episodes of homelessness. Parents in shelters and doubled-up living situations in the Family Options Study described difficulty in maintaining order and discipline due to chaos in these environments and undermining of their parental authority by shelter staff or other adults in shared living situations (Mayberry et al., 2014). Noise is also a common complaint, whether from congregate living quarters, overcrowding within units, lack of space for children to play, or families with older children sharing living space with families with young children (Friedman, 2000). Families living in housing of poor physical quality and in doubled up living arrangements report similar problems with noise, crowding, and environmental interference with developmental activities (Bartlett, 1998; Bush & Shinn, 2017).

Family routines may buffer the effects of economic stress and instability on children by providing stability and continuity during periods of stressful change or instability (Boyce et al., 1983; Budescu & Taylor, 2013; Fiese et al., 2002; Jensen et al., 1983). Disruption of family routines on top of the stress of homelessness then may be particularly detrimental for children's behavior. Moreover, families experiencing homelessness face challenges in their housing environments to maintaining family routines. The physical layout of shelter living spaces,

particularly in congregate shelters where multiple families are sleeping in the same room, may provide inadequate privacy (Friedman, 2000). Social rules set by shelters that dictate family schedules—such as mandatory times to leave in the morning, meal times, and curfews—can also disrupt prior family routines or be misaligned with child needs at varying developmental stages (Friedman, 2000). A prior study using the same data as the present paper found that physical spaces and social rules in emergency shelters or “doubled-up” living situations (where families are temporarily sharing housing with others in the same dwelling units) can disrupt family routines and rituals, though it did not explore links between these problems and child functioning (Mayberry et al., 2014). Poor physical housing quality and frequent moves can also disrupt routines among families in poverty (Bartlett, 1998; Murphey et al., 2012).

### **Homelessness and Parental Investments**

Economic resources invested in children, both directly via goods and activities and indirectly through their environments, also affect developmental outcomes—particularly educational and cognitive outcomes (Yeung et al., 2002). Children’s home environments are an important source of positive developmental stimulation for cognitive development—including the physical environment (aesthetics and safety), stimulating objects (such as books, toys, or instruments), and parent-child interactions (such as learning activities, and responsiveness; Bradley et al., 2001). Economic stress due to being unable to afford housing may limit families’ ability to invest in children by buying toys, books, and other developmentally stimulating learning materials (Newman & Holupka, 2014). Homelessness may generate both challenges to and additional opportunities for developmental stimulation. The social quality of homeless living

situations could potentially contribute to or hinder stimulation available in children's home environments. Shelters policies and rules may influence the amount of time children spend in the "home" relative to other contexts and child-parent interactions. Shelters may require families to leave the shelter during the day (Friedman, 2000), which reduces family exposure to that environment but may create additional stressors. Some require children of all ages to be with their parents at all times in the shelter (Friedman, 2000), reducing opportunities for independent play or socialization.

### **Homelessness and Instability**

Housing instability is linked to instability in other important contexts of children's lives, including changes in schools and family composition. Reducing school instability and absenteeism among school-aged children who experience homelessness has been a key focus of both policy and research. Housing instability may disrupt attendance at children's current school or lead to absences during changes in school enrollment. The McKinney-Vento Homeless Education Assistance Act of 2001 (42 U.S.C. § 11431 et seq., West, 2002) includes provisions designed to mitigate disruptions to schooling during an episode of homelessness, including mandating provision of transportation to the school a child was enrolled in prior to entering a shelter, if desired, and reducing barriers to enrollment if a child changes schools during the year while homeless. It also requires schools to designate a homelessness liaison and to track and report on student homelessness.

Residential and school mobility are related, with about a quarter of residential moves leading to a change in school in the general population (Swanson & Schneider, 1999). Reviews

indicate school mobility is associated with poor academic achievement and school dropout, with effects strongest for mobility in the early elementary and high school years (Mehana & Reynolds, 2004; National Research Council and Institute of Medicine, 2010). Children who have experienced homelessness attend more schools on average than low-income families who have not been homeless over a five-year period (Shinn et al., 2008). Lack of stability in both school and residence may be particularly detrimental for children's school engagement, as children who had been homeless and also changed schools before third grade display worse classroom engagement than students who had only been homeless (Fantuzzo et al., 2012).

When children experiencing homelessness change schools during the academic year, missed school during the transition may explain part of the associations found between their school mobility and academic outcomes. School absenteeism is associated with lower academic achievement, reduced school engagement, and school dropout (Ou & Reynolds, 2008). One study found that school absenteeism partially mediated associations between ever having experienced homelessness, school mobility, and problems in task engagement among children in third grade (Fantuzzo et al., 2012).

### **Impacts of Housing and Service Interventions on Child Functioning**

Evidence on the effects of housing assistance on children's development is limited, and virtually no research on housing assistance has focused on homeless families. Studies of the effects of long-term housing subsidies have found scattered small positive effects on children's educational and behavioral outcomes in the short-to-medium run, with effects primarily being found among young children (Jacob, 2004; Jacob et al., 2015; Wood et al., 2008). These studies

have primarily compared families receiving housing vouchers to those already renting housing who did not receive assistance or to families receiving other kinds of housing assistance. Receipt of housing vouchers is linked to improved housing quality, housing affordability, reduced food insecurity, and reduced homelessness but has limited effects on housing mobility, neighborhood quality, and school quality (Ellen, 2018). One exception for school quality is that families who receive vouchers when their oldest child is approaching school entry are more likely to move to a better school district (Ellen et al., 2016). No studies prior to the Family Options Study have examined the effects of short-term rental subsidies on child functioning.

Long-term housing subsidies also may affect families' housing conditions and factors related to their housing. In the larger Family Options study, long-term rental subsidies reduced returns to homelessness, economic stress, parental psychological distress, and school instability (Gubits et al., 2018). Low-income families receiving Temporary Assistance for Needy Families who were offered vouchers also experienced reduced homelessness and economic hardship (Wood et al., 2008). Short-term rental subsidies did not have significant effects on housing outcomes or related processes in the Family Options Study (Gubits et al., 2018).

Project-based transitional housing provides supportive services (including, frequently, parenting classes) that may directly influence child and family functioning in addition to providing housing, but little is known about child functioning or the services children receive in transitional housing apart from the Family Options Study. A single multi-site evaluation study that did not have a comparison group reported mixed findings (Burt, 2010). Parent report of behavior problems decreased from when children entered shelter to when families left the transitional housing program. However, children's school engagement declined in the year after families exited transitional housing and school absenteeism did not change. The Family Options

Study found no significant effects for transitional housing on child well-being relative to usual care (Gubits et al., 2018).

The Family Options study found no long-term impacts of transitional housing on housing outcomes or related processes, though there was a short-term reduction in shelter use during the period covered in this study when many families were still in transitional housing (Gubits et al., 2018). The Burt (2010) study found that about two-fifths (41%) of children changed schools when their families exited transitional housing. Services offered through transitional housing could also potentially affect family processes and children's outcomes. Parental report on services in Burt (2010) indicated most children received some form of services while in transitional housing, varying in the extent to which services were provided on-site or through referrals. The majority of children received childcare, adult mentoring, and recreational activities, with about one-half of these children receiving these services through on-site programs. Few children received mental health or school tutoring services, which were primarily provided on-site and also most likely to be rated as unhelpful by families. Whether services were associated with child functioning was not examined.

## **Research Questions**

The present study explores parents' understanding of how homelessness and housing interventions affect child functioning by answering three research questions. First, what patterns of change in children's behavioral and educational functioning do mothers observe between their initial shelter stay and current living situation? Second, how do mothers view their housing as influencing their children's functioning during and after a shelter stay? Are changes in children's

functioning after a shelter stay primarily attributed to changes in housing or other factors? Third, do changes in child functioning and the reasons for those changes vary across the housing interventions families are offered? Of particular interest is whether differing implicit theories of the causes of homelessness across the interventions may help explain differences observed across interventions.

### **Method**

Semi-structured in-depth, in-person interviews were conducted with 80 families who had been recruited for a larger multi-site intervention study several months after having entered a homeless shelter. Eligibility criteria for the larger study included a minimum one-week stay in the shelter, having at least one child aged 15 years or younger, and being eligible for at least one of the study interventions based on program eligibility criteria provided to the study team. After determination of eligibility and completion of a baseline survey, families were randomly assigned to one of three study interventions or to usual care. The three interventions consisted of a priority referral to: 1) a long-term rental subsidy, provided through housing choice vouchers; 2) a short-term rental subsidy with light services to help families obtain housing, termed community-based rapid re-housing, and 3) project-based transitional housing, which typically provided housing in a congregate living facility or multiple apartment units at a single site for 18 to 24 months along with a broad set of supportive services. Families offered usual care received no special offer of assistance but were free to utilize all services and interventions that were available and continued to work with shelter staff to find housing (see Gubits et al., 2018 for additional information on interventions).

## Sample

Families were recruited for the present study across four of the twelve study sites: Alameda County, California ( $n = 19$ ); Connecticut (including Bridgeport, New Haven, Norwalk, and Stamford,  $n = 23$ ); Kansas City, Missouri ( $n = 18$ ), and Phoenix, Arizona ( $n = 19$ ).

Interviews were conducted between 3 to 10.5 months after the family had been in shelter. All families reported on the shelter they were living in at study enrollment and on subsequent living situations.

Family characteristics, shown in Table 1, were comparable to national norms for families who use emergency shelters (Solari et al., 2017). The sample was racially and ethnically diverse: 53 percent of families were black, 30 percent white, and 17 percent other or mixed race; a quarter of families were of Hispanic ethnicity. Most families were single-parent, mother-headed households. A plurality of families (44%) had less than a high school education, and 35 percent had completed high school or a GED. The average family had two children living with them. Of the 165 children with the families interviewed at follow-up, 28 percent were age 0 to 2 years, 18 percent age 3 to 4 years, 22 percent age 5 to 7 years, 22 percent age 8 to 12 years, and 10 percent age 13 to 17 years. Two parents interviewed had at least one child living with them in the shelter but no children living with them at the follow-up interview. One of them had a recent informal separation and could report on their children's functioning in multiple living situations after shelter and was included in analyses of child functioning. The other parent could only report on their children's functioning while in shelter and was excluded from analyses of patterns of children's functioning.

**Table 1***Characteristics of Study Sample*

<u>Participant characteristic</u>	<u>Percentage (n=80)</u>
Gender	
Female	96
Male	4
Race	
Black	53
White, non-Hispanic	19
Other or multi-racial	14
White, Hispanic	11
Native American	4
Assigned intervention	
Permanent subsidy	25
Short-term rental subsidy	24
Transitional housing	24
Usual care	28
Study site	
Alameda County, California	25
Connecticut	29
Kansas City, Missouri	23
Phoenix, Arizona	24

**Interview Protocol**

Analyses focused on a sub-section of a larger interview protocol focused on child well-being and family processes (interview questions shown in Supplementary Table S1). However, full transcripts were analyzed, as parents also spontaneously discussed their children’s functioning in other sections of the interview protocol (housing history, social supports, and effects of family separations and reunifications). Participants were compensated \$50 for their time, and involvement in the present study had no effect on their ability to participate in the larger study.

## **Analysis Plan**

Interviews were audio-recorded and professionally transcribed verbatim by an external team at Abt Associates, which conducted the larger study. This team de-identified the transcripts, which were then provided to the study analysis team at Vanderbilt University and uploaded into NVivo 9 for analysis. The lead author selected an initial subset of 10 interviews to read inductively to develop a coding scheme for child functioning and factors parents attributed as influences on outcomes. This coding scheme was shared with the study team for feedback and was refined. With a second analyst, the coding scheme was applied to the remaining interviews. Weekly reliability checks were conducted on 25 percent of the interviews ( $n = 20$ ). Inconsistencies in coding were resolved by consensus, with the codebook being updated continually to enhance clarity and to accurately reflect parents' perceptions of their children's well-being and housing environments.

Constant comparative analysis on the themes identified in the final coded data was conducted to: 1) analyze patterns in children's behavioral and educational functioning, 2) assess housing and non-housing factors parents identified as influences on their children's functioning, and 3) examine whether patterns and influences differed across housing interventions. Constant comparative analysis compares each instance in the data to other instances that appear to belong in a similar category (Strauss & Corbin, 1990). The first stage of comparative analysis identified commonalities and differences in patterns of children's behavioral and educational functioning in their current living situations relative to their initial shelter stay as well as any intermediate living arrangements (e.g., favorable, unfavorable, or no change). The second stage examined similarities and differences in the factors perceived as contributing to these patterns of changes in

child functioning. Comparisons were then made across behavioral and educational outcomes to examine whether factors identified were common across these outcomes or specific to one domain of functioning. The final stage of analysis examined variation in both patterns and factors explaining these patterns by housing interventions—first by the intervention the family was offered by the study and then by the intervention(s) families used.

### ***Credibility Checks***

Peer debriefing and inter-rater reliability checks were conducted to enhance the credibility of the analyses. Both analysts met weekly to discuss any issues with coding and met regularly with a senior research team member to evaluate the coding categorizations and how coding issues were resolved. Weekly reliability checks were conducted on key child functioning outcomes and quantitative factors related to outcomes, such as number of moves and schools attended, for the 20 percent subset of subsequent interviews coded by both analysts and discrepancies were resolved by consensus. Housing situations had been coded by a prior set of analysts and inconsistencies in those analyses had been resolved by consensus among a team of five analysts (see Mayberry et al., 2014). Negative case analysis (Lincoln & Guba, 1985) was used to look for families or children with opposite experiences of emerging themes. We also used triangulation (Lincoln & Guba, 1985) of emerging themes from the qualitative data with survey data provided by the families—for example, cross-checking whether themes emerging from qualitative analyses were consistent with or diverged from those observed in the survey data.

## **Results**

All but one of the 80 families had moved out of the shelter they were living in when they enrolled in the study at the time of the follow-up interview, an average of 7 months after enrollment. Very few families (9%) were currently living in an emergency shelter at follow-up (a few additional families had stayed in at least one other shelter before moving into their current living situation). The majority of families were either in their own place (some with and some without housing assistance) or in shared housing with family or friends at the time of the interview. A minority (13%) were living in transitional housing programs. Thus, virtually all families had at least one living situation to compare to their experience in shelter, and most were in housing environments substantially different from emergency shelters.

### **Behavioral and Educational Functioning After a Shelter Stay**

#### ***Behavioral Functioning***

Mothers most commonly reported that their children's behavior worsened while in shelter but that these acute problems had largely gone away 7 months later ( $n = 50$  of 69 mothers who discussed their children's behavior, 72%). (Note that throughout, percentages of families may add to more than 100% because some families have multiple children who displayed different patterns of functioning). Specific behavioral problems in shelter varied by age. Behavior problems and challenges reported among young children included tantrums, acting out, increased anger, worsened mood, more frequent crying and distress, more frequent accidents or bed wetting, less responsiveness to discipline, and problems with eating or rapid weight loss that was

worrisome to the parent. Among school-aged children, behavioral challenges reported included worsened mood, greater stress, greater challenges with discipline, more frequent parental conflict, increased fighting with siblings (or, conversely, refusing to talk to each other), aggressive behavior toward other children, refusal to go to bed, and problems with children wetting themselves at school. Adolescents were reported as acting out, crying more often, emotionally shutting down and refusing to talk, and being frustrated with not being able to see friends. At the extreme, one adolescent ran away from the shelter and ended up temporarily living with the mother's ex-husband. Recovery in functioning typically was described as these acute problems dissipating: fewer tantrums, improved mood and decreased stress, better cooperation and fewer disciplinary problems, more sociability and less aggression toward siblings and peers, restored meal and bedtime routines, and problems with accidents or wetting going away.

Some children did not display any overt behavioral challenges during the shelter stay. Sixteen mothers (23%) reported their children behaving well both during and after that time. Mothers described these children as, "going with the flow," "always happy," or "adjusting to pretty much anything." Some of the younger children who did not display behavioral challenges were happy with having friends to play with in the shelter. Other children were described as not being happy or "stressed but not showing it" while in shelter but did not act out. Yet mothers generally described these children as being happier after leaving the shelter.

Some children's behavior did not appear to have been disrupted during the shelter stay, but worsened some time afterward (15 mothers, 22%). These cases were typically tied to specific challenges in new living situations. In some cases, children felt less safe when the subsequent living situation was in a more dangerous neighborhood or housing quality was extremely poor.

For example, one child fared adequately in shelter but started having panic attacks after moving to an unsafe neighborhood. Other children became frustrated when families moved into shared living arrangements the children perceived to be more restrictive than their initial shelter stay. This was particularly true among young children in doubled up living situations that were not child-friendly or in shelters or transitional housing programs that had more restrictive rules compared to their initial shelter. Lastly, some older children who had changed schools when their family moved out of the shelter were not happy in their new school and began exhibiting greater behavioral problems. Some cases where behavioral functioning worsened after leaving shelter were instances of transient problems (i.e., child faring worse in interim living arrangements before moving into their own place) or fluctuations in behavior across multiple living situations (e.g., faring somewhat better in one doubled-up arrangement and somewhat worse in another).

Finally, two mothers described children displaying behavioral challenges both in shelter and at follow-up. One mother, who had not yet left the initial shelter, reported one of her four children had ongoing challenges with refusing to listen to the parent, but the child's older and young siblings had not displayed behavioral problems. The mother reported this young school-aged child had always been different from her siblings and more difficult to parent, but she also perceived frequent prior moves and changes in routines as contributing to these problems. The other mother, living in rental housing, described one of her daughters as unhappy both in the shelter and in their current apartment. This school-aged daughter had a strong attachment to the apartment and neighborhood the family had been living in for several years prior to entering the shelter and kept asking whether they could go back. In the shelter, the daughter had been unhappy about having to stay in their room all of the time, which the mother had required over concern about other girls in the shelter frequently fighting in common areas. In their current

apartment, the mother reported the family's frustration over their apartment being infested with mice and increased conflict over bedtimes.

### ***Educational Functioning***

Virtually all school-aged children were enrolled in school, and reports of frequent or extended school absences (missing more than a week of school) were rare. Patterns of educational performance varied. Similar to behavior, the most common pattern was faring worse during their shelter stay followed by faring better after leaving, accounting for about half of families who discussed educational performance ( $n = 14$  of 27 families, 52%). Worse educational performance in shelter was most commonly attributed to behavioral problems at school or to having a harder time concentrating on homework, with these issues generally lessening after moving out of the shelter.

Children faring well both during and after their shelter stay on their educational performance was also common ( $n = 11$ , 40%). Some mothers described these children “good kids” who kept on getting As and Bs in school and doing their homework throughout. Several of these mothers described maintaining the same routines around homework and educational activities as before they entered shelter. For example, one mother asked about these routines said, “That hasn't changed from when we had our own place till now. I've always sat with them and did their homework with them.” Several of these mothers described ways they sought to ensure their children had environments where they could concentrate—for example by going to libraries or completing some or all of their homework at school.

Few mothers reported children who fared well on their educational performance during their shelter stay but faring worse afterward ( $n = 5$ , 19%). Several of these cases were linked to

post-shelter school changes seen as undesirable by the child. One mother whose child attended multiple schools reported challenges with different school curricula and standards. In another case, a planned temporary separation where the children went to live with family members in another state fell through and the children had to move back in with the parents and back into their former school. No mothers reported a pattern of their child faring worse in shelter and not showing improvement after leaving the shelter.

### **Housing and Non-Housing Factors Influencing Children's Functioning**

Mothers reported a wide range of factors as contributing to changes in children's functioning. Key factors included the quality of their immediate housing environment, restoration of control over family routines, and improved school stability resulting from housing stability. Non-housing factors included access to services and family or child characteristics.

#### ***Housing Factors: Housing Quality – Privacy, Space, and Noise***

Lack of space and privacy in shelters were seen as factors contributing to problems with child behavior and homework completion. Many families had a single bedroom, regardless of family size, or were sharing rooms with another family; others were in congregate facilities sharing sleeping quarters in large rooms with multiple other families. After leaving the shelter, families that moved into their own housing often attributed improvements in behavior and homework completion to their children having more space and privacy. One mother described this dynamic with her child's behavior saying,

I just couldn't stay there any longer with her behaviors, but she's calming down much now...She's happier because she has her own space...so she can go in and close the door and when we disagree.

Another mother compared their children's homework environment in shelter to their current living situation in their own place across from a library:

[In shelter] there was a lot of distractions, and even if you go in your room the people are so rude. They keep knocking until you answer the door. So it was pretty hard... [Living here] it's easier. [The children] have more room. If they need thinking time they have their own rooms or could go down to the basement and lock their self down. There's access over there to a computer lab after school from three to five.

Reduced crowding also mattered, especially for families with multiple children. In particular, not having to share a single room appeared to reduce problems from sibling conflicts. As one mother with five children said:

I can say they're less stressed living here because the shelter was more cluttered. There were other kids there, we didn't have our own kitchen, and it was just too much, but at least now if they get tired of each other, they can move to another room. They don't have to really be bothered with each other and somebody on the top bed kicking down or doing little mean stuff to each other.

Others indicated that having to share a single room while in shelters or motels did not result in overt behavior problems but that their children were noticeably happier after the family had a place of their own again. Families that were living in motels or were doubled up with family or friends were more likely to indicate that lack of space was still a challenge. Lack of space for

younger children to take a time out when acting out or for older children to cool off after disagreements with parents or each other perpetuated stress and tensions in shelter.

Several parents reported difficulty managing young children's behavior in shelters because of a lack of space for them to play and shelter rules on noise and child behavior. Children were frustrated at having to stay quiet and be near their parent at all times; parents were stressed about potentially losing access to the shelter from being written up if their child acted out too often. Multiple parents who were in their own housing at follow-up expressed relief that their young children could "be kids again," attributing improvements in their mood to having sufficient space and privacy to be noisy and have fun. One mother said:

It was chaotic in shelter because you couldn't really be a kid in there...every little thing they would write you up. Here he can be more of a kid because he's at home.

This example illustrates how shelter rules can override parents' perceptions of their children's needs and how they would parent differently in the absence of these rules. Because parents' ability to stay in shelters is contingent upon compliance, their autonomy and control over parenting practices is compromised. Greater autonomy over space and play in their own living space, including having toys and possessions, also aided some parents in discipline relative to their shelter experience. As one mother expressed:

When you're in a shelter it's like you can't tell them. There's nothing to take away because you don't have nothing there...so there's nothing to discipline your kids with other than you yelling and screaming and stressing yourself out.

Noise in shelters was commonly reported and was linked to disruptions in multiple aspects of children's functioning. Multiple parents of school-aged children reported that sharing space in shelters with families who had infants waking and crying throughout the night disrupted

their children's sleep. Noise in shelter was also reported as an obstacle to school-aged children being able to concentrate on completing their homework. Most families who reported problems in noise in shelter indicated improvements in their post-shelter living situations—particularly if they had a place of their own, but also among many who were doubled up with family or friends.

### ***Housing Factors: Housing Quality and Routines***

Several parents reported having to stick to their shelter's schedule as one of the most difficult aspects of living in the shelter. Shelters' schedules did not always align with their children's needs and schedules, with lights-out times and set eating times (combined with commonly not being allowed to store their own food) being particularly challenging for many parents. Additionally, some shelters require that families leave the shelter by a set time each morning. When asked about trying to get homework completed while in shelter, one mother described the strain of managing their shelter's schedule requirements:

It was more difficult because of the times, like the tutor would come on at four, and the girls wouldn't even be off the bus sometimes until 4:30, so she'd only get 30 minutes of tutoring, and dinner would be at five, and then at six dinner is done, but at seven we have meetings until eight and then it's just an hour before bed, so bath time, it's like, you've got to squeeze in the time to do it.

Families who obtained a place of their own often saw re-establishment of their autonomy and the family's normal routines as an important factor contributing to improvement in their children's behavioral health (and overall well-being). One mother shared that, compared to their time in shelter,

They are a lot calmer, not so stressed...smiling, happy every day. They got a routine going on for them and...I think the routine is more what helps it out too...they can sit and relax and lay around the house instead of worrying about getting our clothes or bags and hurrying up.

Some families in hotels or motels reported similar benefits from regaining control over their schedule and living space, though crowding often remained a source of strain.

As with shelters, families in transitional housing also encountered a wide range of physical settings and restrictiveness of rules, though with a few notable differences. For example, one program had a single facility containing both emergency shelter and transitional housing units, separated by floor; another was a large converted hotel with studio units. Others were smaller dedicated facilities with one- to three-bedroom apartments with their own kitchen or were apartment-style living quarters with kitchen facilities shared among a small number of families. Unlike shelters, most transitional programs provided kitchen facilities for families to use and allowed them to store food. Another key difference was that many programs allowed more flexibility in coming and going from their housing unit during the day, providing greater autonomy for parents relative to shelters.

The majority of families in transitional housing did not report significant challenges with routines, despite programs having rules for families to follow. Families staying in dedicated transitional housing facilities with apartment-style units less commonly indicated challenges with rules or routines relative to those in other types of facilities. The most common challenge reported was attendance at mandatory program meetings, particularly when family circumstances required more flexibility. For example, one mother who was pregnant indicated she was experiencing morning sickness and cervical pain that interfered with her ability to attend

required program meetings, but the program required a doctor's note for the absence to be excused. Her housing status in the program became precarious as a result—she was put on internal probation, which only exacerbated her challenges by triggering three *extra* required meetings per week. She felt that the program staff did not respect the challenges and pain she was experiencing, being told “well, sick people work every day.” This parent and others with prior work and independent living experience perceived many of the required classes as “doubling up on what I already know.” This was particularly frustrating to parents who were both working and enrolled in degree or certificate programs, as their time was already quite constrained.

For other families, program rules and structure were important reasons for turning down offers of transitional housing programs or leaving early. These parents tended to frame their decision in terms of a general desire for greater autonomy rather than concern over any particular rules. These parents also more commonly had extensive prior experience with independent living. For example, one mother who turned down a transitional housing offer said,

I denied because I don't want to stay – I want to be independent. I never have been all on the state and food stamps. I have all my things...I was established. I had my career, and here it's like I'm a nobody.

Experiences of families who were living in shared housing were mixed with respect to routines. Some families reported indicated crowding and differing schedules and rules led to conflict or strain—particularly when sharing housing with other families with children. Family members who were viewed as being less structured or more permissive towards children were a source of conflict for multiple parents. For example, one family was sharing housing and

childcare responsibilities with her sister and indicated increased behavioral problems relative to their time in a shelter:

At [the shelter] she listened...I only had to tell her once. She didn't really act out...and being over here it stresses her out because...when my sister has the kids my sister will let them do whatever they want...so she gets out of control.

Another source of conflict was behavioral challenges of the adults the families stayed with, particularly abuse of alcohol and drugs. However, multiple families sharing housing reported no issues with maintaining routines. One parent indicated:

They were on a really good routine when I was at my sister's, 'cause it was like, day-in, day-out. Go to school, come home, dinner, bath, homework, go to bed.

### ***Housing Factors: Housing Instability and Parental and Child Stress***

The strain of both the circumstances that resulted in parents entering a shelter and of finding housing before they exhausted the time they could stay often weighed heavily on parents. One parent, when asked about whether living in shelter had affected their school-aged child's ability to complete homework said,

My mind was so on everything else that I really didn't even notice...they didn't really send too much home...I would still have him do his homework. My mind was going a thousand miles a minute, what I needed to do, how I needed to do it, so it wasn't the best place.

Other families in the shelter were viewed as a source of strain by multiple parents, with one mother saying,

It's just a lot of drama. Like a lot of people just going through their own thing. But it's just hard to interact with people that are homeless too. I am sure that they have a lot of stress and stuff. So it tends to get on people and just things happen. I just want to leave. Families also described avoiding confrontation with other parents because of concern that it could lead to being kicked out of the shelter if a parent filed a complaint with shelter staff. Multiple parents indicated frustration at seeing families who were trying to follow the rules getting written up or kicked out due to complaints from other parents seen as not following the rules or stirring up trouble.

Many parents expressed their concern for the strain not having stable housing was placing on their children and that seeing their children not faring well was a source of personal stress as well. Stress was linked both to challenges within the immediate housing environment and from the cumulative strain of moves and lack of stability. Noise, crowding, clutter, and lack of control over mealtimes and food all were identified by parents as contributing to their children feeling stressed while in shelters. Some parents linked both their own and their children's stress not only to the immediate housing environment, but also to their fatigue and frustration over repeated moves and, for children, repeated changes in schools. One mother indicated,

I've been homeless on and off for the last 13 years...I seem to keep getting thrown back, and I'm getting too old for this. I want somewhere for my kids to go constantly...I'm getting tired of putting stuff into storage and looking for a motel to stay in. I don't want that kind of life for my kids because the older my daughter got, she started noticing, and she's missed out on a lot of school because of it...my daughter's been held back in school and she's lost some of her learning because of us not having anywhere to go all of the time and scraping for somewhere to sleep.

Another mother indicated her children cried a lot in the shelter. She would indicate she understood how they felt and that she was doing everything she could to help “get us out of it and stay out of it.” Conversely, several families that had moved into their own housing after shelter noted that they and their children were more relaxed. The expectation of stability and having a place to call home was seen as having a calming influence and relieving stress.

### ***Housing Factors: Housing Stability and School Stability***

Housing and school stability varied widely among families with school-aged children. About two-fifths of these families had lived in just one place after exiting the shelter and had one or fewer school changes over about a 7-month period ( $n = 18$  of 43). An additional 11 families had multiple residential changes but one or fewer school changes over this period. The McKinney Vento Act has multiple provisions for children experiencing homelessness designed to ensure school continuity and to expedite enrollment if they need to change schools while experiencing homelessness. Multiple parents referenced policies that provided for transportation to their school while children were in shelters. Most parents who reported their child had changed schools once indicated this was due to moving to a residence in a different school district after their shelter stay. Half of these school moves were during the child’s summer break, which may have been seen as being less disruptive than changes that occurred during the school year.

However, experiencing both residential and school mobility was not uncommon among families with school-aged children, despite the relatively short time between shelter entry and follow-up. Indeed, some children and families had experienced a large number of residential changes (3 to 5,  $n = 20$ ) or school changes (2 to 4,  $n = 13$ ) in this span, with 8 families reporting

both multiple moves and school changes. Not surprisingly, most parents whose children who had experienced multiple school changes reported their children's educational performance had been suffering. Behavioral challenges both within and outside of school were also common in this group, including disengagement from school and conflict with teachers. Though residential and school mobility commonly coincided with each other, family separations also led to school changes for the child without residential changes for the parent in some cases.

When housing situations stabilized, even families with a high degree of instability prior to entering shelter reported relatively quick improvements in educational performance. One mother reported,

Last year they went to a total of maybe four or five schools...my youngest son had a big problem to adjusting. He always had an attitude, he was always getting into trouble, he was always mouthing back to his teacher. I guess he thought, 'Well, I'm not going to be here for long, so what the heck?' But now it is different. He's been getting a lot of A's in school, doing reading one up, math one up. Before he was going grades low from moving school-to-school. Now his situation, he's at the top of his class, and my daughter too. She was getting F's, she was failing big-time, and since we've moved here and since they've settled down in one spot, the grades have improved so much.

### ***Non-Housing Factors: Access to Services***

Three families who reported their children had significant behavioral difficulties prior to entering shelter indicated that the shelter linked the children to mental health services. They attributed substantial improvements in their children's functioning to these services. One such

mother said her child “got evaluated by a psychiatrist and got on meds. She still has behavior challenges, but is much less aggressive now.”

Some parents found required classes and services in shelters or transitional housing to be unhelpful, taking up time they felt could be better used in pursuing other goals. For example, one mother was working to finish an associate degree in early childhood studies while in a transitional housing program, but was required to attend a weekly parenting class, saying:

I could actually teach a parenting class. But they require you to go. And I already know all of this stuff. I probably know more than what they know, and I can't really say that, but they're just teaching the basics...I'm glad they have it because some people don't know much, but that's the most difficult part.

The same mother expressed frustration at being required to attend mandatory financial and life skills classes when her main need was assistance with housing and childcare while trying to complete her degree.

### ***Non-Housing Factors: Family and Individual Factors***

As previously discussed, parents whose children were faring well both during and after shelters tended to attribute this to their children's individual qualities of character (“good kids”) or of adaptability and resilience (“goes with the flow”). For example, one mother said,

I like to think of my kids as little warriors. Through all of that stuff that I feel like I done put my kids through, my kids are good kids. They maintain an A and B average.

They know I come from the slums of Mexico where there is no water or nothing and no food and we don't have the privilege like Americans do in Mexico. So I explain to them

that in order to make it in society their education and their intellect is what's going to separate them from you know, what I'm going through now.

Yet, as shown in this mother's description, there may be other factors not directly described by parents contributing to their children continuing to fare well. Parents' ability to cope with stress and maintain a sense of normalcy may have supported their children's ability to adapt to the stressors of shelters and shared housing arrangements. For example, one mother with a young child used a combination of consistency in routines, object attachment, and conscious shielding of her child from her personal stress to provide a sense of normalcy across multiple moves, saying:

I've gotten used to living like a gypsy...I keep the routine the same even if we're moving. Wherever we move, I have his little space, his little toys. I keep things the same for him so he knows he can have a certain amount of toys...and I keep his routine going to bed, I try to keep it the same each time. And so I try to keep things as normal as I can even though there's changes...and I don't take my frustrations out on my child ever. It's not him to carry my frustrations. It's for me to deal with."

Families reported a variety of adaptive strategies to cope with the difficulties of shelters, though few were common across families. Examples included modifying spaces to provide greater privacy (e.g., hanging up a blanket to provide a private space) and avoidance—spending more time in public spaces, such as libraries or parks, to get schoolwork done or to allow their children to play and be noisy.

## **Housing Interventions and Children's Functioning**

Patterns of children's functioning and parental explanations for those changes in functioning varied by the housing interventions families were offered as part of the Family Options Study, as did their current living arrangements. Most families offered long-term rental subsidies were in a place of their own, as were the majority of families offered short-term rental subsidies. Only a minority of families offered transitional housing were currently living in transitional housing, but they accounted for most of the families who used transitional housing. Families offered usual care were primarily either in their own housing or living doubled up, accounting for the majority of families who were doubled up. Thus, the interventions offered substantially shaped families subsequent housing experiences and exposure to the positive and negative housing factors previously discussed.

### ***Long-Term Rental Subsidies***

The majority of families (13 of 20, 65%) offered long-term rental subsidies successfully used them to find housing and were living in a place of their own with the subsidy ( $n = 12$ ) or had received a voucher and were still in the process of finding a place ( $n = 1$ ). Further, two additional families offered long-term rental subsidies did not take the offered subsidy but were housed with a different long-term rental subsidy. Of those who were not using a long-term rental subsidy, most families indicated they would have used the voucher if they had been able but were either ineligible (e.g., felony history, recently had voucher) or were unable to successfully find housing in the time allotted (e.g., due to transportation issues). Half of families offered long-term rental subsidies had multiple moves—more commonly than families offered short-term rental subsidies (42%) or usual care (36%), but less commonly than those offered transitional

housing (68%). This was primarily due to families needing to find places to stay after leaving shelter but still being in the process of searching for a rental unit that met program standards and completing the leasing up process. In the broader study, by a 20-month follow-up survey, families offered long-term rental subsidies had fewer moves, on average, compared to those offered usual care (Gubits et al., 2015).

Three-quarters of families offered subsidies who reported on their child's behavior ( $n = 13$  of 17) indicated their children were faring better on behavioral outcomes; the remainder reported their children were faring well both during and after their shelter stay ( $n = 4$ ). Similarly, nearly all families with school-aged children who discussed their child's educational performance indicated it either improved relative to their shelter stay ( $n = 7$ ) or had been good both during and after the shelter stay ( $n = 4$ ). One family reported somewhat worse educational performance due to the child having nothing else to do while in shelter and having more distractions now that they were in their own place.

Parents most commonly attributed children's improved functioning to benefits tied to having a space of their own that they controlled. Many mothers felt they were able to restore prior routines and behavioral expectations of their children that had been disrupted in shelters. Improved sleep was connected to better ability to maintain bedtimes and bedtime routines and reduced noise in their own space. In contrast with their children's dissatisfaction with the quality and availability of food in the shelters, multiple mothers indicated having own kitchen and cooking facilities helped improve their children's mood, as the family could prepare their own food, eat on their own schedule, and have food and snacks readily available. For young children, having more space to play and "be a kid" without the mother worrying about being written up by shelter staff was also a source of behavioral improvement according to multiple mothers. For

school-aged children, mothers frequently attributed mood improvements to the child having a room of their own.

Two mothers who eventually used their voucher to lease a place of their own reported their children initially fared notably worse during their housing search when living arrangements were unstable and children changed schools repeatedly. The children fared better later once the family leased a place of their own with a voucher. An additional mother described a difficult living situation with her dad for three months in the interim, saying:

There was no other choice and the environment was not good. My dad, he's an alcoholic, and he don't want my kids there. We were like in one foot and out the next...it was hell living there...but you know what? All of that was worth it.

Her adolescent son had run away from the family while in shelter and subsequently went to live with another family member but returned to the house after the family secured their own apartment. Her school-aged children had trouble focusing on homework until they had a space of their own. Disciplinary challenges from living in a single room in the shelter and the stress of the shared housing arrangement also notably lessened after moving into their own place:

I disciplined them and everything, but they only got disciplined because it was [her father's] refrigerator; it was his door; it was his life; it was his bathroom. So the discipline came to where I had to tell them "no, no, no, no, no" because it is not your house. Now I still have to tell them, "no, no, no" too, but it's much easier.

The other family with this pattern lived in four different places of varying quality between their shelter stay and the children had a difficult time with changing schools three times in a span of months. This mother reported her children were generally faring better in their behavior and schooling after they moved into their own apartment.

### *Short-Term Rental Subsidies*

The majority of families who were offered short-term rental subsidies ( $n = 19$ ) had used them ( $n = 10$ , 8 with initial referral, 2 with subsequent referral). Two families were ineligible but ended up receiving a long-term rental subsidy, and two were in transitional housing. The majority of mothers offered short-term rental subsidies reported improvements in children's mood and behavior ( $n = 11$ , 3 did not report on behavior), with problems that had begun after moving into the shelter—crying, hyperactivity, bladder control problems, acting out, and anxiety and stress—dissipating once the family was back in a place of their own. Mothers attributed improvements to children feeling safer and more secure, having more space and freedom to play, having their own rooms, their own stress levels being lower, and being able to re-establish family routines. Multiple mothers also attributed hyperactivity, acting out in shelter, and other behavior viewed as undesired (e.g., “cussing”) to their children copying peers in shelter that the mothers viewed as negative influences. Notably, one mother indicated she thought her children were faring better in their own place despite being in an apartment complex where she feared going outside due to crime and violence. In shelter, the children in this family had emotionally shut down and stopped talking to each other, but these issues had improved since moving into their own place.

There appeared to be a cluster of families in the Connecticut site referred by an agency to the same apartment complex who reported severe problems with crime and poor housing quality. All of these families indicated they did not let their children leave the apartment due to concerns about crime. One mother was extremely fearful for her children due to living conditions that were unsafe (missing windows) and unsanitary (rat infestation and feces) but was able to move

out, and the family was faring much better in their second apartment. Concerns about housing and neighborhood quality were less common and less severe among families in other study sites.

### ***Transitional Housing***

Comparatively few families referred to transitional housing stayed in transitional housing at all (9 of 19, 47%), and only six were living in transitional housing at follow-up. Families often turned down referrals to transitional housing because of concerns related to their children's well-being. Prohibitions on fathers or adolescent male children living with the family that would have required family break-up to move in were one commonly cited reason. Location was also a common concern—particularly programs being in neighborhoods that would require children changing schools or that were too distant from relatives and other sources of support for the mother and children. Prior experiences with housing in the homeless service system (sometimes in the mothers' own childhood) may also inform decisions. One mother reported having stayed in the program they were referred to as a child when her mother was fleeing domestic violence and did not want to live there again.

Four families reported their children were faring worse while in transitional housing than in shelters compared to three reporting their children were faring better. Poor housing quality and not perceiving transitional housing as a real "home" were viewed as contributing factors. Concerns about housing quality included pests (roaches) and lack of space for children to play. One mother reported her child was so stressed that she was "wetting herself at school," worried that something might happen to her mother or that she would not be picked up from school. Two families reported their children were very conscious that their program was "not a home," with one child being treated by her classmates as if she were still homeless. The mother of the latter

child left transitional housing early due to concerns over her child's well-being, but also recognized positive aspects of the stability transitional housing provided, saying:

When we were in transitional, we were still what you consider homeless and she was being teased a lot in school...I think transitional housing is really good, especially for the kids. You know, because it gives them that secured feeling that they do have somewhere to go, but yet – I don't know, but to me they have got to make those homes feel a little more like homes...she was acting out in transitional housing, really with no one to play with, nobody really around...it was really depressing her because she is used to having like certain toys, like your water, and out there you couldn't.

The three families who stayed in transitional housing and reported their children faring better cited better stability relative to shelters and the presence of other children to befriend as positive contributing factors. Despite providing respite, mothers and children were still aware of the time-limited nature of the housing – one mother said she recognized the housing was not permanent but that her child felt more secure as, “for her it is permanent for now.” Services for children provided by transitional housing were not explicitly asked about in the interview protocol, and no services were mentioned spontaneously as an influence on children's well-being.

### *Usual Care Experiences*

Families offered usual care were in a variety of living arrangements at follow-up, with doubling up with relatives or friends being the most common current arrangement ( $n = 7$  of 22, 32%). Six families were currently living in their own housing without a subsidy (one in a motel),

four families were in their own place receiving housing subsidies (primarily short-term rental subsidies), three were in shelters, and two were in transitional housing.

Despite relatively few families receiving housing interventions, the majority still reported their children were faring better at follow-up (11 of 19 who reported on children at follow-up, 58%). Parents attributed improvements to reduced noise and crowding and greater autonomy from no longer being under restrictive shelter rules—particularly being able to have their children’s friends over to visit. Understanding how children were faring since their initial shelter stay was more complicated in this group, as the majority of families had moved at least twice, with five moving three or more times. Parental descriptions of their children’s well-being seemed to indicate greater variability in how children were faring from living arrangement to living arrangement. For example, one family had stayed in two additional shelters since their initial shelter stay and indicated her young child reacted negatively to the rules at the second shelter but had made several friends at the third (current) shelter and was faring better. How children were faring among usual care families after a shelter stay may have been more variable across living situations than in the other intervention groups, as few families had found stable living arrangements.

Six families indicated their children had been faring similarly in shelter and afterward, though some of these families reported very negative experiences prior to shelter entry. One was fleeing an abusive husband and felt her child was mainly faring better both in shelter and subsequently in a place they rented because the husband was not there. Another had been repeatedly homeless in the past 10 years and had been living in motels and in a car prior to entering the shelter. This parent did not view either living situation as helping them to leave

homelessness but noted that their child's behavior had been better in the shelter and their rental and that her daughter had been catching up on missed schoolwork.

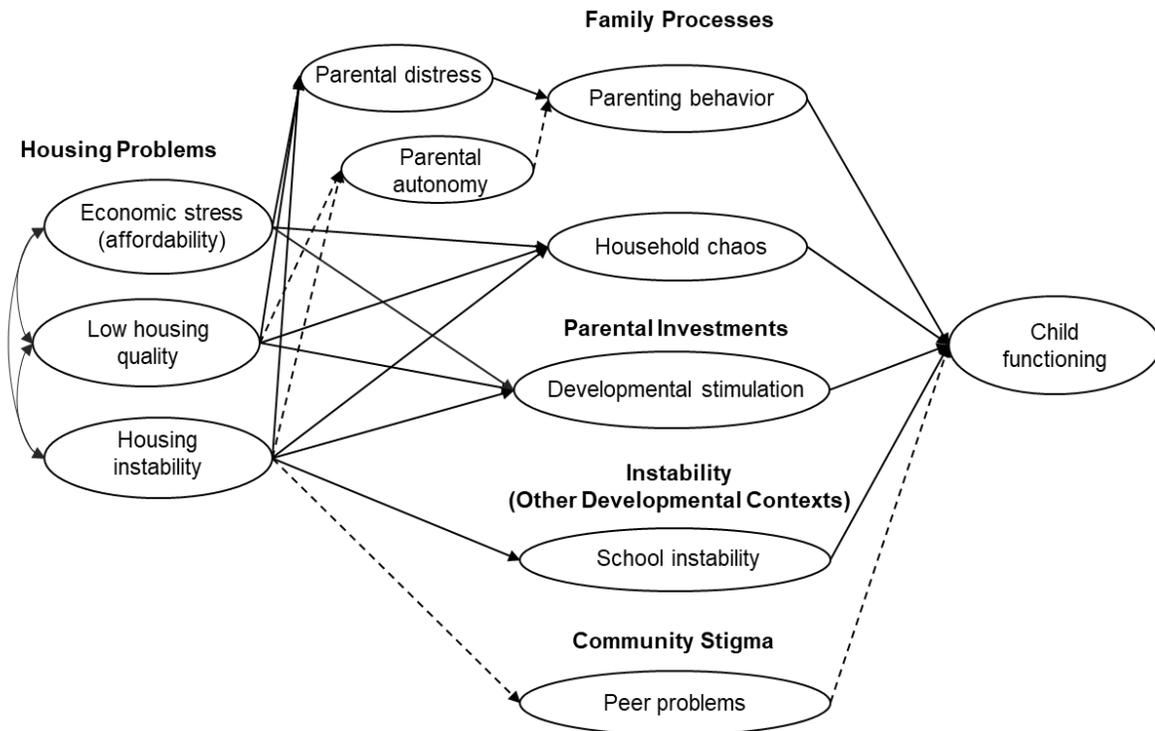
Among families whose children were faring poorly at follow-up (6 of 19, 32%), common themes included shared living arrangements and greater housing instability. One mother was renting their own place, sharing the space and rent with a younger sister and her children. This mother indicated her daughter had been doing better in shelter, when it was just the two of them, but her sister bullied her daughter and did not enforce household rules when watching the children while the mother was at work, leading to greater behavior problems. Two families had moved three or more times and were currently doubled up with a relative, with younger children being frustrated and acting out from having to be quiet in the shared space. Two families with three or more children were still in the same shelter as at study enrollment, with children acting out and struggling with shelter rules and restrictions. Two larger families reported mixed changes – both were in shared living arrangements and indicated their older school-aged children were doing better than in shelter, but their young children were struggling with restrictions on noise and being able to play and showing more behavior problems.

## **Discussion**

Parents who experienced homelessness identified many specific ways in which their housing affected their children's functioning. Some mechanisms discussed have been previously identified in developmental models for housing and child functioning; others point toward ways in which current models need to be augmented. Figure 1 below summarizes the dimensions of housing parents discussed and ways they described housing affected their children, with solid

**Figure 1**

*Conceptual Model Summarizing Processes Linking Housing Problems and Child Functioning*



lines indicating processes aligned with current developmental models for housing and child functioning and dotted lines indicating potential areas for augmentation.

Parents' assessment of their housing experiences can be characterized using the broad dimensions of housing used in prior developmental models—quality, stability, and affordability. However, findings point toward how each dimension needs augmentation in the context of homelessness. Housing quality has primarily been defined with respect to physical quality in developmental research (see Leventhal & Newman, 2010), but the present study found that legal dimensions of housing quality were also highly salient to family processes, particularly in their relationship to parental autonomy. Housing stability has been primarily conceptualized as moves

and distinct events, with a focus on acute disruptions and accompanying changes in children's contexts (Leventhal & Newman, 2010). Homelessness additionally exposes the importance of a subjective, psychological dimension of stability—particularly in how expectations about stability shape family processes and child behavior. Some families experience intense instability during a nomadic period. Housing affordability has primarily been assessed as a proportion of families' overall income, reflecting a tradeoff between indirect parental investments in children by spending more for higher quality housing and/or neighborhoods and direct investment via greater disposable income from lower housing costs (Newman & Holupka, 2014). Among families experiencing homelessness, absolute affordability (i.e., being able afford *any* kind of housing of one's own) and the role of housing as a basic platform for child investments appeared to be more salient. Variation in these housing factors and child functioning among families who experienced homelessness also exposes limitations of treating homelessness solely as a housing status or a general risk factor for understanding its influence on developmental processes. Few families remained homeless by standard definitions, but the ways in which housing experiences varied across intervention approaches mattered for family and child functioning in ways that may help explain the longer-term differences in child behavior outcomes found in the larger study.

### **Housing Quality and Family Processes**

Developmental research on housing quality has focused primarily on the physical aspects of housing. This generally includes both properties of the dwelling itself, such as physical defects, environmental contaminants, and social factors resulting from physical arrangements, such as crowding, privacy, and noise. In the present study, parents commonly linked child

behavioral problems to problems with physical quality—crowding, privacy, and noise more so in shelters and physical defects more so in rental housing. Though poor housing quality has been linked to children’s functioning through family stress mechanisms in prior research, this study did not provide direct evidence for it. There was some evidence of physical quality problems directly contributing to elevated parental stress—primarily reported among parents in physically inadequate rental housing who were concerned for their children’s safety—but most parents did not directly connect their own stress and their parenting. The fact that parents were not directly asked about their own stress may explain the lack of direct connections made between physical quality, stress, and parenting. Parents more commonly perceived physical quality problems (particularly crowding and pests) as a direct source of stress for their children. Conversely, children having a space of their own was viewed as alleviating stress and associated behavioral problems—particularly conflict in parent-child and sibling relationships. Parents in their own place also linked the calmer home environment to their children being more relaxed, in contrast to the noise and chaos of shelter living. Further work needs to be done to understand the extent to which physical quality problems affect children’s functioning directly relative to affecting functioning through family stress processes.

Legal dimensions of housing quality, such as property rights and eviction, have received growing attention in housing scholarship, but the implications of these dimensions for family processes and child development have received little consideration to date. Homeless living situations are largely defined by a lack of basic tenancy rights or adequate control over one’s living space (e.g., shelters with maximum lengths of stay, doubling up, squatting, public encampments). Thus, families experiencing homelessness are often forced to compromise on autonomy and control over their living space to find a place to sleep. The present study suggests

these environmental constraints can affect children's behavior by disrupting family processes. The present study extended prior findings on ways shelter rules and surveillance affect family processes (Friedman, 2000; Mayberry et al., 2014) by identifying how parents viewed these disruptions as directly contributing to child behavioral problems—including challenges with sleep, nutrition, and discipline. Adaptive parenting responses in response to fear of eviction may also have contributed to elevated experiences of chaos, family conflict and behavioral child problems. For example, some parents indicated they primarily stayed in their room in shelters to avoid potential conflict with other children, families, or staff members that could lead to them being evicted. Yet children often grew tired of being cooped up in a single room (particularly in larger families), and the resulting crowding and boredom (layered on top of underlying stress) contributed to greater conflict and behavioral challenges in some cases. Fear of eviction then may be connected to parental stress and parenting both from pressure to tightly monitor and regulate children's behavior and by increasing exposure to poor physical quality and associated processes.

Comparisons among shelters and with other living environments showed substantial variation in the degree of environmental constraints families face on their autonomy and parenting and the importance parents place on autonomy for promoting their children's well-being. Similar, though less disruptive, coercive dynamics were found in temporary shared housing arrangements, where parents also lack tenancy rights but are typically not subject to the level of control found in institutional environments. Conversely, parents who obtained independent housing after staying in a shelter often attributed their children's improvement in functioning to restored autonomy, family routines, and control over their living space. Regaining autonomy over their living space was a prominent consideration in parents' evaluation of their

housing options after leaving shelters and motivation for finding a place of their own. Parents consistently connected autonomy over their space to their children's well-being and weighed the perceived benefits of autonomy for their children against potential tradeoffs with stability, affordability, or quality. Several families whose housing was compromised in other ways, such as problems with crowding, physical deficiencies or neighborhood safety, also felt their children were faring better than in a shelter due to having a place of their own and restored routines. Even in transitional housing, multiple parents who liked the stability it offered chose to turn down an offer or leave early because they felt the benefits of autonomy for their children outweighed the perceived benefits of the stability offered by these programs.

### **Housing Affordability and Parental Investments**

In developmental literature, housing affordability is primarily conceptualized in terms of *relative affordability* or cost burden, the proportion of income spent on housing. Affordability shapes two kinds of tradeoffs parents face when investing in children through housing. First, for a given amount of spending on housing, parents may face tradeoffs between investing in better quality housing or better quality neighborhoods. Parents also face tradeoffs between spending on housing and the amount of discretionary income available for spending on developmentally enriching goods and activities. Recent evidence suggests a U-shaped relationship where spending too little or too much on housing is associated with worse educational and cognitive outcomes (Newman & Holupka, 2015). However, parents in the present study rarely discussed these kinds of tradeoffs or considerations. This was true even among families who received long-term rental subsidies where parents had more choice over where to live and where housing costs are limited

to 30 percent of their income, freeing up additional financial resources. One consideration is timing—most families in the present study offered long-term subsidies had just found a place and started to receive assistance. Findings from the larger study found significant reductions in food insecurity by 20 months after shelter entry among families offered long-term rental subsidies, but average family income was still quite low (average of \$8,500; Gubits et al., 2015). Prior research finds only small effects of long-term rental subsidies on neighborhood quality and that effects of neighborhood quality on children take a long time to emerge (Ellen, 2018). This suggests that, in the short-run, relative gains in income freed up by a long-term rental subsidy for families who experience homelessness may be invested in children primarily through greater ability to meet other basic needs. The present study suggests that ancillary benefits of stable housing, such as food storage and preparation, may also contribute to improvements in food security.

In the context of homelessness, *absolute affordability* appears to be most salient to parents. That is, can a family afford even minimally adequate quality housing at all, even if they spent most or all of their income? Median family income in shelters was only about \$7,500, making it a stretch to afford rental housing with anything leftover even in the most benign of housing markets without financial assistance (Gubits et al., 2013). Parents' focus on obtaining housing was deeply tied to perceptions that their children would fare better in their own place. Thus, in this study, housing affordability tied into parental investments primarily with respect to basic benefits that having a place of one's own brings with respect to autonomy and having a platform for developmental stimulation in the home. Parents' focus on housing as a platform for their child's well-being aligns with developmental research indicating that the physical home environment provides a crucial source of developmental stimulation (Bradley et al., 2001). This

is especially true for young children, who spend more time in the home environment and are more dependent on their immediate environment for stimulation. Yet families experiencing homelessness often lacked control over who or what was in their home environment. Lack of storage in most shelters also meant the presence of toys or other developmentally stimulating objects was primarily contingent on what shelters have on hand. As previously discussed, parents commonly limited their children's actions, social interactions, and exploration of their environment in response to shelter rules and the presence of strangers in shared living spaces. These factors may contribute to reduced developmental stimulation in the living environment during episodes of homelessness. Conversely, parents who obtained their own place commonly noted the social and emotional benefits of their children having space to play and "be kids." There was some evidence to suggest families having their own place may also affect functioning of older children through opportunities for interacting with friends in their home environment as well as by providing more flexibility to spend time in enriching environments outside the home—such as afterschool programs or libraries—when not under the schedule constraints of shelters.

Interestingly, parents linked their ability to afford housing and child investments to disciplinary practices. Several parents connected having toys and possessions in the home with reduced behavior problems from having more disciplinary strategies available to them. These parents indicated that there were few privileges they could restrict or toys to take away as consequences for negative behavior while in shelters, limiting their strategies for addressing misbehavior. Similar, though less intense considerations applied to shared living spaces—parents often had less control over the physical environment, limited storage, and a need to more closely monitor and regulate their children's behavior and play than when they were in their own space.

## **Housing Instability and Changes in Contexts, Expectations, and Stigma**

Housing stability has primarily been viewed as influencing children's functioning through family stress processes and changes in contexts connected to children's housing, with changes in schools being a particular focus. Findings suggest family stress could be a contributing factor to child behavior problems. Parents in shelters were often under great stress with both finding housing and managing child behavioral challenges and often expressed palpable relief when they were able to find stable housing. Parents did not directly connect changes in their own stress to their parenting, an important link in family stress models, but parents were not asked about this directly.

From parents' perspectives, disruptions in educational functioning were primarily linked to behavioral challenges generated by housing instability and shelter environments, more so than school changes or absenteeism. Multiple parents indicated the helpfulness of McKinney-Vento transportation provisions in preventing disruption when they moved into a shelter. School changes when moving out of a shelter were a source of stress for some children. A few parents indicated their child was actually faring worse after they found a place of their own due to their child having negative experiences with a concurrent change in school. Parents receiving housing assistance typically focused more on the benefits of housing stability for school stability over perceptions of school quality. These findings coincide with both the larger study, where long-term subsidies improved school stability both 20 and 37 months after shelter entry (Gubits et al., 2018), and other research on housing assistance, where long-term subsidies generally promote gains in school stability but not in school quality (Ellen, 2018).

Chronic or intense instability may also directly influence parents and children through their subjective expectations about stability. Parents who had experienced homelessness repeatedly or for a longer time perceived lack of stability as contributing to children becoming disengaged or acting out in frustration—particularly when combined with frequent changes in schools. Conversely, some families who received long-term rental assistance linked rapid improvements in behavior to changes in their children’s perceptions of stability—that they now had a home and would be staying in the same school. Depending on age, children may perceive such changes directly or by perceiving changes in parental expectations about stability. Parents may communicate changes in stability directly, such as explicitly telling children a place is now their “home.” Changes in parental attitudes and behavior (e.g., establishing different rules and routines now that the family has their own place) and in the home environment (e.g., obtaining new furniture) may also provide indirect cues of expectations of stability.

Chronic or intense periods of housing instability also challenge standard assumptions about the influence of the home environment as a form of child investment. A key assumption of Bronfenbrenner’s bioecological model is that the strength of an influence of an environment on development is directly connected to prolonged, repeated exposure to an environment (Bronfenbrenner & Morris, 2007). However, standard methods of assessing the developmental qualities of the home environment implicitly assume that children have repeated exposure to an environment that the family controls. Homelessness, particularly when connected to intense or chronic instability, exposes limitations of these assumptions and how instability may be a destabilizing force in and of itself. During periods of instability, children may have briefer and more limited exposure to any particular living environment. When families are staying in places that are not their own, the immediate living environment also becomes more external to the

family—reflecting what is available at a particular shelter or a family or friend’s place. Closer consideration needs to be given to the how contexts shape development when children have limited engagement with or exposure to any single environment during a period of prolonged homelessness or housing instability.

Parents’ forward-looking expectations about the stability of their housing shaped family processes. When parents expect housing instability to be intense or prolonged, families may adapt family processes to reflect their nomadic state, wherein family bonds and routines are emphasized to create a sense of stability and normalcy. Multiple parents indicated adaptive practices and rituals they used to help create a sense of consistency across multiple dwellings—such as the parent who described “living like a gypsy” but focused on creating consistency in routines and objects in the child’s environment. Conversely, place attachment can become deemphasized in family processes. This could particularly be seen in how parents who had their own housing were more explicit in calling it a home, whereas parents often did not want their child to perceive a shelter or transitional housing as normal and reflected on how their children were aware that these environments were not really a “home.” Taken together, these dynamics also may help explain why interference in family routines and rituals in shelters is perceived to be particularly disruptive, as these practices are how families are creating “home” and a perception of stability in a time of disruption.

Lastly, some parents described how the stigma of homelessness affected their children—particularly for children in school. When children’s peers become aware that they are homeless, they may be subject to teasing and bullying, potentially leading to emotional distress and behavioral challenges. In addition to reports of children living in shelters or motels being teased or bullied for being homeless, children living in transitional housing were also exposed to

similar challenges. Parents' concerns that transitional housing was not seen as a "real home" may be reflecting this perceived stigma. The stigmatized nature of homelessness also may be an important factor shaping family preferences for interventions that use private rental housing and concern over limits placed on their autonomy.

### **Implications for Housing Interventions and Policy**

The effectiveness of housing interventions for families experiencing homelessness are often primarily evaluated based on one dimension – whether families become homeless again (often defined as re-entering shelters). The present study suggests that stability is important to families, but it is not their only consideration. Housing quality and how their children are affected by the interventions also matter a great deal. In particular, families largely favored assistance that used conventional housing relative to place-based programs operated by the homeless service system. This was most apparent in the high refusal rates for transitional housing. Many parents appreciated the stability it offered but still declined or left early due to issues with location, lack of autonomy, housing quality (not feeling like a home), and their children experiencing stigma at school. Shelters were often viewed as particularly disruptive environments for children. Even families who did not receive housing assistance often perceiving their children to be faring better in shared living situations, hotels, or apartments than in shelters. In the larger study, transitional housing did not have any effects on child outcomes three years after a shelter stay relative to usual care (Gubits et al., 2018).

The benefits of long-term rental subsidies for children observed both in the present study and in the broader study can be understood with respect to how it substantially improved all three

dimensions of families' housing – quality, stability, and affordability. Receiving long-term rental subsidies altered families' subjective expectations about stability, which appeared to facilitate reduced family stress, as parents frequently expressed palpable relief. These expectations are grounded in substantial improvements in observed stability, with reduced returns to homelessness and fewer residential moves observed compared to usual care three years later (Gubits et al., 2018). However, the present study identified several families who experienced multiple moves between their time in shelter and moving into their own place, with children sometimes displaying greater behavior challenges in this interim period. Families may be more willing to tolerate greater instability or undesirable shared living situations when the promise of stability is in sight than when instability is expected to be ongoing for the foreseeable future. However, children and families would benefit from policies that provide greater stability while finding a rental unit that will accept a voucher, such as extensions in the length of assistance or having dedicated subsidized units for families experiencing homelessness who are eligible for a housing voucher to use while searching.

Families receiving short-term rental assistance generally appreciated how their children were faring better from having their own place. Yet related research found they often expressed skepticism about whether they would be able to afford housing on their own by the time assistance expired (see Fisher et al., 2014). Short-term rental assistance may not substantially affect family stress processes if parents' subjective assessments about their ability to afford housing and their prospective housing stability do not change. That is, the housing quality provided may be better than shelters or doubling up, but if parents are bracing for experiencing instability again after the assistance runs out, children may not experience benefits connected to reduced family stress or perceived stability. In the larger study, short-term rental subsidies did

have small enduring favorable effects on child behavior but had no effect on housing outcomes (Gubits et al., 2018). The favorable effects on behavior were also evidenced in the subsample of families in the present study, tied primarily to the benefits of children being in their own housing and restored autonomy over their space, but most families were still receiving assistance when interviewed in the present study.

### **Limitations**

Drawing on parents' perspective on how their living situations influenced their children's well-being is a source of both strength and limitation for this study. A strength is that it provides insight into how parents assess living situations and make housing choices with respect to their children's well-being. One limitation is that parents in shelter were generally under substantial stress and strain, which may have affected both their perception of their children and their children's behavior in response to the stress. Parents also generally focused on externalizing behaviors in shelter, though some noted children were withdrawn or unhappy. Internalizing problems are generally harder to observe and may have gone less noticed by parents under severe stress, particularly in cases where other children are displaying externalizing problems that demand immediate attention and can threaten the family's ability to stay in the shelter (if problems result in the family being written up). Another limitation is that this study was not able to capture children's perceptions directly. The children in this study may have had a different perspective on their living situations and how their housing experiences affected their experiences in other contexts, particularly in school settings. Lastly, the Family Options Study enrolled families who had stayed in shelter for at least one week. Perceptions of the influences of

shelters on children, family dynamics and parenting practices in shelter may be different among families that stay only for a few days then for those who stay for one to three months. It should be noted though that prior research on families experiencing homelessness has found that families who have a single short stay (usually 30 days or less) actually may display greater psychosocial risk than families who have a single, longer stay (Culhane et al., 2007).

### **Summary and Policy Implications**

Understanding homelessness as a housing problem provided insight into how homelessness affects children, why many children display relatively quick recovery, and how interventions can promote healthy development. This study affirmed family processes and parental investments as important processes linking housing and development but also identified the importance of stability itself in shaping family processes and parent and child behavior. Acute experiences of instability were generally disruptive, but parents perceived their children as faring better in conventional housing than in institutional environments, particularly due to having greater autonomy and control over family routines. More intense or prolonged instability was more likely to be corrosive to development and connected to ongoing behavior and academic problems. Legal dimensions of housing quality and their intersection with parental autonomy and family processes were identified as an important area for further theoretical development in models of housing and child development.

With respect to policy, expanding access to long-term housing subsidies to cover all eligible families should be prioritized and understood as an investment in children's well-being as well as an effective policy for ending family homelessness. Young children may particularly

benefit from such an expansion—they are more dependent on their caregivers, spend more time in the home environment prior to entering school, and are at greatest risk for experiencing homelessness. On average, shelters appear to be particularly difficult environments for children, even relative to other temporary housing options used by families experiencing housing instability. Institutional rules for congregate environments can trigger acute child behavioral problems by failing to take into account differences in children’s developmental needs and by disrupting parents’ ability to maintain family routines and processes at a critical time. Shelters providing families with greater flexibility in their daily schedules may be particularly helpful for reducing disruption to children’s behavior and lives. Shifting emergency assistance toward scattered-site community-based housing where institutional rules and monitoring are not present would also likely help make housing crises less disruptive for children. Further, providing short-term assistance while families offered long-term rental assistance are searching for housing could reduce disruption from families having multiple interim moves between shelters and moving into a place of their own.

### References

- Bartlett, S. (1998). Does inadequate housing perpetuate children's poverty? *Childhood, 5*, 403–420. <https://doi.org/10.1177/0907568298005004004>
- Bassuk, E. L., & Beardslee, W. R. (2014). Depression in homeless mothers: addressing an unrecognized public health issue. *American Journal of Orthopsychiatry, 84*, 73–81. <https://doi.org/10.1037/h0098949>
- Boyce, W. T., Jensen, E. W., James, S. A., & Peacock, J. L. (1983). The family routines

- inventory: Theoretical origins. *Social Science & Medicine*, 17, 193-200.  
[https://doi.org/10.1016/0277-9536\(83\)90116-8](https://doi.org/10.1016/0277-9536(83)90116-8)
- Bradley, R. H., Corwyn, R. F., Burchinal, M., McAdoo, H. P., & García Coll, C. (2001). The home environments of children in the United States Part II: Relations with behavioral development through age thirteen. *Child Development*, 72, 1868–1886.  
<https://doi.org/10.1111/1467-8624.t01-1-00383>
- Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (6th Ed., pp. 793–828). John Wiley & Sons. <https://doi.org/10.1002/9780470147658.chpsy0114>
- Buckner, J. C. (2008). Understanding the impact of homelessness on children: Challenges and future research directions. *American Behavioral Scientist*, 51, 721–736.  
<https://doi.org/10.1177/0002764207311984>
- Budescu, M., & Taylor, R. D. (2013). Order in the home: Family routines moderate the impact of financial hardship. *Journal of Applied Developmental Psychology*, 34, 63-72.  
<https://doi.org/10.1016/j.appdev.2012.11.006>
- Burt, M. (2010). *Life after transitional housing for homeless families*. Washington, D.C.: U.S. Department of Housing and Urban Development.  
<https://www.huduser.gov/portal/publications/pdf/LifeAfterTransition.pdf>
- Bush, H., & Shinn, M. (2017). Families’ experiences of doubling up after homelessness. *Cityscape*, 19(3), 331-356.
- Coley, R. L., Leventhal, T., Lynch, A. D., & Kull, M. (2013). Relations between housing characteristics and the well-being of low-income children and adolescents. *Developmental Psychology*, 49, 1775–1789. <https://doi.org/10.1037/a0031033>

- Conger, R. D., & Elder, G. H., Jr. (1994). *Families in troubled times: Adapting to change in rural America. Social institutions and social change*. Aldine de Gruyter.
- Culhane, D. P., Metraux, S., Park, J. M., Schretzman, M., & Valente, J. (2007). Testing a typology of family homelessness based on patterns of public shelter utilization in four US jurisdictions: Implications for policy and program planning. *Housing Policy Debate, 18*, 1-28. <https://doi.org/10.1080/10511482.2007.9521591>
- Cutuli, J. J., Desjardins, C. D., Herbers, J. E., Long, J. D., Heistad, D., Chan, C. K., Hinz, E., & Masten, A. S. (2013). Academic achievement trajectories of homeless and highly mobile students: Resilience in the context of chronic and acute risk. *Child Development, 84*, 841–857. <https://doi.org/10.1111/cdev.12013>
- Cutuli, J. J., & Herbers, J. E. (2014). Promoting resilience for children who experience family homelessness: Opportunities to encourage developmental competence. *Cityscape, 16*, 113–140.
- Ellen, I. G. (2018). What do we know about housing choice vouchers?. *Regional Science and Urban Economics*. <https://doi.org/10.1016/j.regsciurbeco.2018.07.003>
- Ellen, I. G., Horn, K. M., & Schwartz, A. E. (2016). Why don't Housing Choice Voucher recipients live near better schools? Insights from big data. *Journal of Policy Analysis and Management, 35*(4), 884-905. <https://doi.org/10.1002/pam.21929>
- Evans, G. W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children's socioemotional adjustment. *Psychological Science, 16*, 560–565. <https://doi.org/10.1111/j.0956-7976.2005.01575.x>
- Evans, G. W., & Wachs, T. D. (2010). *Chaos and its influence on children's development*. American Psychological Association.

- Fantuzzo, J. W., LeBoeuf, W. A., Chen, C. C., Rouse, H. L., & Culhane, D. P. (2012). The unique and combined effects of homelessness and school mobility on the educational outcomes of young children. *Educational Researcher*, *41*, 393–402. <https://doi.org/10.3102/0013189X12468210>
- Fiese, B. H., Tomcho, T. J., Douglas, M., Josephs, K., Poltrock, S., & Baker, T. (2002). A review of 50 years of research on naturally occurring family routines and rituals: Cause for celebration? *Journal of Family Psychology*, *16*, 381–390. <https://doi.org/10.1037/0893-3200.16.4.381>
- Fisher, B. W., Mayberry, L. S., Shinn, M., & Khadduri, J. (2014). Leaving homelessness behind: Housing decisions among families exiting shelter. *Housing Policy Debate*, *24*, 364–386. <https://doi.org/10.1080/10511482.2013.852603>
- Friedman, D. H. (2000). *Parenting in public: Family shelter and public assistance*. Columbia University Press.
- Gubits, D., Shinn, M., Bell, S., Wood, M., Dastrup, S., Solari, C. D., Brown, S. R., Brown, S., Dunton, L., Lin, W., McInnis, D., Rodriguez, J., Savidge, G., & Spellman, B. E. (2015). *Family options study: Short-term impacts of housing and service interventions for homeless families*. U.S. Department of Housing and Urban Development.
- Gubits, D., Shinn, M., Wood, M., Brown, S. R., Dastrup, S. R., & Bell, S. H. (2018). What interventions work best for families who experience homelessness? Impact estimates from the family options study. *Journal of Policy Analysis and Management*, *37*(4), 835–866. <https://doi.org/10.1002/pam.22071>
- Gubits, D., Spellman, B., Dunton, L., Brown, S., & Wood, M. (2013). *Family Options Study: Interim report*. U.S. Department of Housing and Urban Development.

- Haber, M. G., & Toro, P. A. (2004). Homelessness among families, children, and adolescents: An ecological-developmental perspective. *Clinical Child and Family Psychology Review*, 7, 123–164. <https://doi.org/10.1023/B:CCFP.0000045124.09503.f1>
- Herbers, J. E., Cutuli, J. J., Lafavor, T. L., Vrieze, D., Leibel, C., Obradović, J., & Masten, A. S. (2011). Direct and indirect effects of parenting on the academic functioning of young homeless children. *Early Education & Development*, 22, 77–104. <https://doi.org/10.1080/10409280903507261>
- Huntington, N., Buckner, J. C., & Bassuk, E. (2008). Adaptation in homeless children: An empirical examination using cluster analysis. *American Behavioral Scientist*, 51, 737–755. <https://doi.org/10.1177/0002764207311985>
- Huston, A. C., & Bentley, A. C. (2010). Human development in societal context. *Annual Review of Psychology*, 61, 411–437. <https://doi.org/10.1146/annurev.psych.093008.100442>
- Jacob, B. A. (2004). Public housing, housing vouchers, and student achievement: Evidence from public housing demolitions in Chicago. *American Economic Review*, 94(1), 233-258. <https://www.jstor.org/stable/3592777>
- Jacob, B. A., Kapustin, M., & Ludwig, J. (2015). The impact of housing assistance on child outcomes: Evidence from a randomized housing lottery. *The Quarterly Journal of Economics*, 130, 465–506. <https://doi.org/10.1093/qje/qju030>
- Jensen, E. W., James, S. A., Boyce, W. T., & Hartnett, S. A. (1983). The family routines inventory: Development and validation. *Social Science & Medicine*, 17, 201–211. [https://doi.org/10.1016/0277-9536\(83\)90117-X](https://doi.org/10.1016/0277-9536(83)90117-X)
- Leventhal, T., & Newman, S. (2010). Housing and child development. *Children and Youth Services Review*, 32, 1165–1174. <https://doi.org/10.1016/j.childyouth.2010.03.008>

- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Sage.
- Masten, A. S., Miliotis, D., Graham-Bermann, S. A., Ramirez, M., & Neemann, J. (1993). Children in homeless families: risks to mental health and development. *Journal of Consulting and Clinical Psychology, 61*, 335–343. <https://doi.org/10.1037/0022-006X.61.2.335>
- Mayberry, L. S., Shinn, M., Benton, J. G., & Wise, J. (2014). Families experiencing housing instability: The effects of housing programs on family routines and rituals. *American Journal of Orthopsychiatry, 84*, 95–109. <https://doi.org/10.1037/h0098946>
- McKinney-Vento Homeless Education Assistance Act of 2001. 42 U.S.C. § 11431 *et seq.* (West, 2002).
- Mehana, M., & Reynolds, A. J. (2004). School mobility and achievement: A meta-analysis. *Children and Youth Services Review, 26*, 93–119. <https://doi.org/10.1016/j.childyouth.2003.11.004>
- Murphey, D., Bandy, T., & Moore, K. A. (2012). *Frequent residential mobility and young children's well-being*. Publication #2012-02. Child Trends.
- National Research Council and Institute of Medicine. (2010). *Student mobility: Exploring the impact of frequent moves on achievement: Summary of a workshop*. The National Academies Press.
- Newman, S. J., & Holupka, C. S. (2014). Housing affordability and investments in children. *Journal of Housing Economics, 24*, 89–100. <https://doi.org/10.1016/j.jhe.2013.11.006>
- Newman, S. J., & Holupka, C. S. (2015). Housing affordability and child well-being. *Housing Policy Debate, 25*, 116–151. <https://doi.org/10.1080/10511482.2014.899261>
- Obradović, J. (2010). Effortful control and adaptive functioning of homeless children: Variable-

- focused and person-focused analyses. *Journal of Applied Developmental Psychology*, 31, 109–117. <https://doi.org/10.1016/j.appdev.2009.09.004>
- Ou, S. R., & Reynolds, A. J. (2008). Predictors of educational attainment in the Chicago Longitudinal Study. *School Psychology Quarterly*, 23, 199–229. <https://doi.org/10.1037/1045-3830.23.2.199>
- Shinn, M., Samuels, J., Fischer, S. N., Thompkins, A., & Fowler, P. J. (2015). Longitudinal impact of a Family Critical Time Intervention on children in high-risk families experiencing homelessness: A randomized trial. *American Journal of Community Psychology*, 56, 205–216. <https://doi.org/10.1007/s10464-015-9742-y>
- Shinn, M., Schteingart, J. S., Williams, N. C., Carlin-Mathis, J., Bialo-Karagis, N., Becker-Klein, R., & Weitzman, B. C. (2008). Long-term associations of homelessness with children's well-being. *American Behavioral Scientist*, 51, 789–809. <https://doi.org/10.1177/0002764207311988>
- Solari, C. D., Shivji, A., de Sousa, T., Watt, R., & Silverbush, M. (2017). *The 2016 Annual Homelessness Assessment Report to Congress Part 2: Estimates of homelessness in the United States*. U.S. Department of Housing and Urban Development.
- Strauss, A., & Corbin, J. (1990). *Basics of qualitative research*. Sage Publications.
- Swanson, C. B., & Schneider, B. (1999). Students on the move: Residential and educational mobility in America's schools. *Sociology of Education*, 72, 54–67. <https://doi.org/10.2307/2673186>
- Torquati, J. C. (2002). Personal and social resources as predictors of parenting in homeless families. *Journal of Family Issues*, 23, 463–485. <https://doi.org/10.1177/0192513X02023004001>

- Wood, M., Turnham, J., & Mills, G. (2008). Housing affordability and family well-being: Results from the housing voucher evaluation. *Housing Policy Debate*, *19*(2), 367-412.
- Yeung, W. J., Linver, M. R., & Brooks-Gunn, J. (2002). How money matters for young children's development: Parental investment and family processes. *Child Development*, *73*(6), 1861-1879. <https://doi.org/10.1111/1467-8624.t01-1-00511>

## Supplementary Materials

### Supplementary Table S1

#### *Key Interview Questions Analyzed*

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#### Behavioral health outcomes

1. Has your current living situation affected your children's behavior or emotional well-being in any positive way?
  - a. Is this different for younger vs. older children?
  - b. [If have moved] Is this different from the effect that previous living situations had on your child/children's behavior? How?
2. Has your current living situation affected your children's behavior or emotional well-being in any negative way?
  - a. How do you handle this?
  - b. (Repeat prompts 1a and 1b)

#### Social outcomes

1. Do you find that your current living situation affects your child's social life in either a positive or negative way?
  - a. Does it make it easy or difficult for your children to make friends?
  - b. Does it expose your children to good or bad influences?
  - c. Do you know if your children are ever made fun of or singled out because of your living situation?
  - d. How do you handle these situations?
  - e. Is this different for younger v. older children?
  - f. [If have moved] Is this different from the effect that previous living situations had on your child's social life? How?

#### Educational outcomes

1. Is your child currently enrolled in school (or did they attend school in the previous year?) [If yes, questions 2 through 5 asked]
2. Did your child switch schools in the last year?
  - a. How many times?
  - b. Was it due to a change in housing situation? How did you handle the switch?
3. Does your current housing situation affect your child's school situation in either a positive or negative way?
4. [If moved] Is this different from the effect that previous living situations had on your child's school situation? How?
5. Are there any ways that your current living situation makes it easy or difficult for your children to complete their homework or stay caught up in school?
  - a. How do your children usually get their schoolwork completed?
  - b. Do your children have a quiet place to go read or do homework if they want to?
  - c. What are some ways you help your children keep up in school and complete their homework?
  - d. [If moved] Is this different from the effect that previous living situations had on your child's ability to complete schoolwork? How?

6. Do you ever have conflicts, such as arguments or disagreements, with your children's teachers or school as a result of your living situation?
    - a. [If so] Can you tell me about how you have handled those situations?
  7. [If moved] Is this different from the effect that previous living situations had on your interactions with teachers? How?
-

## **Paper 2: How Do Housing Interventions for Families Experiencing Homelessness Affect Functioning Among School-Aged Children?**

### **Abstract**

Children vary substantially in functioning after experiencing homelessness, but differences in housing experiences and access to housing assistance has received little attention relative to family characteristics. This paper examines whether and how housing affects child functioning after an experience of homelessness using latent class analysis of survey data on 1,242 children age 8-17 from a randomized control trial of housing interventions for families experiencing homelessness. Three years after a shelter stay, 60% of children were in a higher-functioning class on educational, behavioral, and health outcomes, and 40% in a lower-functioning class. Priority access to long-term rental subsidies resulted in a higher proportion of children age 13-17 being in a higher functioning class compared to children age 13-17 in families offered usual care (AOR=2.5, 95% CI [1.08, 4.92], ES=.50). Effects were partially mediated through reductions in housing instability, poor housing quality, and economic stress via reduced family stress and improved family routines. Short-term rental subsidies and transitional housing did not improve housing outcomes or child functioning. Housing conditions matter for family stress and child outcomes, and interventions effective in helping families afford adequate, stable housing are important for promoting better outcomes for children who experience homelessness.

## **Introduction**

Homelessness is associated with poor educational, behavioral, and physical health functioning for children (Buckner, 2008), but whether or how intervening to end homelessness can improve functioning has largely gone unexamined. Children's functioning after an experience of homelessness varies considerably—on average, children fall well below age norms, but a notable proportion display high functioning (Cutuli et al., 2013). Differential access to housing assistance is a possible explanation, as resource constraints in the homeless service system and federal rental assistance programs mean that not all families receive immediate help, but empirical intervention research is scant. Theoretical frameworks for childhood homelessness treat homelessness as an indicator of housing status, masking potentially important variation in children's actual housing experiences, and frameworks linking housing and child development do not accommodate the intensity of housing problems linked to homelessness. This paper asks whether and how housing explains differences in child functioning after an experience of homelessness.

The present study uses data from the Family Options Study, a randomized control trial of housing interventions for families experiencing homelessness, to assess the effects of housing interventions on children's functioning (age 8-17) after an experience of homelessness and to test a theoretical model of potential mediating mechanisms. After briefly reviewing prior descriptive evidence on children's functioning after an experience of homelessness, I propose a model for how housing interventions affect functioning for those children, building on theories of how housing affects child development. This paper augments a prior report of intervention effects on child outcomes (Gubits et al., 2018) by focusing on school-aged children, using latent class analysis to examine clustering of child functioning across multiple developmental domains,

testing hypothesized mediators of intervention effects, and examining interactions between child age and intervention effects and their mediators.

### **Child Functioning After Experiences of Homelessness**

The few longitudinal studies of childhood homelessness have found that school-aged children, on average, display some recovery in educational, behavioral, and health functioning after an experience of homelessness. Differences in functioning relative to national norms and to low-income housed children are likely to be greatest during episodes of homelessness, with later functioning influenced by later experiences such as residential mobility. For educational outcomes, studies of school-age children (through eighth grade) that measured housing status dynamically found decrements in reading or math scores in the year after students were identified as homeless or highly mobile, with findings being mixed on the extent to which students bounced back after becoming more stably housed (Cutuli et al., 2013; Rafferty et al., 2004; Voight et al., 2012). Less is known about homelessness and achievement among older students. One longitudinal study found that negative associations between homelessness and achievement observed during a shelter stay among children age 6 to 12 at the time were no longer present five years later (at age 11 to 17), though students who had experienced homelessness were more likely to have been retained in grade (Rafferty et al., 2004).

For behavioral health outcomes, elevated symptomology observed in shelters may abate over time and converge with levels found among low-income housed children, though trends differ somewhat by age and type of symptomology (Shinn et al., 2008, 2015). Elevated externalizing symptomology declined steadily over the first 15 months after a shelter stay before

levelling off among children age 10 or younger at shelter entry but had had not declined among children age 11 to 17 two years after a shelter stay (Shinn et al., 2015). In a separate earlier study, children age 6 to 12 at shelter entry had no differences in internalizing or externalizing symptomology compared to low-income housed children five years later (Shinn et al., 2008).

Recent longitudinal studies do not find evidence of significant long-term differences in overall health status or specific health problems between children who had experienced homelessness and low-income housed children (Grant et al., 2007; Park et al., 2011; Shinn et al., 2008). Earlier cross-sectional studies of physical health found homelessness was associated with worse functioning (Buckner, 2008).

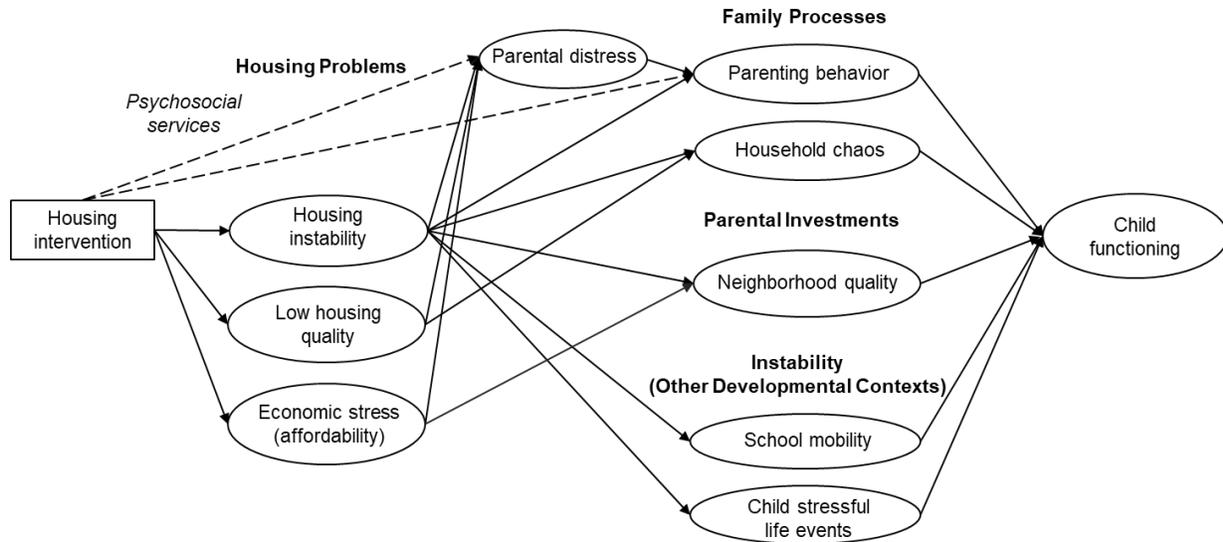
Observed recovery in both educational and behavioral health may be correlated. Children in homeless shelters tend to either display higher or lower functioning across these domains (Huntington et al., 2008; Obradović, 2010). Whether child functioning after experiencing homelessness continues to be characterized by a two-group pattern of functioning over time or includes more differentiated patterns across domains has not been studied.

### **How Do Housing Interventions for Family Homelessness Affect Child Functioning?**

Whether recovery or differences in functioning are linked to housing is not clear. A key aim of this paper is understanding *how* differences in housing experiences may explain variation in children's functioning. Figure 1 below provides a conceptual model, drawing on theories linking the housing factors targeted by interventions to child functioning, and includes five assumptions:

**Figure 1**

*Model of How Housing Interventions Affect Child Functioning After Experiencing Homelessness*



*Note.* Solid lines are hypothesized paths for all housing intervention; dotted lines are paths for interventions that also provide supportive services, such as mental health services or parenting programs.

1. Housing interventions affect children’s functioning. As discussed in the following section, whether they do so is still an open question (Leventhal & Newman, 2010).
2. Housing interventions reduce subsequent housing instability, low housing quality, and economic stress (from housing affordability problems) by subsidizing housing costs, which can also increase economic resources available for non-housing needs and child investments.
3. Interventions affect children’s functioning indirectly through their influence on more proximal processes of children’s development, including family processes, parental

investments, and those embedded in key contexts outside the home, such as schools (Huston & Bentley, 2010; Leventhal & Newman, 2010).

4. Changes in housing affect the whole child, as housing affects multiple aspects of children's functioning and contexts of development, so functioning should be assessed holistically.
5. Some interventions may directly affect proximal mediators, illustrated by the dashed paths in Figure 1. For example, project-based transitional housing includes psychosocial services that may directly affect mediators, such as parental mental health or parenting behavior.

Review of the theories and research undergirding this model is organized into two sections, reflecting largely independent bodies of literature, and focuses on evidence specific to school-age children. The first section describes the housing interventions evaluated in the Family Options Study and reviews evidence of their effects on child functioning and housing outcomes. The second section explores how these relationships may come about. It reviews relationships among housing, mediating developmental processes, and child functioning, as shown in Figure 1, primarily from descriptive research. This section is organized around the mediating factors, assessing evidence on how housing instability, low housing quality, and economic stress influence family processes, parental investments, and instability mediators and how each of these mediators influences child functioning.

### **Effects of Housing Interventions on Child Functioning and Housing Outcomes**

Prior to the Family Options Study, no large-scale randomized trial had assessed the effects of housing interventions on children's functioning or housing outcomes among families experiencing homelessness. The Family Options Study tested the effects of offering priority

access to one of three different interventions—long-term rental subsidies, short-term rental subsidies, and project-based transitional housing—relative to usual care, where families worked with staff in their homeless shelter to find housing. (Usual care families also found their way into each of the other interventions, albeit less immediately and with lower frequency.) *Long-term rental subsidies* (LTRS) were primarily Housing Choice Vouchers, which require families to pay 30% of their income toward rent up to a payment standard set based on local market rents. Families must find private rental housing that meets program housing quality standards and lease up before the voucher offer expires. *Short-term rental subsidies* (STRS) through rapid re-housing provide time-limited rental assistance in the private market along with limited housing-focused services and case management. *Project-based transitional housing* (PBTH) programs typically provide housing to families for 18 to 24 months in a group residential setting and offer intensive psychosocial services and case management focused on increasing families' self-sufficiency. Evidence on the effects of these interventions on children who experience homelessness is scant, though a somewhat larger literature exists on the effects of long-term rental subsidies on children in poverty.

### ***Effects of Long-Term Rental Subsidies on Child Functioning***

The most rigorous studies of the impacts of long-term rental subsidies on child functioning have focused on low-income families who are already housed. These studies have generally found null to small overall effects among school-age children (Ellen, 2018; Jacob et al., 2015; Mills et al., 2006), though effects may be sensitive to children's age and gender. Small positive impacts of vouchers on achievement test scores were observed in New York City among children in 3<sup>rd</sup> through 8<sup>th</sup> grade, with positive effects largely occurring for children who received

vouchers in elementary school (Ellen, 2018). Recent evidence suggests a potential dose-response relationship between rental subsidies and child outcomes, with greater benefits being evidenced the younger the child is when the family receives assistance. Families who receive vouchers often move (Mills et al., 2006), which may be disruptive for children in the short-run, and make compromises in their initial move to lease up before their search time expires (Gubits et al., 2009; Leventhal & Newman, 2010). The benefits of assistance and moves, such as higher quality housing or neighborhoods, may take time to emerge (Eriksen & Ross, 2013; Mills et al., 2006).

The Family Options Study found that school-aged children in families offered long-term housing subsidies had fewer school moves and that children age 3 to 17 had better behavior outcomes relative to families offered usual care three years after a shelter stay (Gubits et al., 2018). However, a four-year study of educational outcomes for families in one of the study's twelve sites (Minneapolis, MN) among a younger group of children (mean = 7.3 years, SD = 4.15) found that children in families offered long-term subsidies displayed consistently lower math achievement, initially lower reading achievement with a stronger growth rate, and initial increases in school absences and school moves that declined over time (Cutuli & Herbers, 2019).

### ***Effects of Short-Term Rental Subsidies on Child Functioning***

The Family Options Study found that short-term rental subsidies reduced child behavior problems among children age 3 to 17 three years after a stay in an emergency shelter but no significant effects for other child outcomes (Gubits et al., 2018). In the Minneapolis site, younger children in these families had consistently lower average reading and math achievement over a 4-year study time period compared to children in families offered usual care (Cutuli & Herbers, 2019).

### ***Effects of Project-Based Transitional Housing on Child Functioning***

The one study of transitional housing and child functioning prior to the Family Options study had no control group. Over 40 percent of children changed schools at program move-out and school engagement had declined by a year after move-out (Burt, 2010). Behavior problems decreased while families were living in transitional housing. Behavior problems also lessened over time for homeless children receiving usual care in another study (Shinn et al., 2015), so whether the changes Burt observed can be attributed to transitional housing is unclear. The Family Options Study found no effects of transitional housing on child outcomes relative to usual care (Gubits et al., 2018). (The Minneapolis site did not have any transitional housing providers participate in the study.)

### ***Effects of Housing Interventions on Housing Instability, Low Housing Quality, and Economic Stress***

Experimental studies of long-term housing subsidies have found that they reduce housing instability and parental economic stress but have little or no effect on housing quality (Ellen, 2018), findings supported by the results from the Family Options Study (Gubits et al., 2018). Apart from the Family Options Study, rigorous evidence on the effects of short-term rental subsidies and transitional housing on housing and economic outcomes is scant. The Family Options Study found no effects of short-term rental subsidies or transitional housing on these housing inputs relative to usual care three years after shelter entry, though transitional housing did reduce returns to shelters while some families were still in the transitional housing program (Gubits et al., 2018).

## **Mediators of Housing Instability, Low Housing Quality, and Economic Stress and Child Functioning**

Housing instability, low housing quality, and economic stress may indirectly affect children's functioning through multiple mediating processes. Prior research on housed children has focused on family processes, parental investments, and broader implications of housing instability for stability in other important contexts of children's lives—schooling in particular.

### ***Family Process Mediators***

Housing serves as a core context for family interactions, with key hypothesized family process mediators including family stress processes and household chaos. Conger and Elder's (1994) family stress model hypothesizes that economic stress is detrimental to children's functioning via adverse influences on parental mental health, which in turn affects parenting behaviors. Recent research finds that economic stress predicts child behavioral problems over and above income through family stress processes (Conger et al., 2010; Gershoff, et al., 2007). In particular, greater parental distress is associated with fewer family routines, inconsistent discipline, and reduced parental involvement and monitoring, which in turn are associated with negative health and psycho-social outcomes among adolescents (Brody et al., 2004; Compañ et al., 2002; Eisenberg et al., 2004). The strains of unaffordable housing, housing instability, and poor housing quality affect child behavior through the same mechanisms. Economic stress from unaffordable housing is associated with higher levels of parental psychological distress and worse cognitive and educational outcomes for children (Newman & Holpuka, 2015). Housing

instability and low housing quality also are indirectly associated with child behavioral problems via family stress mechanisms, with stronger negative associations found among adolescents (Coley et al., 2013).

Housing instability and poor housing quality may increase children's exposure to chaos, defined as environmental interferences and disorganization, in their home environments during experiences of homelessness. Problems with noise, conflict over shared spaces, and lack of space to store personal belongings are common complaints from parents living in shelters, transitional housing, doubled-up arrangements (temporary shared housing), and low-quality housing (Bartlett, 1998; Bush & Shinn, 2018; Friedman, 2000; Mayberry et al., 2014). Disruptive rules imposed by shelter policies or family or friends in doubled-up arrangements can make it more difficult for parents to maintain order, discipline, and family routines (Bush & Shinn, 2018; Friedman, 2000; Mayberry et al., 2014). Chaos in turn is negatively associated with cognitive, behavioral, and physical health outcomes for children over and above the effects of poverty (Dumas et al., 2005; Evans et al., 2005). The influence of household chaos on child functioning may vary with age, as both dependence on parents and time spent at home typically decrease as children enter adolescence and spend more time in peer, school, and neighborhood contexts (Larson et al., 1996; Laursen & Collins, 2009).

### ***Parental Investment Mediators***

Parental spending on housing is a substantial financial investment connected to children's functioning, with housing prices typically reflecting both the quality of the housing unit itself and its location (i.e., neighborhood quality). Housing assistance can enable families to afford housing in higher quality neighborhoods. Short-term and long-term rental subsidy programs are

based on families choosing a private rental unit and receiving assistance paying the market rent, with neighborhood quality reflected in the unit's rent. Families leaving shelters report facing undesirable tradeoffs among housing affordability, housing quality, and neighborhood quality in their housing decisions, particularly with highly constrained time and resources for finding housing (Fisher et al., 2014). In project-based transitional housing programs, the housing subsidy is tied to a *specific* unit operated by the program—using the assistance requires living in the neighborhood where the subsidized unit is located. Poor neighborhood quality in transitional housing locations was one reason families in the Family Options Study turned down offers of this intervention (Fisher et al., 2014). Neighborhood quality in turn influences a wide range of child and adolescent outcomes (Leventhal & Brooks-Gunn, 2000), with neighborhood poverty rates being a particularly robust indicator linked to children's longer-term outcomes (Chetty et al., 2016). Greater time spent in neighborhoods and less at home as children reach adolescence (Larson et al., 1996) suggests potential age differences in exposure to neighborhood effects.

### ***Instability Mediators***

A considerable body of literature relates school mobility to children's educational outcomes and trajectories (Mehana & Reynolds, 2004). School and residential mobility are related but not identical either for children who experience homelessness (Fantuzzo et al., 2012) or in the general population (Swanson & Schneider, 1999). Reviews find that school mobility is associated with poor academic achievement and school dropout, especially for children in the early elementary and high school years (Mehana & Reynolds, 2004). Research on school mobility and child functioning among children who experience homelessness has focused on elementary school students, so little is known about these relationships among older children.

Stressful life events in children’s families—disruptive experiences such as deaths, arrests, family illnesses, job or income loss, and changes in household composition—are a form of instability frequently associated with homelessness. Several studies, including two that followed children after they had been re-housed, found children’s exposure to recent stressful life events was more strongly predictive of their mental health than recent homelessness (Buckner et al., 2004; Masten et al., 1993; Shinn et al., 2008). The influence of ongoing housing instability following homelessness may also be mediated through children’s exposure to stressful events.

### **The Present Study**

The present study has three aims for understanding how housing interventions affect subsequent functioning among school-aged children who experience homelessness. The first aim is to assess children’s functioning three years after a shelter stay holistically, using latent class analysis to examine clustering across behavioral, educational, and health functioning. Prior research on children in shelters found higher and lower functioning clusters, so I examine whether a similar two-class pattern is found or whether additional classes emerge three years after a shelter stay. Based on prior findings of age differences in long-term outcomes, I also examine whether the number or characterization of these latent classes differ by child age.

The second aim is to test the hypothesis that priority offers of housing interventions promote higher functioning for children age 8 to 17 relative to usual care three years after an initial shelter stay. Based on prior findings that effects of housing assistance weaken with age, I hypothesize effects will be stronger for children age 8 to 12 than for children age 13 to 17.

The third aim is to test a model of hypothesized mechanisms by which each intervention should promote higher functioning, as previously described in Figure 1. Although the effects of housing variables on parental distress and other mediators are not expected to vary by children's age, I hypothesize that age will interact with three mediating processes, measured at the 20-month follow-up in prediction of child functioning at the 37-month follow-up. Children age 13 to 17 are expected to spend more time in their neighborhood environment and less time in the home environment relative to children age 8 to 12. I thus hypothesize stronger indirect effects of neighborhood poverty and weaker indirect effects of household chaos for children 13 to 17 than those age 8 to 12. The indirect effect of school mobility is hypothesized to be stronger for children age 13 to 17 than children age 8 to 12 based on prior correlational research. Taken together, these analyses aim to inform policy by examining intervention effects on child functioning and to advance theory on the processes by which housing influences children's development among school-aged children.

## **Method**

Study analyses are based on parent and child survey data collected for the Family Options Study, a multi-site experimental study of interventions for homeless families that enrolled families between September 2010 and January 2012. Child outcomes were collected for up to two children randomly selected from each family from a second follow-up wave of surveys with parents and with children age 8 to 17 collected an average of 37 months after study entry. The study sample comprised 1,242 children between the age of 8 and 17 years who were with the family when the 37-month follow-up survey was completed. To examine potential

developmental differences by age, children are broken out into two groups: age 8 to 12 ( $n = 764$ ) and age 13 to 17 ( $n = 478$ ). Age groups were informed by theoretical and practical considerations, as children age 8 to 12 answered less detailed questions about substance use. Mediators examined were from parent and child survey data collected at the first follow-up wave an average of 20 months after study entry.

### **Study Design**

The Family Options Study randomly assigned families living in homeless shelters in 12 sites to a priority offer of one of three treatment conditions: long-term rental subsidy, short-term rental subsidy, project-based transitional housing, or to usual care, which consisted of any services or programs families found in their local community using any help available to them. To be eligible for the study, all families had to have at least one child age 15 or younger with them in the shelter and have been in their current shelter for at least 7 days. To avoid sending families to programs that would turn them down, families were screened prior to randomization for intervention eligibility for providers with openings at the time of enrollment based on eligibility criteria provided to the study team by these service providers. Families had to be eligible for at least one available intervention in addition to usual care to enroll. Families were then randomly assigned among the interventions with openings for which they had been deemed eligible (see Gubits et al., 2013, 2018 for additional information on study implementation and eligibility processes). Families assigned to one of the three active interventions were offered priority access to that intervention, referral to a specific intervention provider in the community with a dedicated opening for the family. Families offered an intervention were compared to the

subset of usual care families who were also eligible for that intervention but who were randomized to usual care. These procedures created three pairwise experiments with different, but largely overlapping groups of usual care families who are well-matched to the active intervention. Study analyses are conducted pairwise on an intent-to-treat basis, comparing children in families offered the active intervention to children in usual care families who were eligible for the intervention regardless of whether families took up intervention offers.

## **Measures**

### ***Dependent Variables (37-Month Follow-Up)***

The outcome of interest is a latent class of child functioning, comprised of educational, behavioral, and physical health measures collected at the 37-month follow-up. All outcomes were coded so that higher scores indicate higher functioning. For all scales, cases where at least two thirds of the items are non-missing were retained with scores imputed based on the average of the non-missing items.

**Educational Outcomes.** Parents reported on school attendance, attitudes, grades, and grade retention. Few absences was defined as missing two or less days of school during the last month that school was in session. School attitudes were assessed as a response to “How much does your child like school?” on a Likert scale from 1 (*very much*) to 5 (*not at all*), with responses less than 4 (*not very much*) coded as positive school attitudes. Passing school grades were measured as a child’s last report card being mostly As through mostly Cs (versus mostly Ds or Fs). No grade retention since study enrollment was used as an additional indicator of

achievement. All measures have been used in prior studies of childhood homelessness (Shinn et al., 2015).

**Behavioral Health.** Parents completed the Strengths and Difficulties Questionnaire (SDQ), a 25-question behavioral screening assessment with an overall behavior problem score ( $\alpha = .86$ , ages 8 to 12,  $.85$ , ages 13 to 17) based on four sub-domains—hyperactivity, conduct problems, emotional problems, and peer problems—and a separate pro-social behavior domain ( $\alpha = .67, .77$ ). Each item was rated on a scale from 1 (*not true*) to 3 (*certainly true*). Binary indicators for no behavior problems and pro-social behavior were used based on recommended diagnostic cutoffs by child age and gender for the U.S. normative sample (below the 80<sup>th</sup> percentile of total scores for problem domains and above the 20<sup>th</sup> percentile of scores for the pro-social domain, YouthInMind, 2014). No school conduct problems was defined as parents reporting no school suspensions or school contact with the parent about child behavior problems in the past six months. Substance use was measured based on child self-report using questions from the Centers for Disease Control (CDC) Youth Behavioral Risk Surveillance Survey, including use of tobacco products, alcohol, or marijuana within the past 30 days and lifetime usage of cocaine, steroids (without a prescription), inhalants, prescription drugs, heroin, methamphetamines, ecstasy, or needle use (Centers for Disease Control, 2011). No substance use was operationalized as no use of alcohol, tobacco, or marijuana in the past 30 days and no lifetime usage of any other substance. Trait anxiety, capturing internalizing symptoms of anxiety-proneness that are relatively stable over time, was assessed based on child responses on the State-Trait Anxiety Inventory for Children ( $\alpha = .86, .87$ ), which has 20 items on a three-point scale from 1 (*hardly ever*) to 3 (*often*) (Spielberger et al., 1973). The analysis measure, low anxiety, reverse-codes and averages the scores with higher scores indicating less anxiety.

**Physical Health.** Parents rated children’s general health on a scale from 1 (*poor*) to 5 (*excellent*) with responses of 3 (*good*) or higher coded as good physical health. They also reported on children’s sleep problems. Adequate sleep was defined as an average score below 3 (*sometimes*) on two items—difficulty waking up on school days and tiredness during the day—measured on a scale from 1 (*almost never*) to 5 (*almost always*).

***Independent Variables (Study Entry)***

**Housing Intervention.** For each intervention comparison group, a dummy variable indicates whether the family was randomly assigned to a priority offer of the intervention or not at study entry, with usual care being the reference category.

**Parent Characteristics.** Parental educational attainment at baseline was controlled for using two dummy variables—1) High school graduate or GED and 2) More than high school—with less than high school as the reference category. Race and ethnicity were controlled for using a dummy variable for minority race or ethnicity, with White, non-Hispanic as the reference category (results were not sensitive to use of additional minority racial or ethnic categories for Hispanic, Black, non-Hispanic, and other race or ethnicity, non-Hispanic).

**Child Characteristics.** Children were divided into two age groups, 8 to 12 and 13 to 17 years based on their age as of the 37-month follow-up interview. Child gender was controlled for using a dummy variable, with male as the reference category.

***Mediators (20-Month Follow-Up)***

**Housing Instability.** Housing instability was modeled as a latent variable with three parent-reported indicators: literal homelessness, doubling up, and number of places lived in the

past 6 months. Literal homelessness was defined as having stayed in a shelter or lived in a place not fit for human habitation. Doubling up was defined as staying with family or friends because the family could not find or afford a place of their own.

**Low Housing Quality.** Low housing quality was a parent rating of the condition of their current housing of fair or poor on a scale from 1 (*excellent*) to 4 (*poor*).

**Economic Stress.** Economic stress was assessed using a scale with four items indicating how often the parent did not have enough money to afford health care, clothing, rent, or leisure activities on a scale of 1 (*never*) to 4 (*very often*) and one item indicating whether family finances worked out by the end of the month ranging from 1 (*some money left over*) to 3 (*not enough money to make ends meet*) (standardized  $\alpha=.71, .74$ ) (Pearlin & Schooler, 1978). The four-point items were recoded to 1 = -1, 2 = -.33, 3 = .33, and 4 = 1; the three-point item was recoded to 1 = -1, 2 = 0, 3 = 1. The measure is the average item score, which ranges from -1 to +1 with higher values indicating greater stress.

**Parental Distress.** Parental psychological distress, referred to subsequently as parental distress, was measured using the Kessler Psychological Distress K6 scale (Kessler et al., 2002). The distress score averaged six items on a frequency scale from 1 (*all of the time*) to 5 (*none of the time*) ( $\alpha=.85, .84$ ), reverse scored so that higher scores indicate greater distress.

**Family Routines.** Parent-reported family routines were measured as the average score of a subset of eight items from the Child Routines Inventory (Sytsma et al., 2001) rated on a scale from 1 (*almost always*) to 5 (*almost never*), reverse coded so higher scores indicate more stable routines ( $\alpha=.76, .80$ ).

**Involved-Vigilant Parenting.** Child-reported involved-vigilant parenting (Brody et al., 2004) measures parental monitoring, use of inductive reasoning, and consistent discipline, using

an average score from 19 items on a four-point Likert scale from 1 (*never*) to 4 (*always*), where higher average scores indicated greater use of an involved-vigilant parenting style ( $\alpha=.80, .84$ ).

**Household Chaos.** Household chaos was the sum of the 14-item parent-reported Confusion, Hubbub, and Order scale ( $\alpha=.79, .78$ ; Matheny et al., 1995).

**School Mobility.** School mobility was the parent-reported number of schools the child had attended since study enrollment.

**Stressful Life Events.** Recent stressful life events were measured as a count of up to 29 events that the child reported having occurred within the past year (adapted from index used in Masten et al., 1994). Most events in the adapted index (27 of 29) refer to events happening to family members or within the family, with exceptions being personal experiences of violence and the death of a close friend.

**Neighborhood Quality.** Neighborhood quality was measured as the percentage of families living below the federal poverty line in the family's census tract, based on American Community Survey data for the year in which the family completed the 20-month follow-up survey. Family census tract was captured based on geocoding of the family's address from survey data (see Gubits et al., 2013, 2015 for additional information on address data collection), or if the family did not complete the survey, the tracking interview closest in time, but at least 7 months after study enrollment. By that time, most families had exited the shelter they were staying in at study entry (Gubits et al., 2015).

## **Analysis Plan**

Study analyses were conducted in four steps using MPlus 8.3. First, latent class analysis was used to identify profiles of functioning across educational, behavioral, and physical health outcomes within child age groups (8 to 12 and 13 to 17 years) for each of the three study-intervention comparison groups. One to four class models were run for each age group. The best fitting number of classes in each age group was selected using the Bayesian Information Criterion (BIC), with a lower value indicating better fit (Nylund et al., 2007).

Second, invariance testing was conducted to test whether simplifying assumptions that item means are the same across age groups within similar class profiles were supported. The BIC was used to compare relative model fit in invariance tests, as it favors parsimony and reduces chances of overfitting models with larger sample sizes (Kankaras et al., 2010).

Third, after selecting the best fitting model without predictors, direct intervention effects on the probability of class membership for each comparison were assessed. Specifically, these analyses test whether the intervention offer increases the probability of a child in the intervention group being in a class with higher functioning in one or more domains (relative to the lowest-functioning class) compared to children in usual care. These analyses used an intent-to-treat estimator, which assesses the impact of offering the study intervention relative to an offer of usual care. Analyses control for the set of baseline parent and child characteristics previously described to enhance precision of the estimates. Predictors were added to the final model selected in the second stage. Effect sizes are reported using the Cox index, which yields effect size values for dichotomous outcomes comparable to Hedges' *g* for continuous outcomes.

Fourth, mediation models were tested, with mediators of intervention effects at the 37-month follow-up measured at the 20-month follow-up. Figure 1 indicates posited mediation

relationships. Though I pre-specify a set of hypothesized interactions, each relationship tested could plausibly interact with child age, so interactions with child age for each path were tested to assess whether they improved parsimony-adjusted model fit (BIC) to identify the best-fitting mediation model. These models were compared relative to an initial model where all paths were constrained to be equal across age. Effect sizes are reported using Hedge's  $g$  when dependent variables are continuous and a Cox index approximation for  $g$  when dependent variables are dichotomous.

Following Preacher and Hayes (2008), mediation is conceptualized as existing when a predictor affects a dependent variable indirectly through at least one intervening variable. In contrast to the older causal steps approach to mediation, this approach focuses not on the individual paths from the intervention to the mediator (a) and mediator to the outcome (b), but on the product terms (ab). In multiple mediator models, tests of total indirect effects indicate whether the full set of mediators transmit the influence of the independent to dependent variable, and tests of specific indirect effects indicate whether a particular mediation pathway is statistically significant net of other mediating pathways. After selecting a final mediation model, mediation tests were conducted using asymmetric confidence intervals for specific and total indirect effects for each intervention group relative to usual care within each age group. Confidence intervals for indirect effects were estimated based on one million repetitions using an adapted R program for the Monte Carlo Methods for Assessing Mediation (MCMAM, Selig & Preacher, 2008). MCMAM performs similarly to bootstrapped confidence intervals, does not require an assumption of normality for the distribution of the indirect effects, and is more computationally efficient for complex models (Preacher & Selig, 2012).

Missing data on 20-month predictors and outcomes was addressed using a robust full information maximum-likelihood (FIML) estimator (using an expectation-maximization algorithm) in all models under missing at random (MAR) assumptions (Sterba, 2014). Missing baseline covariates values were imputed using a single stochastic imputation using SAS's PROC MI, using all covariates in the impact model (see Gubits et al., 2016, Appendix C.3.). Missing data rates on baseline and 20-month predictors were generally low (less than 1 percent) except for child-reported stressful life events at 20 months, which had 20 to 25 percent missing data (primarily due to child survey non-response). Robust standard errors were used to account for clustering of children within families (30% of households had two sampled children age 8 to 17).

## **Results**

Table 1 below describes sample characteristics by intervention comparison (Supplementary Table S1 reports descriptive statistics on all outcomes and mediators). Demographic characteristics at baseline for the analysis sample were similar to those observed in national data on families in shelters at the time of study enrollment (Solari et al., 2017). By the 20-month follow-up interview, the majority of children had not experienced homelessness or stayed in temporary sharing housing (doubling up) in the past 6 months, even among families offered usual care, but children in families offered long-term rental subsidies were faring better on all measures of housing instability compared to families offered usual care (Supplementary Table S1).

**Table 1***Sample Characteristics at Study Entry for Children Age 8 to 17, By Intervention Comparison*

Measure	LTRS	UC	STRS	UC	PBTH	UC
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Sample size	330	262	310	307	215	184
Child age at 37 month follow-up	12.2 (2.8)	12.1 (2.8)	12.3 (2.9)	12.3 (2.8)	12.0 (3.0)	12.2 (2.6)
Child gender: Female (%)	53.1	51.5	43.5	53.1	44.2	47.3
Race/ethnicity: Black (%)	43.6	39.3	48.1	43.6	35.8	46.2
Race/ethnicity: Hispanic (%)	17.6	18.7	16.8	17.6	21.9	15.2
Race/ethnicity: White (%)	22.8	24.4	21.0	22.8	20.5	13.6
Race/ethnicity: Other (%)	16.0	17.6	14.2	16.0	21.9	25.0
Parent serious distress (%)	29.3	28.2	16.5	29.3	23.3	29.9
Annual household income at baseline (in \$1000s)	11.8 (9.4)	10.0 (9.4)	10.3 (8.7)	11.8 (10.0)	10.9 (8.5)	12.0 (9.7)
Less than high school (%)	36.1	41.2	26.5	36.2	34.4	34.2
High school or GED (%)	40.0	30.9	41.6	30.6	37.7	33.7
More than high school (%)	23.9	27.9	31.9	33.2	27.9	32.1

*Note.* LTRS = Long-term rental subsidy, STRS = Short-term rental subsidy, PBTH = Project-

based transitional housing, UC = Usual care, SD = Standard deviation. Parental serious distress is a K6 score of 13 or above (Kessler et al., 2002). Other race/ethnicity includes non-Hispanic Asian or Pacific Islander, Alaskan Native, Multiracial, and other race responses. Usual care control groups for the three active interventions overlap.

### **Profiles of Child Functioning 37 Months After a Shelter Stay**

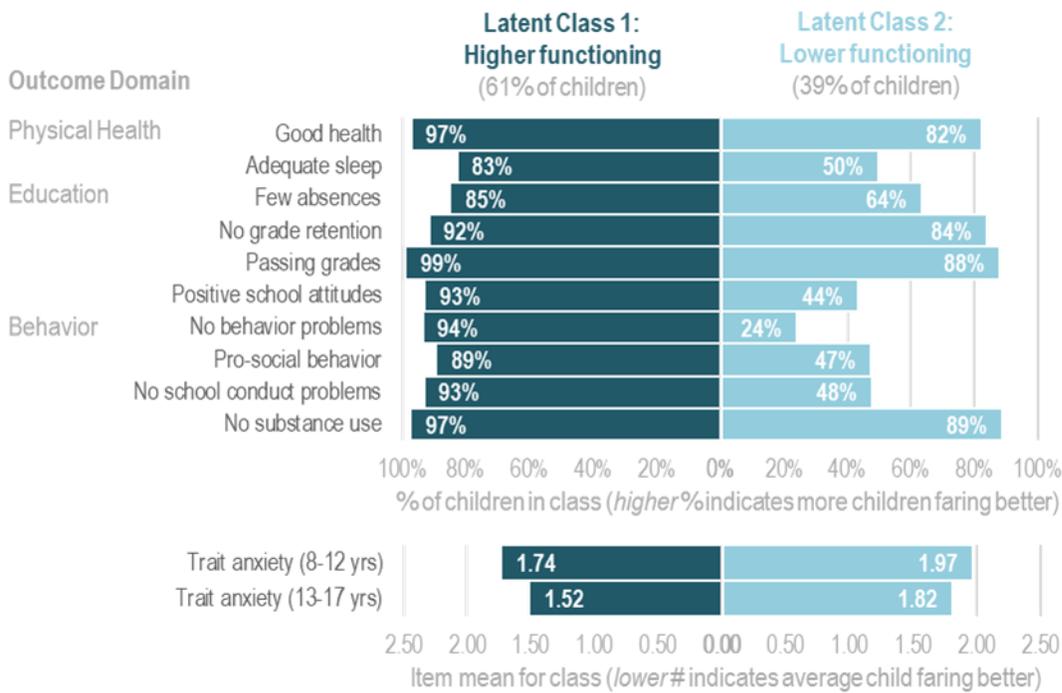
Two-class models fit best within each age group and intervention comparison, based on parsimony-adjusted model fit (lowest BIC value), characterized by higher and lower functioning classes that were similar across age groups (Supplementary Table S2). Results were the same

when procedures are replicated with a usual care only sample and with a pooled sample across all intervention conditions (Supplementary Table S3). An omnibus assumption that the higher and lower functioning class profiles were the same across age groups (full measurement invariance) further improved parsimony-adjusted model fit (lower BIC) relative to a model where all outcomes within class were allowed to differ by age group (Supplementary Table S3). Additionally, allowing trait anxiety means to differ by age improved model fit in all three intervention comparisons, and allowing substance use to differ by age improved fit in the short-term rental subsidy comparison, based on tests of relaxing full invariance on an item-by-item basis. In sum, a two-class model characterized by one higher functioning and one lower functioning class best described how children age 8 to 17 are faring 37 months after shelter entry, and higher and lower functioning classes were similar across age groups with the exception of trait anxiety (which was higher on average among children age 8 to 12 relative to those age 13 to 17).

Overall, the majority of children in each intervention comparison were in the higher functioning class (61% LTRS vs. UC, 59% STRS vs. UC, 63% PBTH vs. UC; 51% UC only). Figure 2 displays the outcome profiles of the higher functioning and lower functioning classes among children age 8 to 17 in the long-term rental subsidy versus usual care comparison three years after a shelter stay (profiles for STRS vs. UC and PBTH vs. UC, and UC only were highly similar to those in Figure 1 and are shown in Supplementary Figure S1; description here focuses on LTRS vs. UC for brevity). Almost all children in the higher functioning class were faring well across the educational, behavioral, and physical health outcomes assessed, though a somewhat

**Figure 2**

*Outcome Probabilities and Means for Higher and Lower Functioning Latent Classes 37 Months After Shelter Entry for Children Age 8 to 17, Long-Term Rental Subsidy Versus Usual Care Comparison*



lower proportion got adequate sleep or had few school absences (83 and 85 percent, respectively). The lower-functioning class was most notably characterized by elevated behavioral challenges, with only 24 percent passing a screening assessment for behavioral problems compared to an expected norm of 80 percent for a national sample of children. In combination with high rates of behavioral challenges, over half of children in the lower functioning group had school conduct problems and lacked adequate sleep, positive educational attitudes, and pro-social behavior. In sum, the majority of school-age children were faring well

on physical health, educational, and behavioral outcomes three years after a shelter stay, but the average child who was not faring well displayed challenges in multiple developmental domains.

### Intervention Effects on Child Functioning

Table 2 reports the effects of housing intervention offers on the odds of children age 8 to 17 being in the higher functioning class three years after an initial shelter stay (intent-to-treat estimates), with an odds ratio of one indicating no intervention effect and odds ratios greater than one indicating favorable effects. Children age 13 to 17 whose families were offered long-term rental subsidies had over twice the odds of being in the higher functioning class compared to children in the usual care group, reflecting a medium favorable effect size (Adjusted Odds Ratio [AOR] = 2.30, 95% CI [1.08, 4.92],  $g = 0.50$ ). Uncertainty in the impact estimate (based on the 95% confidence interval) indicated a plausible range of children having marginally better odds of

**Table 2**

*Effects of Housing Intervention Offer Versus Usual Care on Child Being in Higher Functioning Class 37 Months After Shelter Entry, By Intervention and Age Group*

Age group	Long-term rental subsidy		Short-term rental subsidy		Project-based transitional housing	
	OR [95% CI]	ES	OR [95% CI]	ES	OR [95% CI]	ES
Age 8 to 12	1.01 [0.57, 1.80]	0.01	0.76 [0.40, 1.42]	-0.17	0.69 [0.31, 1.54]	-0.22
Age 13 to 17	2.30 [1.08, 4.92]	0.50	1.47 [0.72, 2.99]	0.23	1.25 [0.51, 3.07]	0.14

*Note.* OR = Odds ratio; 95% CI = 95% confidence interval; ES = effect size (Cox’s index).

displaying higher functioning than children in families offered usual care (odds ratio near 1) to having almost five times the odds of displaying higher functioning. Estimated effects of short-term rental subsidies and transitional housing for children age 13 to 17 were small and favorable compared to usual care but not statistically different from an odds ratio of one (AOR = 1.47, 95% CI [0.72, 2.99],  $g = 0.23$ ; AOR=1.25, 95% CI [0.51, 3.07],  $g = 0.14$ , respectively). For children age 8 to 12, none of the interventions had estimated effects statistically different from an odds ratio of one (no difference), and the plausible range of effect estimates for each intervention were largely overlapping. The effect size for long-term rental subsidies was near zero (0.01) and effect sizes were small and unfavorable for the short-term rental subsidies and transitional housing (-0.17 and -0.22, respectively).

### **Mediators of Intervention Effects on Child Functioning**

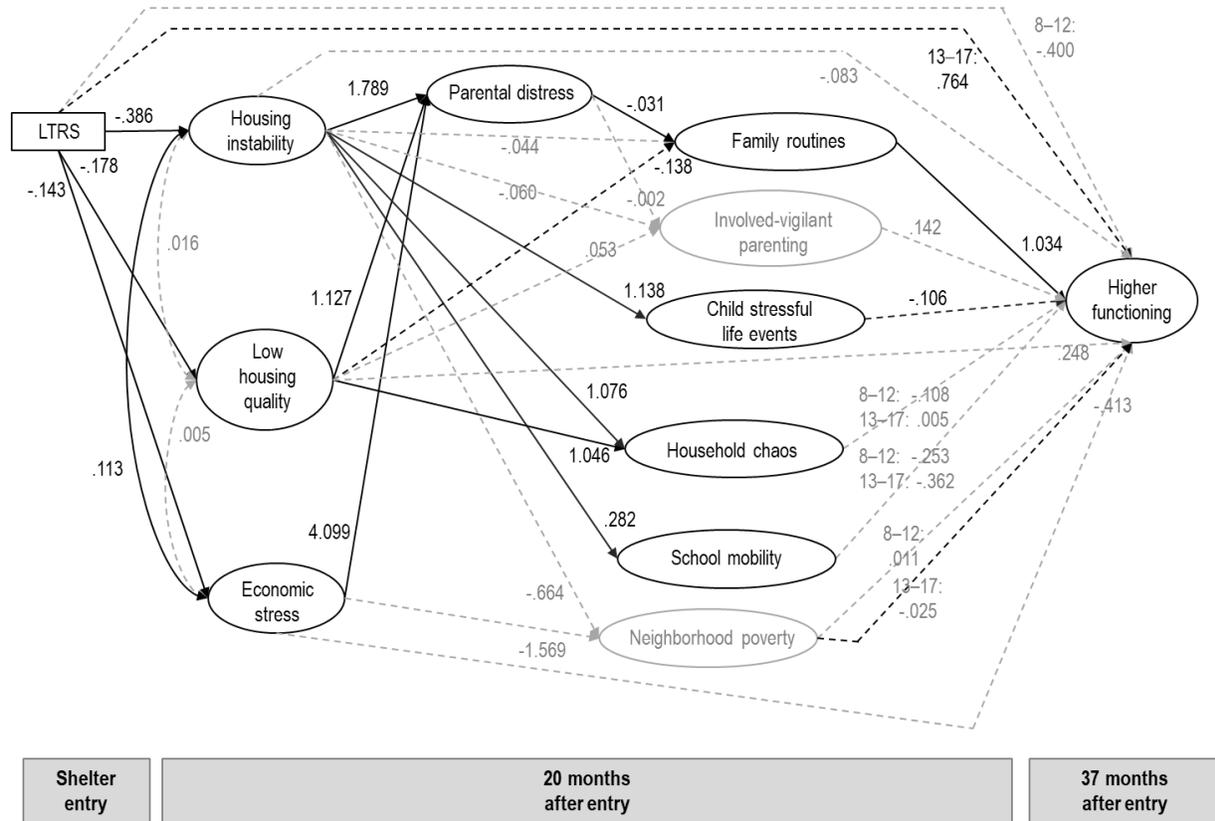
Figure 3 below shows unstandardized path model coefficients (expressed in logits for dichotomous outcomes) for the mediation model analysis for children age 13 to 17 in the long-term rental subsidy comparison, with differences in paths by age shown where pre-specified interaction tests were performed (full results with 95% confidence intervals and effect sizes for all three comparison conditions shown in Supplementary Tables S4-S6; Supplementary Figures S2 and S3 display path model results for short-term rental subsidies and transitional housing). All paths subsequently described were statistically significant at a critical value of .05.

By 20 months after shelter entry, offers of a long-term rental subsidy significantly reduced families' housing instability ( $\beta = -0.386$ ,  $g = -0.27$ ), exposure to low housing quality ( $\beta = -0.178$ ,  $g = -0.11$ ), and economic stress ( $\beta = -0.143$ ,  $g = -0.29$ ). As hypothesized from the

**Figure 3**

*Path Coefficients for Mediation Model for Long-Term Rental Subsidy Effects 37 Months After Shelter Entry*

*Shelter Entry*



*Note.* LTRS = Long-term rental subsidy intervention offer, 8–12 = estimate for age 8 to 12 years group, 13–17 = estimate for age 13 to 17 years group based on pre-specified interaction tests.

Solid black lines =  $p < .05$ ; dotted black line =  $p < .10$ ; grey dotted lines =  $p \geq .10$  for estimate.

family stress model, housing instability, low housing quality, and economic stress were all associated with greater parental distress ( $\beta = 1.789, g = 1.79; \beta = 1.127, g = 1.13; \beta = 4.099, g = 4.11$ , respectively), which was negatively associated with family routines ( $\beta = -0.031, g = -0.04$ ). Family routines were positively associated with child functioning ( $\beta = 1.034, g = 0.63$ ).

Both housing instability and low housing quality were associated with other proximal mediators of child functioning. Specifically, housing instability was associated with more child stressful life events ( $\beta = 1.138, g = 0.36$ ), greater household chaos ( $\beta = 1.076, g = 0.36$ ), and a greater number of school moves ( $\beta = 0.282, g = 0.32$ ). Low housing quality was associated with greater household chaos ( $\beta = 1.046, g = 0.35$ ). However, none of these mediators had adjusted associations with child functioning statistically different from zero (sensitivity analyses run with each predictor individually indicated some attenuation in the school mobility estimate with the addition of family-level predictors, but school mobility alone was still not a statistically significant predictor of functioning).

The hypothesized interaction between neighborhood poverty and age group was statistically different from zero and in the expected direction, having a stronger negative association with child functioning group among children age 13 to 17 relative to children age 8 to 12 (interaction  $\beta = -0.035, 95\% \text{ CI } [-0.000, -0.700]$ ). However, adjusted associations between neighborhood poverty and child functioning had small effect sizes and were not statistically different from zero in both age groups. None of the other hypothesized interactions between age and predictors of higher functioning are statistically different from zero, and there were no interactions detected between age and intermediate mediating paths tested (e.g., between intervention and housing instability or between housing instability and psychological distress).

Table 3 below provides estimates from statistical tests of mediation for the favorable effect of long-term subsidies on children age 13 to 17, both in the aggregate (total indirect effects) and of individual mediating paths (specific indirect effects) via effects on housing instability, low housing quality and economic stress. Estimates are in logits with bootstrapped asymmetric 95% confidence indicating whether estimates were statistically different from zero.

**Table 3***Estimates of Total and Specific Indirect Mediation Effects of Long-Term Rental Subsidy Offers**Compared to Usual Care on Child Being in Higher Functioning Class 37 Months After Shelter**Entry*

<u>Total indirect and direct effects</u>	Estimate	[95% CI]
Total indirect effect of LTRS	0.213	[-0.091, 0.540]
Total direct effect of LTRS	0.764	[-0.066, 1.593]
<u>Specific indirect effect paths to child functioning</u>		
LTRS → Economic stress	0.061	[-0.037, 0.198]
LTRS → Housing instability → Child life events	0.045	[-0.001, 0.108]
LTRS → Housing instability → School mobility	0.038	[-0.017, 0.112]
LTRS → Housing instability	0.037	[-0.165, 0.274]
LTRS → Low housing quality → Family routines	0.025	[-0.004, 0.066]
LTRS → Housing instability → Distress → Family routines	<b>0.022</b>	<b>[0.006, 0.047]</b>
LTRS → Economic stress → Distress → Family routines	<b>0.019</b>	<b>[0.004, 0.045]</b>
LTRS → Housing instability → Routines	0.016	[-0.043, 0.076]
LTRS → Low housing quality → Distress → Family routines	<b>0.007</b>	<b>[0.000, 0.018]</b>
LTRS → Housing instability → IVP	0.003	[-0.022, 0.032]
LTRS → Housing instability → Distress → IVP	0.000	[-0.003, 0.005]
LTRS → Economic stress → Distress → IVP	0.000	[-0.002, 0.004]
LTRS → Low housing quality → Distress → IVP	0.000	[-0.001, 0.002]
LTRS → Low housing quality → Household chaos	-0.001	[-0.045, 0.044]
LTRS → Low housing quality → IVP	-0.001	[-0.015, 0.011]
LTRS → Housing instability → Household chaos	-0.003	[-0.098, 0.086]
LTRS → Economic stress → Neighborhood poverty	-0.006	[-0.025, 0.005]
LTRS → Housing instability → Neighborhood poverty	-0.006	[-0.035, 0.020]
LTRS → Low housing quality	-0.043	[-0.176, 0.077]

*Note.* CI = confidence interval, LTRS = Long-term rental subsidy offer, IVP = Involved-vigilant

parenting. Estimates and confidence intervals are in logits; bolded estimates statistically

significant based on MCMAM bootstrapped asymmetric 95% confidence intervals.

Although the hypothesized mediators account for about one-fifth of the total favorable effect that long-term rental subsidies had on child functioning (22 percent), the total indirect effect was not significantly different from zero ( $\beta = 0.213$ , 95% CI [-0.091, 0.540]). Specific indirect effects of

long-term rental subsidies through family stress paths via housing instability, low housing quality, and economic stress, were statistically different from zero ( $\beta = 0.022$ , 95% CI [0.006, 0.047];  $\beta = 0.007$ , 95% CI [0.000, 0.018]; and  $\beta = 0.019$ , 95% CI [0.004, 0.045], respectively), collectively accounting for 5 percent of the total effect of long-term subsidies. That is, part of the favorable effect that long-term subsidies had on child functioning can be attributed to their effects on reducing housing instability, exposure to low housing quality, and economic stress that in turn reduced parental distress and disruption to family routines.

Short-term rental subsidies and transitional housing had no detectible effects on housing instability, low housing quality or economic stress, with point estimates close to zero and effect sizes below 0.10 (Supplementary Figures S2, S3; Supplementary Tables S4, S5). There were no hypothesized direct effects of services offered by short-term rental subsidies on mediators beyond effects on housing, as services focused on the housing outcomes. Hypothesized direct effects of transitional housing on mediators targeted by the services provided in this intervention (parental distress, parenting) or affected by the place-based nature of the intervention (neighborhood poverty) also were not detectably different from zero. However, for parental distress there was a moderate unfavorable effect size ( $\beta = 0.643$ , 95% CI [-0.643, 1.929],  $g = 0.63$ ), contrary to the hypothesis that availability of mental health services in transitional housing would reduce distress independently of housing. There was a small favorable effect size of transitional housing for family routines ( $\beta = 0.130$ , 95% CI [-0.048, 0.308],  $g = 0.18$ ), and effect sizes are near zero for involved-vigilant parenting ( $\beta = -0.007$ , 95% CI [-0.127, 0.113],  $g = -0.02$ ) and neighborhood poverty ( $\beta = -0.382$ , 95% CI [-3.798, 3.034],  $g = -0.03$ ).

## Discussion

Over three-fifths of school-aged children who experienced homelessness were faring well on behavioral, educational, and physical health outcomes three years after experiencing homelessness, but those who were not faring well displayed challenges in multiple areas of development. Studies of children in shelters also have found that children tend to either be faring well or poorly across multiple domains of development, but only about two-fifths of school-aged children in these studies were faring well (Huntington et al., 2008; Obradović, 2010). The fact that a majority of children were faring well three years after entering homeless shelters, even among families that only received usual care, is consistent with prior research indicating recovery in child functioning after an experience of homelessness (Cutuli et al., 2013; Shinn et al., 2015). The majority of families in the usual care group of the Family Options Study did not return to homelessness but were still in poverty 37 months later, and children faring well may reflect that the majority of families resolved acute housing crisis using typical services available through the homeless service system. However, a sizable group of children (39%) were not faring well in multiple aspects of development. This suggests poor behavior, education, and health outcomes are more strongly correlated among children in deep disadvantage and a need for holistic intervention.

Housing interventions are holistic in nature, and this study indicates providing prioritized access to long-term rental subsidies for families in shelters improved the chances that adolescents were faring well three years later. Further, about one in three families offered usual care also had received a long-term housing subsidy three years later, most commonly because families rose to the top of assistance waitlists over time (Gubits et al., 2018). This suggests long-

term assistance could plausibly have been supporting better functioning in the usual care group as well. These gains occurred despite there being no detectible difference in income between families offered long-term subsidies and those offered usual care at the three-year follow-up (Gubits et al., 2018). Effects of short-term rental subsidies and transitional housing offers on both children's functioning and housing compared to usual care were very small and not statistically different from zero, suggesting that expanding access to these interventions would not be expected to produce substantial gains in child outcomes relative to the homeless service system in place at the time of this study. Differential access to long-term rental subsidies among families who experience homelessness may partially explain why some children fare better than others after an experience of homelessness despite persisting poverty.

Age differences in the influence of housing on child functioning may explain the favorable effects of long-term subsidies among adolescents and null findings among younger school-aged children. Long-term subsidies primarily target children's housing, and prior research indicates that housing stability, quality, and affordability are more strongly linked to functioning in adolescence compared to younger school-age children (Coley et al., 2013; Fowler et al. 2014). Therefore, interventions that reduce housing instability should be more likely to improve these outcomes for adolescents relative to younger school-aged children, as they did here. Using finer grained age-groups and a more holistic approach to assessing functioning provided additional nuance to the aggregated impact estimates for child outcomes from the larger study (Gubits et al., 2018). A previous report, focusing on younger school-age children (mean age = 7.3 years, SD = 4.15 years) in the Minneapolis site of the Family Options Study (Cutuli & Herbers, 2019) also found favorable effects on school mobility but null effects on educational outcomes, though with a smaller sample size and high attrition within the site (>50%). Age differences in the

influence of housing stability may also explain the presence of favorable findings for adolescents in this trial relative to null or unfavorable findings among adolescents in prior randomized trials of long-term rental subsidies with already housed families (e.g., Chetty et al., 2016; Mills et al., 2006). Observational evidence suggests residential moves are more disruptive for adolescents relative to younger school-aged children (Coley et al., 2013). Crucially, in prior randomized trials studies, vouchers were offered to low-income families where comparison families were *already housed*. Voucher offers in these trials *increased* housing instability in the short run, whether because families in the intervention group had to move (Chetty et al., 2016) or were more likely than comparison families to move in order to use their voucher (Mills et al., 2006). In contrast, all families in emergency shelters must move out. In the present study, offers of housing vouchers *reduced* housing instability in the short-term rather than increasing it. Taken together, findings from the present study provide further evidence of potential age differences in the influence of housing on children's outcomes and in the effects of housing interventions.

Despite the average family remaining in poverty three years later, reductions in housing instability, low housing quality, and economic stress improved functioning through reduced parental distress and family routines. These findings align with prior observational studies indicating housing instability and low housing quality can affect child functioning through these family stress mechanisms, as can economic stress (Coley et al., 2013). However, in the present study, differences in housing experiences were induced by the experimental interventions offered to otherwise similar families, providing stronger evidence that housing instability, low housing quality, and economic stress from unaffordable housing directly and independently contribute to parental distress. The large magnitude of the association between family routines and child functioning may reflect the extreme instability and disruptive housing environments of

homelessness. In this context, restoration of normal routines may be particularly influential in supporting healthy functioning. Lack of detectable effects of the other interventions on child functioning then may be attributable to weak influence on families' housing conditions and economic stress compared to usual care.

Despite housing inputs being related to most proximal predictors as expected, few proximal factors at 20 months after a shelter stay were predictive of children's functioning at the 37-month follow-up, and there was not a detectable overall indirect effect of long-term rental subsidies on adolescent functioning. Lack of detectable mediation through housing instability and school mobility was particularly surprising, but few prior studies have also included family predictors of child functioning. Here, the school mobility estimate was stronger, but still not statistically significant, without family predictors. Another possible explanation is that families' circumstances across all groups, including usual care, continued improving, weakening the predictive power of the mediators assessed a year and a half before the outcomes. Prior research on homeless and highly mobile youth finds acute decrements in functioning when children are homeless or highly mobile, but that children tend to bounce back after the acute period of housing instability is resolved. By 37 months, rates of homelessness and housing instability were lower and incomes had continued rising for both intervention and usual care families relative to the 20-month follow-up (Gubits et al., 2018). Again, growing uptake of long-term subsidies among usual care families over time may also have contributed to greater school stability in the intervening period. Thus, school mobility and other mediators may be less predictive of longer-term functioning when families' circumstances continue changing, largely for the better. Further work is needed to identify stronger proximal factors or the optimal time lag for explaining longer-term differences in children's functioning after experiencing homelessness.

This study capitalizes on the strengths of the randomized design, large sample size, measurement of mediators prior to outcomes, and the breadth of mediators and child outcomes assessed in the Family Options Study but has some limitations. First, the study collected survey data only for children with the family. As a result, we likely underestimate intervention effects on child functioning to the extent that children separated from their family due to housing instability are likely to be faring worse. Long-term subsidies reduced these separations at 20 months, although the effect (in the same direction) was no longer significant at 37 months. Second, we were unable to collect baseline information on child functioning or to examine more micro-level processes within each ecological level of the model, which constrain our mediation analyses (e.g., individual-level stress and coping mechanisms). Third, low take-up rates for the transitional housing intervention complicates interpretation of null intent-to-treat effects on parent and family mediators targeted by the services it offers, and standard methods of adjusting for this (treatment-on-treated estimates) are not possible due to complex patterns of intervention cross-over. Fourth, the fact that about one in three families in the comparison group had obtained long-term housing subsidies by the time of the 37-month follow-up likely attenuated the effects of this intervention.

Findings and limitations suggest multiple directions for future research. First, conducting longer-term follow-ups with could help assess whether gains attributable to long-term rental subsidies are sustained as children transition into early adulthood. How do effects on self-sufficiency and criminal justice outcomes compare to prior studies of assisted housing? Second, what processes help explain the lack of effect of reductions in homelessness on younger school-aged children. In particular, are there differences in ecological resources that are buffering them from negative influences of homelessness or are the differences more strongly attributable to

differences in developmental stage and tasks that are less correlated with housing. Third, given that the majority of children in the usual care group were faring well, what factors are contributing to supporting higher functioning? To what extent does avoidance of subsequent episodes of homelessness help explain differences relative to other potential contextual, family, or child factors?

Study findings highlight two key policy levers for improving outcomes for children in families that experience homelessness. First, interventions effective in ending family homelessness support positive developmental outcomes among adolescents. Expanding access to housing choice vouchers for families who experience homelessness would improve adolescent functioning in conjunction with reducing subsequent homelessness and housing instability for families. Only a fraction of eligible families receive vouchers and only a quarter of public housing agencies have policies prioritizing access for families experiencing homelessness (Dunton et al., 2014). Second, holistic intervention approaches are likely needed to improve outcomes among children who display lower functioning. The presence of co-occurring challenges in multiple aspects of development and elevated school absenteeism indicates a need for comprehensive assessment of children and their contexts to identify appropriate interventions. For example, interventions delivered only in schools may miss many youth who are most in need of additional support. Developmentally and ecologically-informed interventions that tailor their approach based on children's strengths and needs across multiple domains and contexts of development may be an important complement to (though not a replacement for) long-term rental subsidies for improving functioning among children who experience homelessness.

## References

- Bartlett, S. (1998). Does inadequate housing perpetuate children's poverty? *Childhood*, 5, 403–420.
- Brody, G. H., Murry, V. M., Gerrard, M., Gibbons, F. X., Molgaard, V., McNair, L., Brown, A. C., Wills, T. A., Spoth, R. L., Luo, Z., Chen, Y. F., & Neubaum-Carlan, E. (2004). The Strong African American Families program: Translating research into prevention programming. *Child Development*, 75, 900–917. <https://doi.org/10.1111/j.1467-8624.2004.00713.x>
- Buckner, J. C. (2008). Understanding the impact of homelessness on children: Challenges and future research directions. *American Behavioral Scientist*, 51, 721–736.  
<https://doi.org/10.1177/0002764207311984>
- Buckner, J. C., Beardslee, W. R., & Bassuk, E. L. (2004). Exposure to violence and low income children's mental health: Direct, moderated, and mediated relations. *American Journal of Orthopsychiatry*, 74, 413–423. <https://doi.org/10.1037/0002-9432.74.4.413>
- Burt, M. (2010). *Life after transitional housing for homeless families*. U.S. Department of Housing and Urban Development.  
<https://www.huduser.gov/portal/publications/pdf/LifeAfterTransition.pdf>
- Bush, H., & Shinn, M. (2017). Families' experiences of doubling up after homelessness. *Cityscape*, 19(3), 331-356.
- Centers for Disease Control. (2011). *Youth Risk Behavior Surveillance – United States, 2011*.
- Chetty, R., Hendren, N., & Katz, L. F. (2016). The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment. *American Economic Review*, 106(4), 855-902. <https://doi.org/10.1257/aer.20150572>

- Coley, R. L., Leventhal, T., Lynch, A. D., & Kull, M. (2013). Relations between housing characteristics and the well-being of low-income children and adolescents. *Developmental Psychology, 49*, 1775–1789. <https://doi.org/10.1037/a0031033>
- Compañ, E., Moreno, J., Ruiz, M. T., & Pascual, E. (2002). Doing things together: adolescent health and family rituals. *Journal of Epidemiology and Community Health, 56*, 89–94.
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family, 72*, 685–704. <https://doi.org/10.1111/j.1741-3737.2010.00725.x>
- Conger, R. D., & Elder, G. H., Jr. (1994). *Families in troubled times: Adapting to change in rural America. Social institutions and social change*. Aldine de Gruyter.
- Cutuli, J. J., Desjardins, C. D., Herbers, J. E., Long, J. D., Heistad, D., Chan, C. K., Hinz, E., & Masten, A. S. (2013). Academic achievement trajectories of homeless and highly mobile students: Resilience in the context of chronic and acute risk. *Child Development, 84*, 841–857. <https://doi.org/10.1111/cdev.12013>
- Cutuli, J. J., & Herbers, J. E. (2019). Housing interventions and the chronic and acute risks of family homelessness: Experimental evidence for education. *Child Development, 90*, 1664–1683. <https://doi.org/10.1111/cdev.13041>
- Dumas, J. E., Nissley, J., Nordstrom, A., Smith, E. P., Prinz, R. J., & Levine, D. W. (2005). Home chaos: Sociodemographic, parenting, interactional, and child correlates. *Journal of Clinical Child and Adolescent Psychology, 34*, 93–104.
- Dunton, L., Henry, M., Kean, E., & Khadduri, J. (2014). *Study of PHA efforts to serve people experiencing homelessness*. U.S. Department of Housing and Urban Development.
- Eisenberg, M. E., Olson, R. E., Neumark-Sztainer, D., Story, M., & Bearinger, L. H. (2004).

- Correlations between family meals and psychosocial well-being among adolescents. *Archives of Pediatrics & Adolescent Medicine*, 158, 792–796.  
<https://doi.org/10.1001/archpedi.158.8.792>
- Eriksen, M. D., & Ross, A. (2013). The impact of housing vouchers on mobility and neighborhood attributes. *Real Estate Economics*, 41(2), 255–277.  
<https://doi.org/10.1111/j.1540-6229.2012.00342.x>
- Ellen, I. G. (2018). What do we know about housing choice vouchers?. *Regional Science and Urban Economics*. <https://doi.org/10.1016/j.regsciurbeco.2018.07.003>
- Evans, G. W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children’s socioemotional adjustment. *Psychological Science*, 16, 560–565. <https://doi.org/10.1111/j.0956-7976.2005.01575.x>
- Fantuzzo, J. W., LeBoeuf, W. A., Chen, C. C., Rouse, H. L., & Culhane, D. P. (2012). The unique and combined effects of homelessness and school mobility on the educational outcomes of young children. *Educational Researcher*, 41, 393–402.  
<https://doi.org/10.3102/0013189X12468210>
- Fisher, B. W., Mayberry, L. S., Shinn, M., & Khadduri, J. (2014). Leaving homelessness behind: Housing decisions among families exiting shelter. *Housing Policy Debate*, 24, 364–386.  
<https://doi.org/10.1080/10511482.2013.852603>
- Friedman, D. H. (2000). *Parenting in public: Family shelter and public assistance*. Columbia University Press.
- Fowler, P. J., Henry, D. B., Schoeny, M., Taylor, J., & Chavira, D. (2014). Developmental timing of housing mobility: Longitudinal effects on externalizing behaviors among at-risk youth. *Journal of the American Academy of Child & Adolescent Psychiatry*, 53, 199–208.

<https://doi.org/10.1016/j.jaac.2013.12.003>

- Gershoff, E. T., Aber, J. L., Raver, C. C., & Lennon, M. C. (2007). Income is not enough: Incorporating material hardship into models of income associations with parenting and child development. *Child Development, 78*, 70–95. <https://doi.org/10.1111/j.1467-8624.2007.00986.x>
- Grant, R., Shapiro, A., Joseph, S., Goldsmith, S., Rigual-Lynch, L., & Redlener, I. (2007). The health of homeless children revisited. *Advances in Pediatrics, 54*, 173–187. <https://doi.org/10.1016/j.yapd.2007.03.010>
- Gubits, D., Khadduri, J., & Turnham, J. (2009). *Housing patterns of low income families with children: Further analysis of data from the study of the effects of housing vouchers on welfare families*. Report W09-7. Joint Center for Housing Studies.
- Gubits, D., Shinn, M., Wood, M., Bell, S., Dastrup, S., Solari, C. D., Brown, S. R., McInnis, D., McCall, T., & Kattel, U. (2016). *Family options study: 3-year impacts of housing and services interventions for homeless families*. U.S. Department of Housing and Urban Development.
- Gubits, D., Shinn, M., Wood, M., Brown, S. R., Dastrup, S. R., & Bell, S. H. (2018). What interventions work best for families who experience homelessness? Impact estimates from the family options study. *Journal of Policy Analysis and Management, 37*(4), 835–866. <https://doi.org/10.1002/pam.22071>
- Gubits, D., Spellman, B., Dunton, L., Brown, S., & Wood, M. (2013). *Family Options Study: Interim report*. U.S. Department of Housing and Urban Development.
- Huntington, N., Buckner, J. C., & Bassuk, E. (2008). Adaptation in homeless children: An empirical examination using cluster analysis. *American Behavioral Scientist, 51*, 737–

755. <https://doi.org/10.1177/0002764207311985>
- Huston, A. C., & Bentley, A. C. (2010). Human development in societal context. *Annual Review of Psychology, 61*, 411–437. <https://doi.org/10.1146/annurev.psych.093008.100442>
- Jacob, B. A., Kapustin, M., & Ludwig, J. (2015). The impact of housing assistance on child outcomes: Evidence from a randomized housing lottery. *The Quarterly Journal of Economics, 130*, 465–506. <https://doi.org/10.1093/qje/qju030>
- Kankaras, M., Moors, G., & Vermunt, J. K. (2011). Testing for measurement invariance with latent class analysis. In E. Davidov, P. Schmidt, & J. Billet (Eds.), *Cross cultural analysis: Methods and applications* (pp.359–412). Routledge.
- Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine, 32*(6), 959–976. <https://doi.org/10.1017/S0033291702006074>
- Larson, R. W., Richards, M. H., Moneta, G., Holmbeck, G., & Duckett, E. (1996). Changes in adolescents' daily interactions with their families from ages 10 to 18: Disengagement and transformation. *Developmental Psychology, 32*, 744–754. <https://doi.org/10.1037/0012-1649.32.4.744>
- Laursen, B., & Collins, W. A. (2009). Parent-child relationships during adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology: Contextual influences on adolescent development* (pp. 3–42). John Wiley & Sons, Inc.  
<https://doi.org/10.1002/9780470479193.adlpsy002002>
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin, 126*,

309–337. <https://doi.org/10.1037/0033-2909.126.2.309>

- Leventhal, T., & Newman, S. (2010). Housing and child development. *Children and Youth Services Review, 32*, 1165–1174. <https://doi.org/10.1016/j.childyouth.2010.03.008>
- Matheny, A. P., Wachs, T. D., Ludwig, J. L., & Phillips, K. (1995). Bringing order out of chaos: Psychometric characteristics of the confusion, hubbub, and order scale. *Journal of Applied Developmental Psychology, 16*, 429–444. [https://doi.org/10.1016/0193-3973\(95\)90028-4](https://doi.org/10.1016/0193-3973(95)90028-4)
- Masten, A. S., Miliotis, D., Graham-Bermann, S. A., Ramirez, M., & Neemann, J. (1993). Children in homeless families: risks to mental health and development. *Journal of Consulting and Clinical Psychology, 61*, 335–343. <https://doi.org/10.1037/0022-006X.61.2.335>
- Masten, A. S., Neemann, J., & Andenas, S. (1994). Life events and adjustment in adolescents: The significance of event independence, desirability, and chronicity. *Journal of Research on Adolescence, 4*, 71–97. [https://doi.org/10.1207/s15327795jra0401\\_5](https://doi.org/10.1207/s15327795jra0401_5)
- Mayberry, L. S., Shinn, M., Benton, J. G., & Wise, J. (2014). Families experiencing housing instability: The effects of housing programs on family routines and rituals. *American Journal of Orthopsychiatry, 84*, 95–109. <https://doi.org/10.1037/h0098946>
- Mehana, M., & Reynolds, A. J. (2004). School mobility and achievement: A meta-analysis. *Children and Youth Services Review, 26*, 93–119. <https://doi.org/10.1016/j.childyouth.2003.11.004>
- Mills, G., Gubits, D., Orr, L., Long, D., Feins, J., Kaul, B., & Wood, M. (2006). *Effects of housing vouchers on welfare families*. U.S. Department of Housing and Urban Development.

- Newman, S. J., & Holupka, C. S. (2015). Housing affordability and child well-being. *Housing Policy Debate*, *25*, 116–151. <https://doi.org/10.1080/10511482.2014.899261>
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, *14*, 535–569. <https://doi.org/10.1080/10705510701575396>
- Obradović, J. (2010). Effortful control and adaptive functioning of homeless children: Variable-focused and person-focused analyses. *Journal of Applied Developmental Psychology*, *31*, 109–117. <https://doi.org/10.1016/j.appdev.2009.09.004>
- 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*, S255–S261. <https://doi.org/10.2105/AJPH.2010.300098>
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, *19*, 2–21. <https://doi.org/10.2307/2136319>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures*, *6*, 77–98. <https://doi.org/10.1080/19312458.2012.679848>
- Rafferty, Y., Shinn, M., & Weitzman, B. C. (2004). Academic achievement among formerly homeless adolescents and their continuously housed peers. *Journal of School Psychology*, *42*, 179–199. <https://doi.org/10.1016/j.jsp.2004.02.002>

- Selig, J. P., & Preacher, K. J. (2008, June). *Monte Carlo method for assessing mediation: An interactive tool for creating confidence intervals for indirect effects* [Computer software]. <http://quantpsy.org/medmc/medmc.htm>.
- Shinn, M., Samuels, J., Fischer, S. N., Thompkins, A., & Fowler, P. J. (2015). Longitudinal impact of a Family Critical Time Intervention on children in high-risk families experiencing homelessness: A randomized trial. *American Journal of Community Psychology, 56*, 205–216. <https://doi.org/10.1007/s10464-015-9742-y>
- Shinn, M., Schteingart, J. S., Williams, N. C., Carlin-Mathis, J., Bialo-Karagis, N., Becker-Klein, R., & Weitzman, B. C. (2008). Long-term associations of homelessness with children's well-being. *American Behavioral Scientist, 51*, 789–809. <https://doi.org/10.1177/0002764207311988>
- Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1973). *State-Trait anxiety inventory for children*. Mind Garden, Inc.
- Solari, C. D., Shivji, A., de Sousa, T., Watt, R., & Silverbush, M. (2017). *The 2016 Annual Homelessness Assessment Report to Congress Part 2: Estimates of homelessness in the United States*. U.S. Department of Housing and Urban Development.
- Sterba, S. (2014). Handling missing covariates in conditional mixture models under missing at random assumptions. *Multivariate Behavioral Research, 49*, 614–632. <https://doi.org/10.1080/00273171.2014.950719>
- Swanson, C. B., & Schneider, B. (1999). Students on the move: Residential and educational mobility in America's schools. *Sociology of Education, 72*, 54–67. <https://doi.org/10.2307/2673186>
- Sytsma, S. E., Kelley, M. L., & Wymer, J. H. (2001). Development and initial validation of

the Child Routines Inventory. *Journal of Psychopathology and Behavioral Assessment*, 23, 241–251. <https://doi.org/10.12727419873>

Voight, A., Shinn, M., & Nation, M. (2012). The longitudinal effects of residential mobility on the academic achievement of urban elementary and middle school students. *Educational Researcher*, 41, 385–392. <https://doi.org/10.3102/0013189X12442239>

YouthInMind. (2014). *Scoring the strengths and difficulties questionnaire for age 4-17*.

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## Supplementary Materials

**Supplementary Table S1**

*Descriptive Statistics, By Intervention Comparison and Age Group*

Measure	Intervention	LTRS	UC	LTRS	UC	STRS	UC	STRS	UC	PBTH	UC	PBTH	UC
	Age group	8–12	8–12	13–17	13–17	8–12	8–12	13–17	13–17	8–12	8–12	13–17	13–17
	Mean	Mean											
	(SD)	(SD)											
Sample size	203	165	127	97	182	185	128	122	140	112	75	72	
Child age at 37-month follow-up	10.3 (1.5)	10.2 (1.5)	15.2 (1.4)	15.2 (1.4)	10.3 (1.5)	10.4 (1.5)	15.2 (1.4)	15.2 (1.4)	10.1 (1.4)	10.4 (1.5)	15.6 (1.5)	14.9 (1.4)	
<i>Baseline characteristics</i>													
Child gender: Female (%)	46.8	52.1	49.6	50.5	42.9	51.9	44.5	54.9	42.1	47.3	48.0	47.2	
Minority race or ethnicity (%)	83.7	82.4	78.7	79.4	84.1	82.7	82.0	82.0	73.6	83.9	86.7	86.1	
Parent severe distress (%)	24.1	28.5	19.7	27.8	16.5	29.2	16.4	29.5	22.1	31.3	25.3	27.8	
<i>Child outcomes at 37-month follow-up</i>													
Good health (%)	92.4	92.9	87.4	92.5	95.3	92.6	91.9	90.6	95.2	93.2	95.6	91.4	
Adequate sleep (%)	73.4	71.8	68.1	63.0	65.3	97.3	65.0	64.7	72.0	68.9	66.7	64.3	
Few absences (%)	81.1	76.8	76.7	64.3	84.1	81.0	59.1	78.6	77.1	70.7	62.5	55.2	
No grade retention (%)	87.4	87.1	91.7	90.3	85.4	90.8	90.2	90.4	85.4	91.2	83.8	89.7	
Passing grades (%)	96.7	96.8	91.7	91.6	91.3	96.0	86.0	90.6	92.8	94.3	86.8	91.3	
Positive school attitudes (%)	77.0	75.4	75.0	55.0	69.4	81.7	64.3	60.0	76.6	73.8	61.5	69.0	
No behavior problems (%)	66.3	65.2	69.8	66.3	66.5	59.4	73.0	66.4	59.2	68.6	63.6	62.3	
Pro-social behavior (%)	72.8	76.3	77.3	63.0	72.9	77.1	73.8	69.0	74.4	74.8	63.6	65.2	
No school conduct problems (%)	75.7	78.9	78.3	58.5	73.8	75.0	66.7	56.1	70.2	76.2	65.4	48.3	
No substance use (%)	97.1	97.0	93.8	84.7	95.4	97.3	92.6	80.8	91.0	96.6	80.8	82.5	

Measure	Intervention	LTRS	UC	LTRS	UC	STRS	UC	STRS	UC	PBTH	UC	PBTH	UC
	Age group	8–12	8–12	13–17	13–17	8–12	8–12	13–17	13–17	8–12	8–12	13–17	13–17
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean	Mean
	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)	(SD)
Trait anxiety (1 to 3)	1.83	1.81	1.64	1.65	1.83	1.80	1.71	1.66	1.81	1.85	1.72	1.68	
	(0.37)	(0.40)	(0.36)	(0.36)	(0.36)	(0.38)	(0.36)	(0.35)	(0.36)	(0.34)	(0.44)	(0.34)	
<i>Mediators (at 20-month follow-up)</i>													
Homeless, past 6 mos (%)	12.7	23.1	9.4	29.9	23.8	16.7	22.1	28.1	16.5	16.7	27.9	28.6	
Doubled up, past 6 mos (%)	10.6	25.2	7.1	25.3	29.1	21.6	18.0	25.4	29.1	20.8	36.8	27.0	
Number of places lived	1.47	1.63	1.28	1.66	1.61	1.51	1.64	1.60	1.71	1.49	2.08	1.84	
	(1.00)	(1.10)	(0.77)	(1.15)	(0.95)	(1.02)	(1.01)	(1.04)	(0.85)	(0.91)	(1.42)	(1.22)	
Low housing quality (%)	21.8	41.5	27.6	37.6	38.6	39.8	23.8	35.7	32.5	40.6	38.8	33.9	
Economic stress (-1 to 1)	-0.19	-0.03	-0.14	0.03	-0.05	-0.07	-0.01	0.03	-0.02	-0.01	-0.03	0.07	
	(0.41)	(0.55)	(0.47)	(0.53)	(0.46)	(0.53)	(0.51)	(0.53)	(0.48)	(0.51)	(0.51)	(0.51)	
Parent distress (1 to 5)	1.16	1.33	1.11	1.26	1.24	1.21	1.22	1.30	1.35	1.27	1.41	1.29	
	(0.91)	(0.87)	(0.92)	(1.08)	(0.89)	(0.89)	(0.91)	(1.05)	(1.03)	(1.05)	(1.04)	(0.96)	
Family routines (1 to 5)	4.26	4.31	4.08	4.08	4.33	4.29	4.09	4.02	4.25	4.17	4.06	3.94	
	(0.71)	(0.66)	(0.84)	(0.86)	(0.65)	(0.66)	(0.79)	(0.86)	(0.71)	(0.65)	(0.78)	(0.88)	
Involved-vigilant parenting (1 to 4)	3.25	3.15	3.26	3.24	3.12	3.16	3.19	3.25	3.08	3.11	3.12	3.13	
	(0.45)	(0.46)	(0.47)	(0.50)	(0.42)	(0.45)	(0.46)	(0.50)	(0.45)	(0.44)	(0.45)	(0.41)	
Household chaos (1 to 14)	2.69	2.88	2.65	3.26	2.93	2.84	2.87	3.53	3.18	3.20	3.76	3.65	
	(2.49)	(2.86)	(2.65)	(3.41)	(3.03)	(2.88)	(2.68)	(3.54)	(2.78)	(2.62)	(3.12)	(3.11)	
Stressful life events (0 to 29)	4.64	4.54	3.91	4.16	5.19	4.28	4.80	5.12	5.78	4.03	5.90	4.62	
	(3.42)	(3.28)	(3.31)	(2.94)	(3.68)	(3.13)	(3.01)	(3.23)	(4.94)	(3.21)	(3.54)	(3.08)	
Number of schools attended	1.84	2.01	2.13	2.13	2.02	2.01	2.05	2.16	2.04	2.06	2.02	2.32	
	(0.80)	(0.96)	(0.89)	(0.84)	(0.91)	(0.97)	(0.90)	(0.86)	(0.81)	(0.96)	(0.93)	(0.85)	
Neighborhood poverty rate	26.1	27.2	25.2	28.6	25.9	25.8	28.3	26.7	26.0	26.0	26.3	26.8	
	(12.3)	(15.2)	(11.8)	(14.1)	(13.2)	(14.0)	(12.7)	(13.5)	(14.1)	(15.5)	(12.9)	(13.1)	

Note. LTRS = Long-term rental subsidy, STRS = Short-term rental subsidy, PBTH = Project-based transitional housing, UC = Usual

care, SD = Standard deviation.

**Supplementary Table S2**

*Model Fit Results for One Through Four-Class Models, By Comparison Condition and Age Group*

Age group	LTRS vs UC		STRS vs UC		PBTH vs UC		UC Only		All	
	8–12	13–17	8–12	13–17	8–12	13–17	8–12	13–17	8–12	13–17
Classes	<u>BIC</u>									
1	2,601.9	1,899.4	2,654.4	2,073.1	2,654.4	2,073.1	1,668.0	1,280.7	5,391.6	3,939.1
2	<b>2,514.8</b>	<b>1,817.0</b>	<b>2,573.0</b>	<b>1,984.1</b>	<b>2,573.0</b>	<b>1,984.1</b>	<b>1,621.2</b>	<b>1,268.3</b>	<b>5,186.5</b>	<b>3,731.1</b>
3	2,558.4	1,855.5	2,611.4	2,017.0	2,611.4	2,017.0	1,663.3	1,299.4	5,230.1	3,763.9
4	2,608.3	1,894.0	2,657.5	2,055.1	2,657.5	2,055.1	1,708.6	1,339.7	5,281.0	3,812.5

*Note.* BIC = Bayesian Information Criteria, LTRS = Long-term rental subsidy, STRS = Short term rental subsidy, PBTH = Project-

based transitional housing, UC = Usual care, All = Pooled sample of all children with outcome data. Lower BIC indicates better model fit. Bolded BIC indicates best model fit (lowest BIC).

**Supplementary Table S3**

*Omnibus and By-Item Tests of Invariance Across Age Group Results, By Comparison Condition*

	LTRS vs UC	STRS vs UC	PBTH vs UC
<u>Invariance assumption</u>	<u>BIC</u>	<u>BIC</u>	<u>BIC</u>
All outcomes vary across age within class	5,115.6	5,397.4	3,630.1
All outcomes in higher functioning class only are invariant	5,059.9	5,341.4	3,580.5
All outcomes within each class are invariant	5,039.5	5,318.1	3,536.5
All invariant except trait anxiety	<b>5,016.4</b>	5,313.2	<b>3,535.0</b>
All invariant except trait anxiety and substance use	5,018.7	<b>5,309.5</b>	3,538.2

*Note.* BIC = Bayesian Information Criteria, LTRS = Long-term rental subsidy, STRS = Short-term rental subsidy, PBTH = Project-based transitional housing, UC = Usual care. Lower BIC indicates better model fit. Bolded BIC indicates best model fit (lowest BIC). All other individual items tested for invariance but did not indicate a lower BIC and are not shown for parsimony.

## Supplementary Table S4

### *Path Regression Results for Long-Term Rental Subsidy Versus Usual Care, Age 8 to 17*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	-0.386	[-0.574, -0.198]	-0.17
Intervention → Low housing quality	-0.178	[-0.274, -0.082]	-0.11
Intervention → Economic stress	-0.143	[-0.247, -0.039]	-0.29
Housing instability → Distress	1.789	[0.919, 2.659]	1.92
Low housing quality → Distress	1.127	[-0.006, 2.260]	1.21
Economic stress → Distress	4.099	[2.986, 5.212]	4.40
Distress → Family routines	-0.031	[-0.047, -0.015]	-0.04
Distress → Involved-vigilant parenting	-0.002	[-0.012, 0.008]	0.00
Housing instability → Family routines	-0.044	[-0.181, 0.093]	-0.06
Low housing quality → Family routines	-0.138	[-0.299, 0.023]	-0.18
Housing instability → Involved-vigilant parenting	-0.060	[-0.142, 0.022]	-0.13
Low housing quality → Involved-vigilant parenting	0.053	[-0.053, 0.159]	0.11
Housing instability → Child life events	1.138	[0.521, 1.755]	0.35
Housing instability → Household chaos	1.076	[0.535, 1.617]	0.38
Low housing quality → Household chaos	1.046	[0.391, 1.701]	0.37
Housing instability → School instability	0.282	[0.125, 0.439]	0.32
Housing instability → Neighborhood poverty	-0.664	[-2.881, 1.553]	-0.05
Economic stress → Neighborhood poverty	-1.569	[-4.436, 1.298]	-0.12
Family routines → Higher functioning	1.034	[0.562, 1.506]	0.63
Involved-vigilant parenting → Higher functioning	0.142	[-0.728, 1.012]	0.09
Child life events → Higher functioning	-0.106	[-0.214, 0.002]	-0.06
Household chaos → Higher functioning	0.005	[-0.197, 0.207]	0.00
School instability → Higher functioning	-0.362	[-0.881, 0.157]	-0.22
Neighborhood poverty → Higher functioning	-0.025	[-0.052, 0.002]	-0.02
Housing instability → Higher functioning	-0.083	[-0.614, 0.448]	-0.05
Low housing quality → Higher functioning	0.248	[-0.413, 0.909]	0.15
Economic stress → Higher functioning	-0.413	[-1.101, 0.275]	-0.25
Intervention → Higher functioning	0.764	[-0.065, 1.593]	0.46
Child age (within group) → Higher functioning	0.042	[-0.238, 0.322]	0.03
Child is female → Higher functioning	-0.271	[-1.051, 0.509]	-0.16

Minority race or ethnicity → Higher functioning	1.100	[0.122, 2.078]	0.67
Baseline severe distress → Higher functioning	0.256	[-0.740, 1.252]	0.15
<i>Interactions (age 13 to 17 reference)</i>			
Intervention*age 8 to 12 → Functioning	-1.164	[-2.168, -0.160]	-0.71
Child age (within group)*age 8 to 12 → Functioning	0.022	[-0.315, 0.359]	0.01
Child is female*age 8 to 12 → Functioning	0.303	[-0.791, 1.397]	0.18
Minority race or ethnicity*age 8 to 12 → Functioning	0.160	[-1.063, 1.383]	0.10
Baseline severe distress*age 8 to 12 → Functioning	-1.044	[-2.195, 0.107]	-0.63
Household chaos*age 8 to 12 → Functioning	-0.113	[-0.346, 0.120]	-0.08
School instability*age 8 to 12 → Functioning	0.109	[-0.403, 0.621]	0.07
Neighborhood poverty*age 8 to 12 → Functioning	0.035	[0.000, 0.070]	0.02

*Note.* CI = Confidence interval; ES = effect size (Hedge's *g* for continuous outcomes, Cox's index for dichotomous outcomes).

## Supplementary Table S5

### *Path Regression Results for Short-Term Rental Subsidy Versus Usual Care, Age 8 to 17*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	0.005	[-0.167, 0.177]	0.00
Intervention → Low housing quality	-0.059	[-0.155, 0.037]	-0.04
Intervention → Economic stress	-0.019	[-0.123, 0.085]	-0.04
Housing instability → Distress	1.281	[0.270, 2.292]	1.38
Low housing quality → Distress	1.031	[-0.125, 2.187]	1.11
Economic stress → Distress	3.848	[2.692, 5.004]	4.14
Distress → Family routines	-0.022	[-0.036, -0.008]	-0.03
Distress → Involved-vigilant parenting	-0.006	[-0.016, 0.004]	-0.01
Housing instability → Family routines	-0.155	[-0.282, -0.028]	-0.21
Low housing quality → Family routines	-0.212	[-0.359, -0.065]	-0.29
Housing instability → Involved-vigilant parenting	-0.066	[-0.160, 0.028]	-0.15
Low housing quality → Involved-vigilant parenting	-0.020	[-0.124, 0.084]	-0.04
Housing instability → Child life events	1.226	[0.526, 1.926]	0.37
Housing instability → Household chaos	1.211	[0.586, 1.836]	0.40
Low housing quality → Household chaos	1.612	[0.950, 2.274]	0.53
Housing instability → School mobility	0.394	[0.245, 0.543]	0.43
Housing instability → Neighborhood poverty	1.357	[-0.934, 3.648]	0.10
Economic stress → Neighborhood poverty	0.515	[-2.327, 3.357]	0.04
Family routines → Higher functioning	0.687	[0.217, 1.157]	0.42
Involved-vigilant parenting → Higher functioning	0.643	[-0.208, 1.494]	0.39
Child life events → Higher functioning	0.051	[-0.057, 0.159]	0.03
Household chaos → Higher functioning	-0.023	[-0.180, 0.134]	-0.01
School mobility → Higher functioning	-0.419	[-0.831, -0.007]	-0.25
Neighborhood poverty → Higher functioning	-0.001	[-0.030, 0.028]	0.00
Housing instability → Higher functioning	0.098	[-0.445, 0.641]	0.06
Low housing quality → Higher functioning	-0.360	[-1.109, 0.389]	-0.22
Economic stress → Higher functioning	0.169	[-0.566, 0.904]	0.10
Intervention → Higher functioning	0.287	[-0.468, 1.042]	0.17
Child age (within group) → Higher functioning	-0.161	[-0.459, 0.137]	-0.10
Child is female → Higher functioning	-0.143	[-0.866, 0.580]	-0.09

Minority race or ethnicity → Higher functioning	-0.039	[-0.929, 0.851]	-0.02
Baseline severe distress → Higher functioning	-0.076	[-1.140, 0.988]	-0.05
<i>Interactions (age 13 to 17 reference)</i>			
Intervention*age 8 to 12 → Functioning	-0.637	[-1.529, 0.255]	-0.39
Child age (within group)*age 8 to 12 → Functioning	0.294	[-0.080, 0.668]	0.18
Child is female*age 8 to 12 → Functioning	0.573	[-0.501, 1.647]	0.35
Minority race or ethnicity*age 8 to 12 → Functioning	0.186	[-0.855, 1.227]	0.11
Baseline severe distress*age 8 to 12 → Functioning	-1.056	[-2.375, 0.263]	-0.64
Household chaos*age 8 to 12 → Functioning	-0.059	[-0.251, 0.133]	-0.04
School mobility*age 8 to 12 → Functioning	-0.025	[-0.472, 0.422]	-0.02
Neighborhood poverty*age 8 to 12 → Functioning	-0.003	[-0.036, 0.030]	0.00

*Note.* CI = Confidence interval; ES = effect size (Hedge's *g* for continuous outcomes, Cox's index for dichotomous outcomes).

**Supplementary Table S6**

*Path Regression Results for Project-Based Transitional Housing Versus Usual Care, Age 8 to 17*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	0.144	[-0.093, 0.381]	0.06
Intervention → Low housing quality	-0.037	[-0.159, 0.085]	-0.02
Intervention → Economic stress	-0.050	[-0.177, 0.077]	-0.10
Intervention → Distress	0.643	[-0.643, 1.929]	0.63
Intervention → Routines	0.130	[-0.048, 0.308]	0.18
Intervention → Involved-vigilant parenting	-0.007	[-0.127, 0.113]	-0.02
Intervention → Neighborhood poverty	-0.382	[-3.798, 3.034]	-0.03
Housing instability → Distress	1.566	[0.182, 2.950]	1.53
Low housing quality → Distress	2.441	[1.047, 3.835]	2.38
Economic stress → Distress	4.633	[2.955, 6.311]	4.52
Distress → Family routines	-0.018	[-0.036, 0.000]	-0.02
Distress → Involved-vigilant parenting	0.001	[-0.011, 0.013]	0.00
Housing instability → Family routines	-0.071	[-0.230, 0.088]	-0.10
Low housing quality → Family routines	-0.145	[-0.341, 0.051]	-0.20
Housing instability → Involved-vigilant parenting	-0.056	[-0.162, 0.050]	-0.13
Low housing quality → Involved-vigilant parenting	0.124	[-0.007, 0.255]	0.28
Housing instability → Child life events	1.282	[0.414, 2.150]	0.32
Housing instability → Household chaos	0.755	[-0.009, 1.519]	0.26
Low housing quality → Household chaos	1.805	[1.039, 2.571]	0.63
Housing instability → School mobility	0.173	[-0.019, 0.365]	0.20
Housing instability → Neighborhood poverty	0.802	[-2.169, 3.773]	0.06
Economic stress → Neighborhood poverty	0.000	[-3.994, 3.994]	0.00
Family routines → Higher functioning	0.619	[-0.512, 1.750]	0.37
Involved-vigilant parenting → Higher functioning	1.511	[0.341, 2.681]	0.91
Child life events → Higher functioning	-0.082	[-0.217, 0.053]	-0.05
Household chaos → Higher functioning	-0.270	[-0.476, -0.064]	-0.16
School mobility → Higher functioning	-0.479	[-1.159, 0.201]	-0.29
Neighborhood poverty → Higher functioning	0.010	[-0.031, 0.051]	0.01
Housing instability → Higher functioning	0.322	[-0.489, 1.133]	0.19
Low housing quality → Higher functioning	0.895	[-0.034, 1.824]	0.54
Economic stress → Higher functioning	-0.361	[-1.664, 0.942]	-0.22

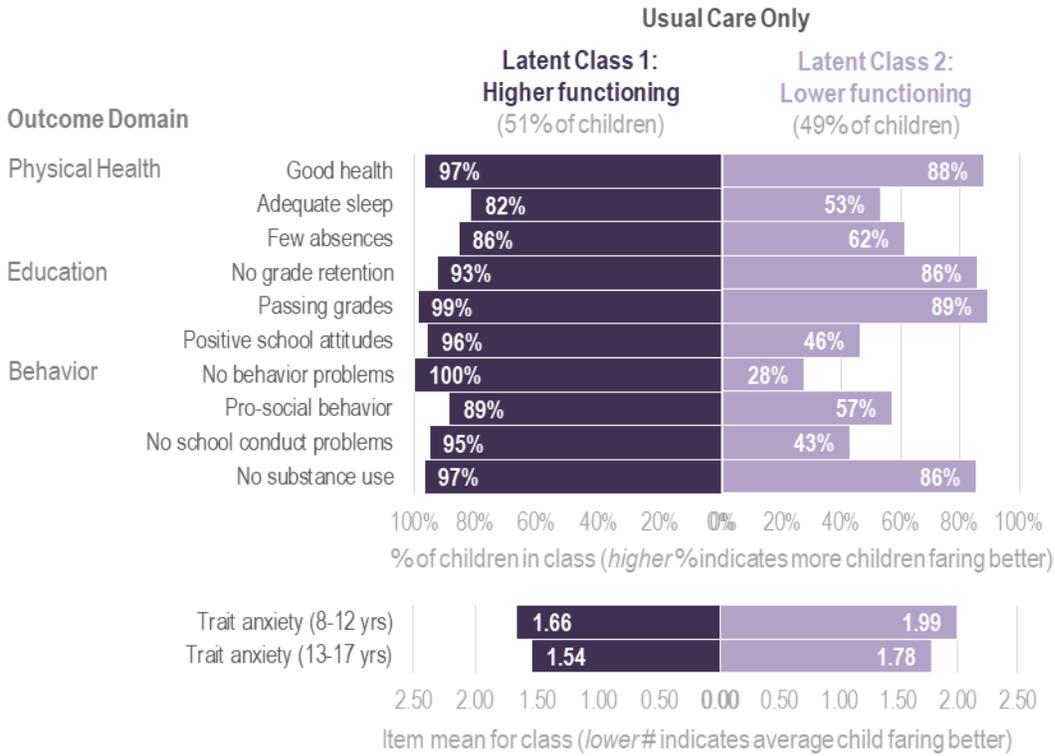
Intervention → Higher functioning	0.136	[-1.356, 1.628]	0.08
Child age (within group) → Higher functioning	-0.145	[-0.709, 0.419]	-0.09
Child is female → Higher functioning	0.160	[-0.844, 1.164]	0.10
Minority race or ethnicity → Higher functioning	-0.166	[-2.095, 1.763]	-0.10
Baseline severe distress → Higher functioning	0.347	[-1.047, 1.741]	0.21
<i>Interactions (age 13 to 17 reference)</i>			
Intervention*age 8 to 12 → Functioning	-0.498	[-2.666, 1.670]	-0.30
Child age (within group)*age 8 to 12 → Functioning	0.041	[-0.592, 0.674]	0.02
Child is female*age 8 to 12 → Functioning	-0.020	[-1.437, 1.397]	-0.01
Minority race or ethnicity*age 8 to 12 → Functioning	1.529	[-1.542, 4.600]	0.92
Baseline severe distress*age 8 to 12 → Functioning	-0.727	[-2.442, 0.988]	-0.44
Household chaos*age 8 to 12 → Functioning	0.053	[-0.366, 0.472]	0.03
School mobility*age 8 to 12 → Functioning	-0.248	[-1.203, 0.707]	-0.15
Neighborhood poverty*age 8 to 12 → Functioning	0.007	[-0.050, 0.064]	0.00

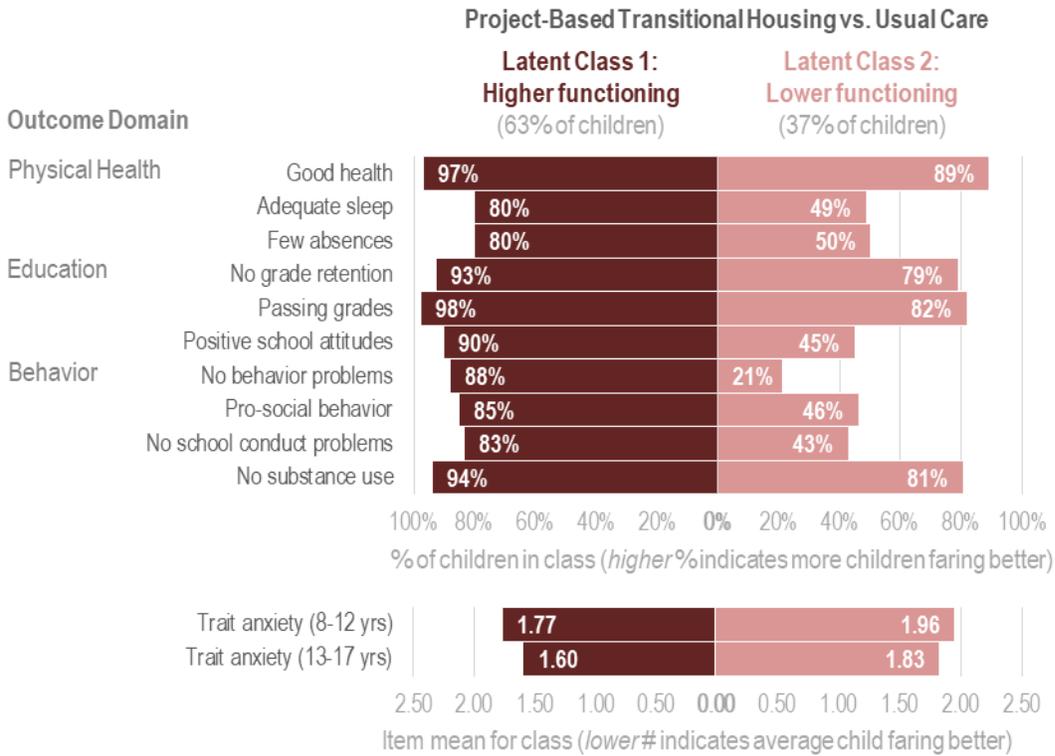
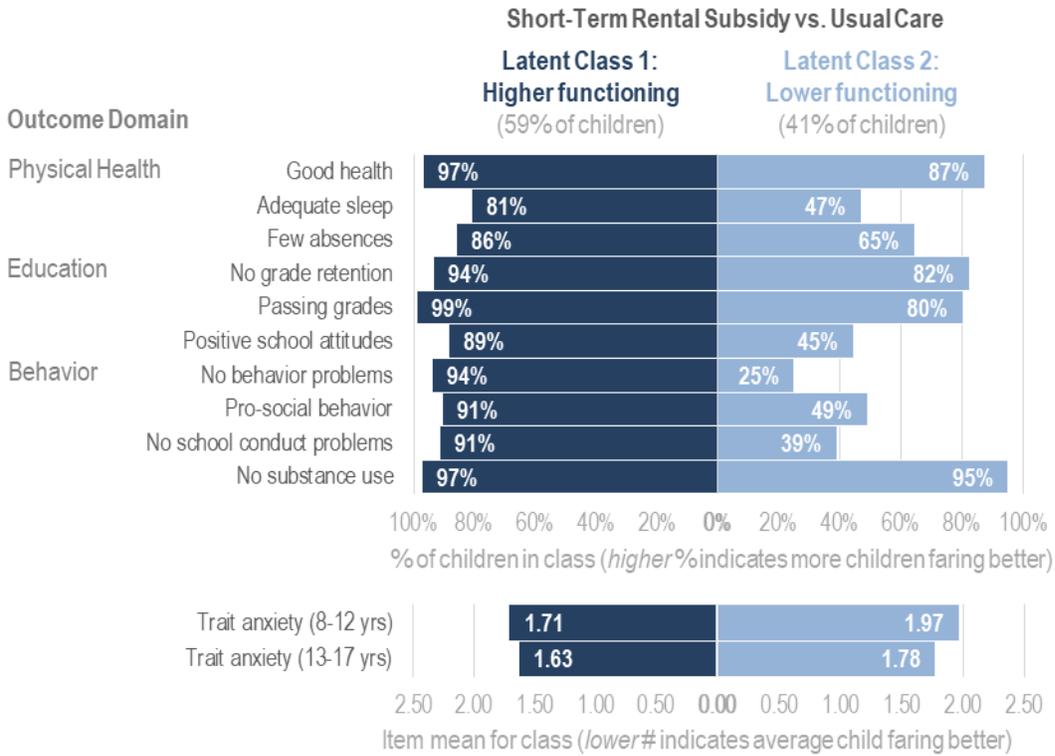
*Note.* CI = Confidence interval; ES = effect size (Hedge's *g* for continuous outcomes, Cox's

index for dichotomous outcomes).

**Supplementary Figure S1**

*Outcome Probabilities and Means for Higher and Lower Functioning Latent Classes for Children Age 8 to 17, Usual Care Only and Additional Comparison Groups*



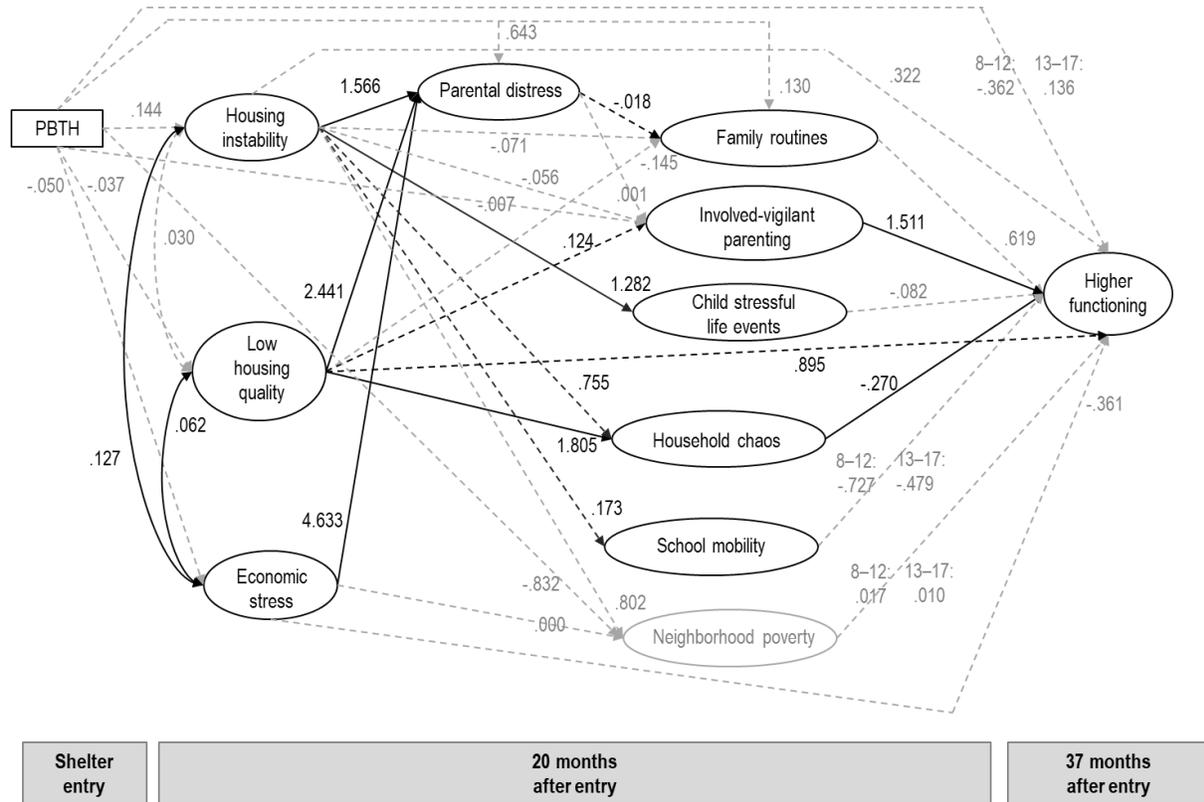


*Note.* Short-term rental subsidy substance use rate displayed is for children age 8 to 12; rate for children age 13 to 17 is 92% in higher functioning class and 79% in lower functioning class.



### Supplementary Figure S3

*Path Coefficients for Hypothesized Mediation Model for Project-Based Transitional Housing Versus Usual Care Comparison, Children Age 8 to 17*



*Note.* PBTH = Project-based transitional housing intervention offer status, 8–12 = estimate for age 8 to 12 years group, 13–17 = estimate for age 13 to 17 years group based on pre-specified interaction tests. Solid black lines =  $p < .05$ ; dotted black line =  $p < .10$ ; grey dotted lines =  $p \geq .10$  for estimate.

### **Paper 3: How Do Housing Interventions for Families With Young Children Who Experience Homelessness Affect Child Functioning?**

#### **Abstract**

Growing evidence indicates children's early housing experiences are both an important source of disparities in developmental outcomes and a malleable target for intervention. This study examines effects of three housing interventions on child functioning compared to usual care for 1,198 children age 3 to 7 three years after a stay in an emergency shelter using parental survey data and child assessments from a randomized control trial. Latent class analyses indicated the majority of children were in a higher functioning group faring similarly to other children their age on behavior, cognitive, and early development outcomes; a second group fell well below norms for these measures. Priority access to long-term rental subsidies resulted in about 1 in 4 additional children age 3-4 being in the higher functioning group compared to usual care (AOR = 2.62, ES=.58). Effects of long-term subsidies on children age 5-7 and those for short-term subsidies and transitional housing were small and not detectibly different from zero. Improved housing stability, quality, and affordability accounted for over 40 percent of the intervention effect on children age 3-4, with the primary specific mediating path being the direct effect of reduced economic stress. Expanding access to long-term rental subsidies for families with young children would help end homelessness and improve child outcomes. Further research is needed to understand specific mechanisms underlying age differences in the effectiveness of housing interventions in improving outcomes.

## Introduction

A growing body of research indicates children's early housing experiences are both an important source of disparities in developmental outcomes and a malleable target for intervention. Housing instability, low housing quality, and unaffordable housing all have stronger negative associations with cognitive, educational, and behavioral outcomes in early childhood than at later stages of development (Coley et al., 2013; Coley & Kull, 2016; Fowler, et al., 2014; Newman & Holupka, 2015). The effects of homelessness, where all of these housing challenges are combined with deep socio-economic disadvantage, are particularly concerning. Children who experience homelessness in the first two years of life have poorer outcomes relative to both children in poverty who have not been homeless and children who first experience homelessness during pre-school or early elementary school (Fantuzzo et al., 2012).

Recent studies show that housing interventions for low-income families improve developmental outcomes if assistance starts when children are young but have weaker or no effect for older children (Andersson et al., 2016; Chetty et al., 2016). Yet we lack parallel evidence among families experiencing homelessness. Prior work on homelessness has raised questions about the extent to which differences in outcomes between children who experience homelessness and those in poverty who do not are linked to housing problems per se or are generally reflecting a more extreme degree of socioeconomic disadvantage (Cutuli & Herbers, 2014). Examining the effects of housing assistance in the context of homelessness isolates the specific contributions of housing, relative to other factors that co-occur with homelessness, to child outcomes and shows whether housing-focused interventions can improve outcomes. The present study uses data from the Family Options Study, a randomized control trial of housing interventions for homeless families, to assess intervention effects on children aged 3 to 7 three

years after they entered emergency shelters with their families and to test a model of mediating mechanisms. After briefly reviewing descriptive evidence on how young children fare after an experience of homelessness, I propose a conceptual model for how housing interventions affect subsequent functioning for young children, adapting theories linking housing and child development to the context of homelessness. This paper builds on a prior report of intervention effects on family outcomes (Gubits et al., 2018) by focusing on children who were under age 5 at shelter entry, using latent class analysis to examine clustering of child functioning across multiple developmental domains, and testing hypothesized mediators of intervention effects.

### **Child Functioning After Experiencing Homelessness**

The few longitudinal studies of childhood homelessness that include young children indicate early experiences of homelessness may be particularly detrimental for educational and behavioral outcomes. Studies of elementary school children that assess early homelessness retrospectively find evidence that early disadvantage associated with homelessness is apparent at school entry. Children who first experience homelessness as an infant or toddler display lower school readiness in early grades than children who first experience homelessness in preschool or early elementary school (Perlman & Fantuzzo, 2010). First through third grade students who have ever been identified as homeless or highly mobile have lower levels of initial achievement in reading and math and slower growth in these areas compared to low-income stably housed children (Cutuli et al., 2013; Fantuzzo et al., 2012; Obradović et al., 2009). For behavioral functioning, children age 3 to 6 were faring worse than a low-income housed comparison group on internalizing and externalizing symptomology five years after a shelter stay, but there was no

difference in these outcomes among children age 7 to 17 (Shinn et al. 2008). However, a separate study found that externalizing and internalizing symptomology declined across younger and older age groups in the two years after a shelter stay among children age 1 to 16 (Shinn et al., 2015).

Longitudinal studies of physical health among children who experience homelessness have not examined young children's outcomes separately. Overall rates of physical health problems among homeless children have fallen since the 1980s (Grant et al., 2007), and more recent longitudinal studies have not found long-term differences in overall health status between children who experience homelessness and those in stably housed low-income families (Park et al., 2011; Shinn et al., 2008). Improvements in the physical quality of shelter conditions since the 1980s may help explain this trend (Buckner, 2008). One exception is that mothers reported higher rates of physical disabilities over the first three years of life among homeless children relative to low-income housed children (Park et al., 2011).

Educational and behavioral functioning may be correlated. Children in shelters tend to display either higher or lower functioning across educational, cognitive, and behavioral outcomes, and a higher proportion of children under age 5 were in a lower functioning group compared to school-age children (Huntington et al., 2008; Obradović, 2010). Whether children continue to display generally higher or lower functioning or more differentiated patterns across domains after an experience of homelessness has not been studied.

## **How Do Housing Interventions for Family Homelessness Affect Child Functioning?**

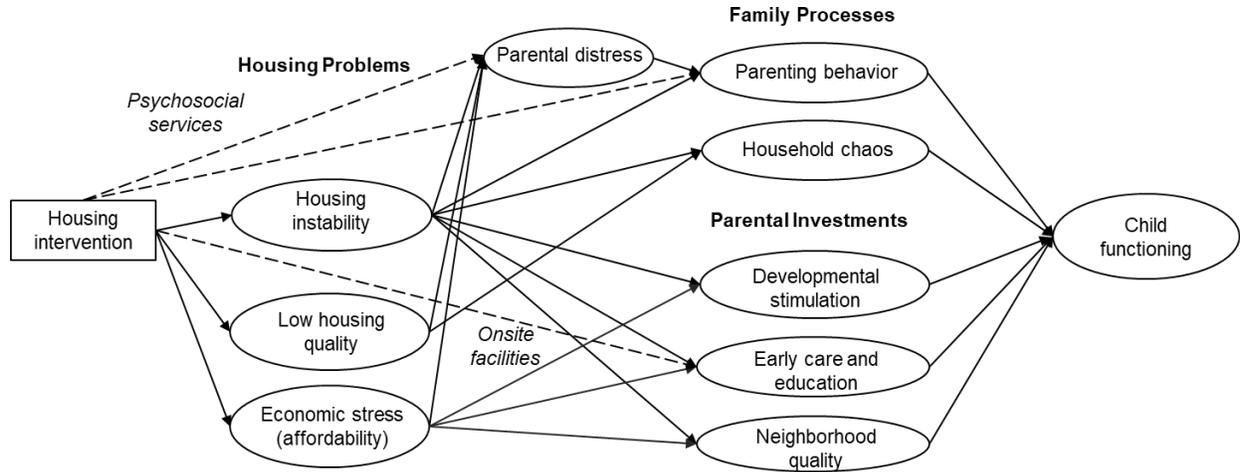
Frameworks for childhood homelessness treat homelessness as an indicator of housing status, masking potentially important variation in children's actual housing experiences, and frameworks linking housing and child development do not accommodate the intensity of housing problems linked to homelessness. Differential access to housing assistance at an age when children may be particularly sensitive to their housing conditions could explain variation in functioning among young children who experience homelessness, but empirical research is scant. A key aim of this paper is advancing our understanding of *how* variation in housing after an experience of homelessness may explain differences in child functioning by examining effects and mediators of housing assistance.

Figure 1 below provides a conceptual model for how housing interventions for families experiencing homelessness affect child functioning, incorporating the following assumptions:

1. Housing assistance reduces housing instability, low housing quality, and parents' economic stress by increasing housing resources and freeing up additional resources for non-housing needs.
2. Effects of housing assistance on child functioning are primarily indirect through influence on more proximal processes in multiple contexts of children's development (Bronfenbrenner & Morris, 2007; Huston & Bentley, 2010; Leventhal & Newman, 2010).
3. Effects of housing interventions on children's functioning should be assessed holistically, as changes in housing affect the whole child.
4. The age of the child when the housing assistance is offered may affect the salience of any specific developmental mechanism.

**Figure 1**

*Hypothesized Model for How Housing Assistance Affects Young Children's Functioning*



*Note.* Solid lines are hypothesized paths of influence for housing assistance; dotted lines are hypothesized paths for programs that offer direct psychosocial services, such as mental health services or parenting programs, or that may provide onsite early care and education, such a project-based transitional housing.

5. Interventions that provide services in addition to housing assistance may affect some proximal processes directly, illustrated by the dashed, labeled paths in Figure 1.

Review of the theories and evidence supporting each specific path in the proposed model is organized into two sections, focusing on evidence specific to children age 7 and younger where available. The first section briefly describes the housing interventions assessed in the Family Options Study and reviews evidence of effects on young children's functioning and housing outcomes. The second section suggests how these relationships may arise. It reviews relationships between housing factors, associated developmental processes, and child functioning

shown in Figure 1 above. For parsimony, this section is organized around the mediating factors, assessing both evidence on how each housing factor is hypothesized to influence each mediator and how each mediator is associated with child functioning.

### **Effects of Housing Interventions on Young Children’s Functioning and Housing Outcomes**

The Family Options Study is the first large-scale randomized trial conducted on the effects of housing interventions on children’s functioning or housing outcomes among families experiencing homelessness. The Family Options Study tested the effects of offering priority access to one of three different housing interventions—long-term rental subsidies, short-term rental subsidies, and project-based transitional housing—relative to usual care, where families worked with staff in their homeless shelter to find housing. (Usual care families also found their way into the other interventions, though less immediately and less often.) *Long-term rental subsidies* (LTRS) were primarily Housing Choice Vouchers, which require families to pay 30% of their income toward rent up to a payment standard set based on local market rents. Families must find private rental housing that meets program housing quality standards and lease up within a specified time frame before the voucher offer expires. *Short-term rental subsidies* (STRS) through rapid re-housing programs provide time-limited rental assistance along with limited housing-focused services and case management. *Project-based transitional housing* programs provide housing to families for up to 24 months in a group residential setting and offer intensive psychosocial services and case management focused on increasing families’ ability to be self-sufficient at program exit. Empirical evidence of the effects of these three interventions

on young children in families who have experienced homelessness is scant, though a somewhat larger literature exists on the effects of long-term rental subsidies on children in poverty.

### ***Effects of Long-Term Rental Subsidies on Young Children's Functioning***

Positive effects of long-term housing subsidies in childhood are largely found among children who were young when their families received assistance (Jacob et al., 2015; Mills et al., 2006). In a randomized study of families on welfare, housing vouchers reduced school absences among children under 6 at the time of the voucher offer, but not among older children (Mills et al., 2006). The same study found reductions in disciplinary problems for boys who were under 6 at the voucher offer. Longer-term research suggests a dose-response relationship may be present. In a voucher mobility experiment, long-term housing subsidies had positive effects on young adult earnings and incarceration if offered when children were young, but negligible or small negative effects if offered in adolescence (Andersson et al., 2016; Chetty et al., 2016). Families who receive vouchers often move (Mills et al., 2006), which may be disruptive for children in the short run, and make compromises in housing decisions to lease up before their search time expires (Gubits et al., 2009; Leventhal & Newman, 2010). The benefits of assistance and moves, such as higher quality housing or neighborhoods, may take time to emerge (Erikson & Ross, 2013; Mills et al., 2006).

In the Family Options Study, priority offers of long-term subsidies reduced school instability and sleep and behavior problems among children age 3 to 17 relative to usual care 37 months after shelter entry but had no effect on physical health (Gubits et al., 2016). Among a subset of outcomes measured only for children age 7 and younger at follow-up, long-term

subsidies increased parent-reported positive child attitudes toward early care and education but did not affect cognitive or early development outcomes.

### ***Effects of Short-Term Rental Subsidies on Young Children's Functioning***

The Family Options Study found that priority offers of short-term subsidies reduced behavioral problems but did not affect educational or physical health outcomes relative to usual care 37 months after shelter entry among children age 3 to 17 (Gubits et al., 2016). Among a subset of outcomes measured only for children age 7 and younger, there were no effects on early care and education enrollment, cognitive outcomes, or developmental milestones.

### ***Effects of Project-Based Transitional Housing on Young Children's Functioning***

The only study of transitional housing and child outcomes prior to Family Options had no control group and a small sample of preschool children whose behavior problems decreased during the time families lived in transitional housing (Burt, 2010). Behavior problems lessened over time among young homeless children receiving usual care in another study (Shinn et al., 2015), so whether the changes Burt observed can be attributed to transitional housing is unclear.

The Family Options Study did not find any effects of priority offers of transitional housing relative to usual care on behavioral, educational, or health outcomes among children age 3 to 17 (Gubits et al., 2016). Similarly, no effects were found on early care and education enrollment, cognitive outcomes, or developmental milestones among children age 7 and under.

### ***Effects of Housing Interventions on Housing Instability, Low Housing Quality, and Economic Stress***

A review of prior experimental research on long-term housing subsidies found they reduce housing instability and parents' economic stress but have minimal or no effect on housing quality (Ellen, 2018), findings echoed in the Family Options Study (Gubits et al., 2018). Apart from the Family Options Study, rigorous evidence on the effects of short-term rental subsidies and transitional housing on housing stability, housing quality, and economic stress is scant. The Family Options Study found no effects of short-term rental subsidies or transitional housing on these housing outcomes relative to usual care three years after shelter entry, though transitional housing did reduce returns to shelters measured 20 months after shelter entry while some families were still in the transitional housing program (Gubits et al., 2018).

### **Mediators of Housing Instability, Low Housing Quality, and Economic Stress and Child Functioning**

Reductions in children's exposure to housing instability, low housing quality, and economic stress induced by housing interventions may indirectly affect children's outcomes through mediating developmental processes embedded in multiple contexts. Prior research on how poverty may affect child functioning through housing has primarily focused on two sets of mediating mechanisms—family processes and parental economic investments.

#### ***Family Process Mediators: Family Stress and Household Chaos***

Children's housing is a core context for family interactions, and experiencing homelessness can place enormous strain on caregivers and create chaos in the home environment. Prior research on housing and child development has explored family stress

processes and household chaos as two potential mediating mechanisms. Conger and Elder's (1994) family stress model hypothesizes that economic stress negatively affects parental mental health, which in turn is associated with lower quality parenting and negative child outcomes, particularly for behavioral health outcomes. Recent research indicates economic stress is related to child behavior problems through these family stress mechanisms over and above the influence of income (Conger et al., 2010; Gershoff et al., 2007). Emerging evidence indicates housing-related stressors may operate through the same mechanisms. Negative associations of low housing quality and residential moves with child behavior and cognitive functioning are partially mediated through these family stress mechanisms, independently of low family income (Coley et al., 2013). Economic stress from unaffordable housing is associated with both higher levels of parental psychological distress and worse cognitive and educational outcomes, but mediating relationships have not been tested (Newman & Holupka, 2015).

Housing instability and low housing quality, particularly in the context of shared or congregate living spaces, may expose children to chaos in their home environments during experiences of homelessness. Household chaos in turn negatively influences children's educational and behavioral outcomes over and above poverty (Evans et al., 2005; Evans & Wachs, 2010). Parents in the Family Options Study reported having greater difficulty maintaining order and discipline in both homeless shelters and temporary shared living arrangements due to shelter staff or other adults interfering with their parenting (Brown, 2021; Mayberry et al., 2014). Many complained of high noise levels in shelters and transitional housing which can stem from overcrowding, congregate living quarters, lack of space for children to play, and sharing space with families with infants and young children (Friedman, 2000; Mayberry et al., 2014). Families living in housing of poor physical quality report similar

problems with noise, crowding, and environmental interference with developmental activities (Bartlett, 1998).

***Parental Investment Mediators: Developmental Stimulation, Early Care and Education, and Neighborhood Quality***

A separate body of research focuses on housing as a form of parental investment in children's well-being. Research to date has primarily focused on the implications of housing affordability for the physical quality of children's home environments, neighborhood quality and resources, and trade-offs in economic resources available for other developmentally enriching goods and activities. Physical and social aspects of the home environment are an important source of developmental stimulation connected to children's cognitive and behavioral functioning (Bradley et al., 2001a). Poverty is strongly associated with reduced learning stimulation and access to learning materials and unsafe, dark, or monotonous physical housing environments (Bradley et al., 2001b). Problems with affording housing are associated with reduced parental expenditures on developmentally enriching goods and activities (Newman & Holupka, 2014). In turn, reduced developmental stimulation is negatively associated with a variety of outcomes, including early developmental outcomes, verbal and math skills, and behavioral health, with stronger associations among young children (Bradley et al., 2001a). Deep poverty and housing challenges experienced during and after homelessness make developmental stimulation a plausible mediating mechanism, but research on the home environments of children who experience homelessness is lacking (Buckner, 2008). Qualitative interviews from the Family Options Study indicated housing instability can make it hard for families to retain access to toys, books, and other developmentally stimulating objects (Brown, 2021).

Parents also may invest in their children through providing access to high-quality early care and education outside the home. Despite increased federal policy attention to homelessness and access to early care and education (ECE), little is known about how homelessness or housing instability affect ECE enrollment apart from the Family Options Study. That study found enrollment rates in center-based ECE 20 months after an initial stay in an emergency shelter were similar to or somewhat better than national averages for children in poverty (Brown et al., 2017). It also found that residential moves after a shelter stay were associated with reduced use of center-based programs (except for Head Start). Qualitative research in two Family Options study sites indicates that families experiencing housing instability often pull their children out of ECE and delay searching for new arrangements until they find stable housing (Taylor et al., 2015). Transitional housing may directly affect access to center-based ECE, if programs provide care or have dedicated arrangements with care providers in the community (Gubits et al., 2013). Two-thirds of children in transitional housing received child care services according to surveyed parents in a different multi-site evaluation, with half receiving help directly from the transitional housing provider (Burt, 2010).

A large body of research demonstrates that high-quality center-based care has positive impacts on children's pre-academic and cognitive outcomes (Duncan & Magnuson, 2013), with greater benefits for children living in or near poverty (Yoshikawa et al., 2013). Findings on relationships between center-based ECE and behavioral outcomes have been mixed (Yoshikawa et al., 2013). Center-based ECE enrollment during homelessness was associated with higher developmental competencies (Scheingart et al., 1995), and current ECE enrollment 20 months after a shelter stay was associated with stronger pre-reading and pre-math skills but was not

associated with behavior outcomes among children in the Family Options Study (Brown et al., 2017).

Finally, parents may invest in their children through housing indirectly by providing access to higher quality neighborhood resources. Higher housing costs are associated with neighborhood quality and factor in directly to housing decisions made using rental subsidies in the private rental market—particularly for short-term subsidies where families are expected to be able pay market rents in a relatively short time period (Fisher et al., 2014). Project-based transitional housing may affect neighborhood quality independently of housing costs because families must live in a specific group residence managed by the program, and families generally do not pay market-based rents. Poor neighborhood quality was one reason families in the Family Options Study turned down offers of transitional housing (Fisher et al., 2014). Neighborhood quality in turn is an important influence on a wide range of child and adolescent outcomes (Ellen et al., 2001; Leventhal & Brooks-Gunn, 2000), with neighborhood poverty rates being a particularly robust indicator that has been causally linked to children’s longer-term outcomes (Chetty et al., 2016).

### **The Present Study**

The present study has three primary aims for understanding how homelessness and housing interventions affect the subsequent functioning of children who experience homelessness prior to entering school. The first aim is to assess child functioning for 3 to 7 year old children three years after a shelter stay across behavioral, educational, and health outcome domains. Latent class analysis is used to identify distinct profiles of functioning across these

domains as the key outcome of interest. A key question is whether children's functioning after an experience of homelessness continues to be characterized by higher and lower overall functioning, as found in prior studies of preschool-aged children in shelters, or whether classes with higher functioning in some domains but not others emerge. Additionally, I examine whether the number and characterization of latent classes vary by child age within this age group.

The second aim is to test the hypothesis that priority offers of the housing interventions studied promote higher functioning for children in at least one of the three outcome domains relative to usual care three years after an initial shelter stay. Based on prior findings of the effects of housing assistance weakening with age, I hypothesize effects will be stronger among children age 3 to 4 at follow-up relative to children age 5 to 7.

The third aim is to test a model of hypothesized mechanisms by which interventions promote higher functioning for children who experience homelessness when they are young, as previously described in Figure 1. Taken together, these analyses aim to inform policy by examining intervention effects on child functioning and to advance theory on the processes by which housing influences young children's development.

## **Method**

Study analyses are based on parent and child survey data collected for the Family Options Study, a multi-site experimental study of interventions for homeless families. Child outcomes were collected for up to two children randomly selected from each family from a second follow-up wave of surveys with parents and developmental assessments collected on children who were 3 to 7 years old at a follow-up survey 37 months after their families entered homeless shelters.

The study sample comprised 1,198 children who were 1) with their family in shelter and 2) with their family and between the age of 3 and 7 years when the 37-month follow-up survey was completed. To examine potential developmental differences by age, children were broken out into two groups: age 3 to 4 ( $n = 634$ ) and age 5 to 7 ( $n = 564$ ), based on their age as of September 1<sup>st</sup> in the year the 37-month follow-up survey was completed. This corresponds to children under age 2 and age 2 to 4 at shelter entry. (Subsequently, we refer to children's age based on their age at the 37-month follow-up.) Age groups were informed by theoretical and practical considerations. Children age 5 to 7 were generally enrolled in school and had additional information collected on their school outcomes and experiences. Children under age 5 were generally not enrolled in school, completed early developmental screens, and had additional data collected on early care and education arrangements. Mediators examined were from parent survey and developmental assessment data collected at the first follow-up wave an average of 20 months after shelter entry.

## **Study Design**

The overall design of the Family Options Study is described elsewhere in detail (Gubits et al., 2013, 2018) and is briefly summarized here. The Family Options Study randomly assigned families who had recently entered homeless shelters to one of four treatment conditions: long-term rent subsidy, short-term rent subsidy, project-based transitional housing, or usual care, which consisted of any services or programs families found in their local community using any help available to them. To be eligible for the study, all families had to have at least one child age 15 or younger with them in the shelter and have been in their current shelter for at least 7 days.

To avoid sending families to programs that would turn them down, families were screened prior to randomization for intervention eligibility for providers with openings at the time of enrollment based on eligibility criteria provided to the study team by these service providers. Families had to be eligible for at least one available intervention in addition to usual care to enroll. Families were then randomly assigned among the interventions with openings for which they had been deemed eligible or to usual care. Families assigned to one of the three active interventions were offered priority access to that intervention, which was provided by an existing program in the community recruited for the study. These families were compared to families in the usual care group who were eligible for that intervention. These procedures created three pairwise experiments with different, but largely overlapping groups of usual care families who are well-matched to the active intervention. Study analyses are conducted on an intent-to-treat basis, comparing children in families offered the active intervention to children in usual care families among all families who were eligible for the intervention regardless of whether they accepted the intervention offer.

## **Measures**

### ***Dependent Variables (37-Month Follow-Up)***

The outcome of interest is child functioning across early development, physical health, behavioral health, and cognitive and educational domains at the 37-month follow-up. All outcomes were coded so that higher scores indicated higher functioning. For all scales, unless

otherwise specified, cases where at least two thirds of the items were non-missing were retained with scores imputed based on the average of the non-missing items.

**Early Development.** For children under age 5, parents completed the Ages and Stages Questionnaire, third edition (ASQ-3) with study interviewers. The ASQ screens for delays in children's developmental progress in five domains: gross motor ( $\alpha=.71$ ), fine motor ( $\alpha=.80$ ), communication ( $\alpha=.68$ ), personal-social development ( $\alpha=.61$ ), and problem solving ( $\alpha=.73$ ). The analysis measure is a binary indicator for whether the child scored above published diagnostic cutoffs for their age (Squires et al., 2009) in all five domains, meaning they did not evidence potential delays in any domain.

**Physical Health.** Parents rated children's general health on a scale from 1 (*poor*) to 5 (*excellent*) with responses of 2 (*fair*) or below coded as poor health. They also reported on children's sleep problems. Adequate sleep was defined as an average score below 3 (*sometimes*) on two items—difficulty waking up on school days and tiredness during the day—measured on a scale from 1 (*almost never*) to 5 (*almost always*).

**Behavioral Health.** Parents completed the Strengths and Difficulties Questionnaire (SDQ), a 25-question behavioral screening assessment with an overall behavior problem screen ( $\alpha=.79$ , ages 3 to 4,  $.85$ , ages 5 to 7) based on four sub-domains—hyperactivity, conduct problems, emotional problems, and peer problems—and a separate pro-social behavior domain ( $\alpha=.70$ ,  $.65$ ). Each item is rated on a scale from 1 (*not true*) to 3 (*certainly true*). We created binary indicators for no behavior problems and normal pro-social behavior based on recommended diagnostic cutoffs by child age and gender for the U.S. normative sample (below the 80<sup>th</sup> percentile of total scores for problem domains and above the 20<sup>th</sup> percentile of scores for the pro-social domain) (YouthInMind, 2014). For children age 5 and older, we also coded no

school conduct problem if parents reported that the school had not contacted them about a child behavior problem or suspended the child in the past six months.

**Cognitive and Educational Outcomes.** Children were administered Woodcock-Johnson III Letter-Word and Applied Problems assessments to measure pre-reading and pre-math cognitive skills respectively. The outcome measures are the age-standardized z-scores for each assessment, with higher scores reflecting higher skills. For children age 5 to 7 years, parents reported on school attendance, attitudes, grades, and grade retention. Few absences was defined as missing two or fewer days of school during the last month (or the last month that school was in session if the survey was completed in the summer). School attitudes were assessed as a response to “How much does your child like school?” on a Likert scale from 1 (*very much*) to 5 (*not at all*), with responses ranging from 1 to 3 (*some*) coded as positive school attitudes. Passing school grades were measured as a child’s last report card being mostly As, Bs, or Cs. No grade retention since study enrollment was an additional indicator of achievement. All measures have been used in prior studies of childhood homelessness (Shinn et al., 2015).

#### ***Independent Variables (Study Entry)***

**Housing Intervention.** For each intervention comparison group, a dummy variable indicated whether the family was randomly assigned to a priority offer of the intervention or not at study entry, with usual care being the reference category.

**Parent and Child Covariates.** Race and ethnicity were controlled for using a dummy variable for minority race or ethnicity, with White, non-Hispanic as the reference category (results did not change with greater differentiation). Parental severe distress at study entry (K6 score greater than or equal to 17) was controlled for using a dummy variable, with no severe

distress as the reference category. Child gender was controlled for using a dummy variable, with male as the reference category.

### ***Mediators (20-Month Follow-up)***

**Housing Instability.** Housing instability was modeled as a latent variable with three parent-reported indicators: literal homelessness, doubling up, and number of places lived in the past 6 months. Literal homelessness was defined as having stayed in a shelter or lived in a place not fit for human habitation. Doubling up was defined as staying with family or friends because the family could not find or afford a place of their own.

**Low Housing Quality.** Low housing quality was a parent rating of the condition of their current housing of fair or poor rather than excellent or good on a 4-point scale.

**Economic Stress.** Economic stress was assessed using a scale with four items indicating how often the parent did not have enough money to afford health care, clothing, rent, or leisure activities on a scale of 1 (*never*) to 4 (*very often*) and one additional item indicating whether family finances worked out by the end of the month ranging from 1 (*some money left over*) to 3 (*not enough money to make ends meet*) (standardized  $\alpha=.71, .69$ ) (Pearlin & Schooler, 1978). The four-point items were recoded to 1 = -1, 2 = -.33, 3 = .33, and 4 = 1; the three-point item was recoded to 1 = -1, 2 = 0, 3 = 1. The measure is the average item score, which ranges from -1 to +1 with higher values indicating greater stress.

**Parental Distress.** Parental psychological distress, referred to subsequently as parental distress, was measured using the Kessler Psychological Distress K6 scale (Kessler et al., 2002). The scale includes six items on a Likert scale from 1 (*all of the time*) to 5 (*none of the time*) ( $\alpha=.85, .84$ ), reverse scored so that higher scores indicate greater distress.

**Family Routines.** Parent-reported family routines were measured using a subset of eight items from the Child Routines Inventory (Sytsma et al., 2001) rated on a scale from 1 (*almost always*) to 5 (*almost never*), reverse coded so higher scores indicate more stable routines ( $\alpha=.69$ , .66).

**Developmental Stimulation.** The developmental stimulation subscale of the HOME inventory (Leventhal et al., 2004) was used to assess the availability of age-appropriate toys and learning materials in the home (e.g., for age 0 to 2: toys that play music, toys to build like blocks, toys to build strength or push around; for age 3 to 7: toy instruments, toys with small pieces to take apart and put back together, toys that teach colors, shapes, sizes, numbers). All items are scored yes or no, with the scale score being the sum of yes answers. For children age 3 to 4 there are 10 parent-reported items and 1 interviewer observation item. For children age 5 to 7, all 11 items are parent-reported. Scores were standardized within age groups.

**Household Chaos.** Household chaos was the sum of the 14-item parent-reported Confusion, Hubbub, and Order scale ( $\alpha=.80$  in both age groups; Matheny et al., 1995).

**Enrollment in Center-Based Early Care and Education.** Enrollment in center-based ECE was measured based on parent responses to two questions about care arrangements. First, parents indicated whether their child was currently enrolled in childcare for least 10 hours per week. If so, they reported up to three arrangements, in relative order of where the child had spent the most time since study enrollment (exact hours were not recorded). The analysis measure is whether any reported arrangement was preschool or center-based care. For children age 5 and older, the enrollment measure from the 20-month follow-up survey is used as a predictor of functioning at 37 months, as most children in this age group were under 5 at the 20 month survey and were more likely to potentially be in these settings. For children age 3 to 4 years, the

contemporaneous enrollment measure from the 37-month survey is used to assess potential mediating influences of the intervention through ECE, as most children in this age group were under 3 at the 20-month follow-up, and few children under 3 were in preschool or center-based care at that time (Brown et al., 2017).

**Neighborhood Quality.** Neighborhood quality was measured as the percentage of families living below the federal poverty line in the family's census tract, based on American Community Survey data for the year in which the family completed the 20-month follow-up survey. Family census tract was captured based on geocoding of the family's address from survey data (see Gubits et al., 2016 for additional information on address data collection), or if the family did not complete this survey, the tracking interview closest in time, but at least 7 months after study enrollment. By that time, most families had exited the shelter they were staying in at study entry (Gubits et al., 2016).

## **Analysis Plan**

Study analyses proceeded in three steps using MPlus 8.3. First, I used latent class analysis to identify profiles of functioning across educational, behavioral, and physical health outcomes within each child age group for each of the three study intervention comparison groups (and for usual care only to examine sensitivity of class profiles to the presence of study interventions). One to four class models were run for each age group. The best fitting number of classes in each age group were selected using the Bayesian Information Criterion (BIC), with a lower BIC indicating a better-fitting model (Nylund et al., 2007).

Second, after identifying the best fitting number of classes for each age and intervention comparison group, I assessed effects of the intervention offer on children being in a higher functioning class for each comparison. Specifically, these analyses test the hypothesis of whether the intervention offer affects the probability of the children in the intervention group being in a class with higher functioning in one or more outcome domains (relative to the lowest-functioning class) compared to children in usual care. These analyses used an intent-to-treat estimator, which assesses the impact of offering the study intervention relative to an offer of usual care, and controlled for the set of covariates previously described to enhance precision of the estimates. Predictors were added to the final models selected in the first stage of analyses with dependent variables only, making class membership conditional on the predictors.

Third, mediation models were tested based on the hypothesized model shown in Figure 1. Following Preacher and Hayes (2008), mediation is conceptualized as existing when a predictor affects a dependent variable indirectly through at least one intervening variable. In contrast to the older causal steps approach to mediation, this approach focuses not on the individual paths from the intervention to the mediator (a) and mediator to the outcome (b), but on the product terms (ab). In multiple mediator models, tests of total indirect effects indicate whether the full set of mediators transmit the influence of the independent to dependent variable, and tests of specific indirect effects indicate whether a particular mediation pathway is statistically significant net of other mediating pathways. After selecting a final conditional mediation model, mediation tests were conducted using asymmetric confidence intervals for specific and total indirect effects for each intervention group relative to usual care within each age group. I estimated confidence intervals for indirect effects based on one million repetitions using an adapted R program for performing the Monte Carlo Mediation Assessment Method (MCMAM, Selig & Preacher,

2008). MCMAM performs similarly to bootstrapped confidence intervals, does not require an assumption of normality for the distribution of the indirect effects, and is more computationally efficient for complex models (Preacher & Selig, 2012).

Missing data on predictors and outcomes was accounted for by using a robust full information maximum-likelihood (FIML) estimator (using an expectation-maximization algorithm) in all models under missing at random (MAR) assumptions (Sterba, 2014). Missing data rates on predictors were generally low (less than 1%), with only developmental stimulation in the home environment having more than 5% of cases missing (9% missing). Robust standard errors were used to account for clustering of children within families (8% of households had two sampled children age 3 to 7) in the data.

## **Results**

Table 1 below describes sample characteristics at study entry by intervention comparison. Demographic characteristics at baseline were similar to those observed in national data on families in shelters (Solari et al., 2016). By 20 months after a shelter stay, less than a third of children in families assigned to usual care had been homeless or stayed in temporary sharing housing (doubling up) in the past 6 months despite ongoing poverty, but less than 10 percent of children in families offered long-term rental subsidies had experienced either form of housing instability (Supplementary Table S1).

**Table 1***Sample Characteristics at Study Entry for Children Age 3 to 7, By Intervention Comparison*

Measure	LTRS Mean (SD)	UC Mean (SD)	STRS Mean (SD)	UC Mean (SD)	PBTH Mean (SD)	UC Mean (SD)
Sample size	350	272	288	280	195	159
Child gender: Female (%)	48.0	50.4	49.7	48.9	44.1	50.3
Race/ethnicity: Black (%)	35.7	35.7	51.7	43.2	40.0	35.2
Race/ethnicity: Hispanic (%)	24.6	24.6	14.6	21.1	10.3	18.2
Race/ethnicity: White (%)	20.9	21.0	18.8	17.9	15.9	15.7
Race/ethnicity: Other (%)	18.9	18.8	14.9	17.9	33.8	30.8
Parent serious distress (%)	21.4	21.7	16.7	24.6	20.5	22.6
Annual household income at baseline (in \$000s)	8.36 (7.51)	8.14 (7.70)	8.77 (6.92)	9.00 (8.48)	8.80 (7.39)	8.93 (8.99)
Parental education						
Less than high school (%)	34.9	43.0	32.6	43.2	39.0	50.3
High school or GED (%)	36.0	34.6	43.4	33.2	36.4	29.6
More than high school (%)	29.1	22.4	24.0	23.6	24.6	20.1

*Note.* LTRS = Long-term rental subsidy, STRS = Short-term rental subsidy, PBTH = Project-based transitional housing, UC = Usual care, SD = Standard deviation. Parental serious distress was a K6 score of 13 or above (Kessler et al., 2002). Other race/ethnicity included non-Hispanic Asian or Pacific Islander, Alaskan Native, Multiracial, and other race responses.

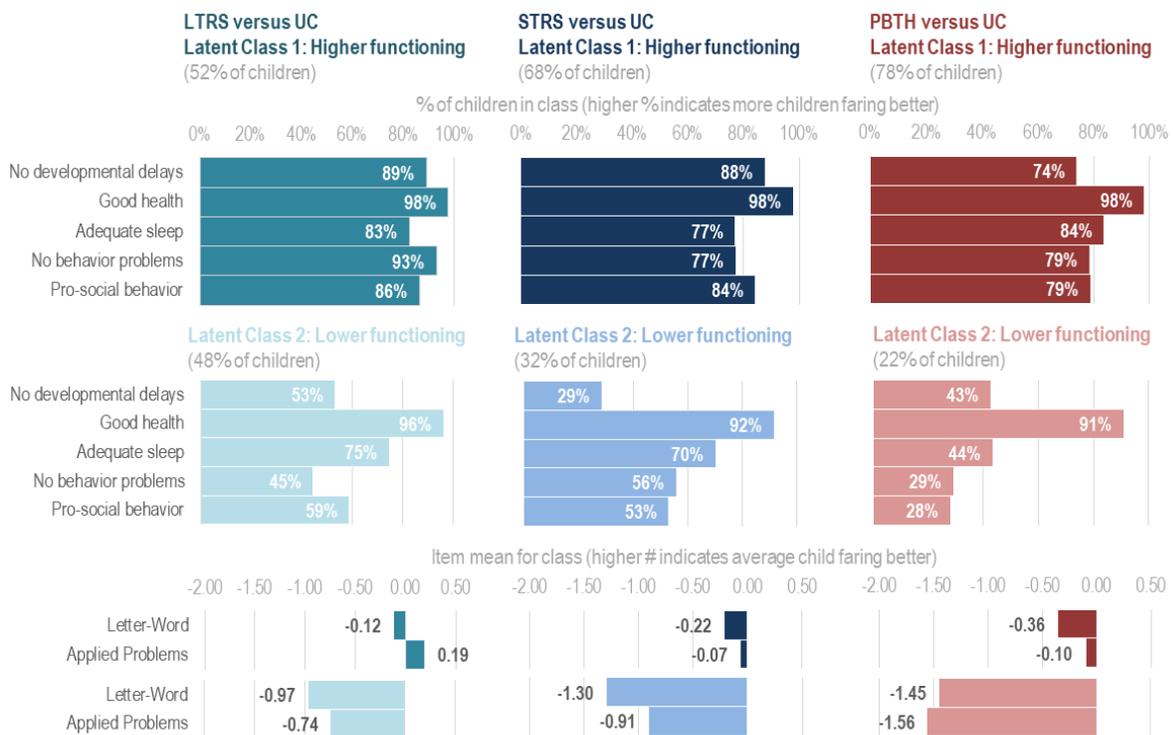
### **Profiles of Child Functioning 37 Months After a Shelter Stay**

Two-class models fit best within each age group and intervention comparison, based on parsimony-adjusted model fit indices (lowest BIC) among one through four-class models (Supplementary Table S2). This was replicated in a sensitivity analysis of only children in families offered usual care (Supplementary Table S1, Figure S1, Figure S2).

In each age and intervention group, there was one class where children displayed average functioning for age norms across all domains (faring well) and a second lower-functioning class where the average child had behavioral problems and below-average or very low scores on cognitive tests for their age, as shown in Figures 2 and 3 below. The proportion of children in each class varied by age group and intervention comparison condition, and there was greater

**Figure 2**

*Latent Class Outcome Probabilities and Means 37 Months After Shelter Entry, Age 3 to 4 by Intervention Comparison*



*Note.* LTRS = Long-term rental subsidy; STRS = Short-term rental subsidy; PBTH = Project-based transitional housing; UC = usual care.

variation in the class profiles of the lower-functioning class by intervention condition than in the class faring well.

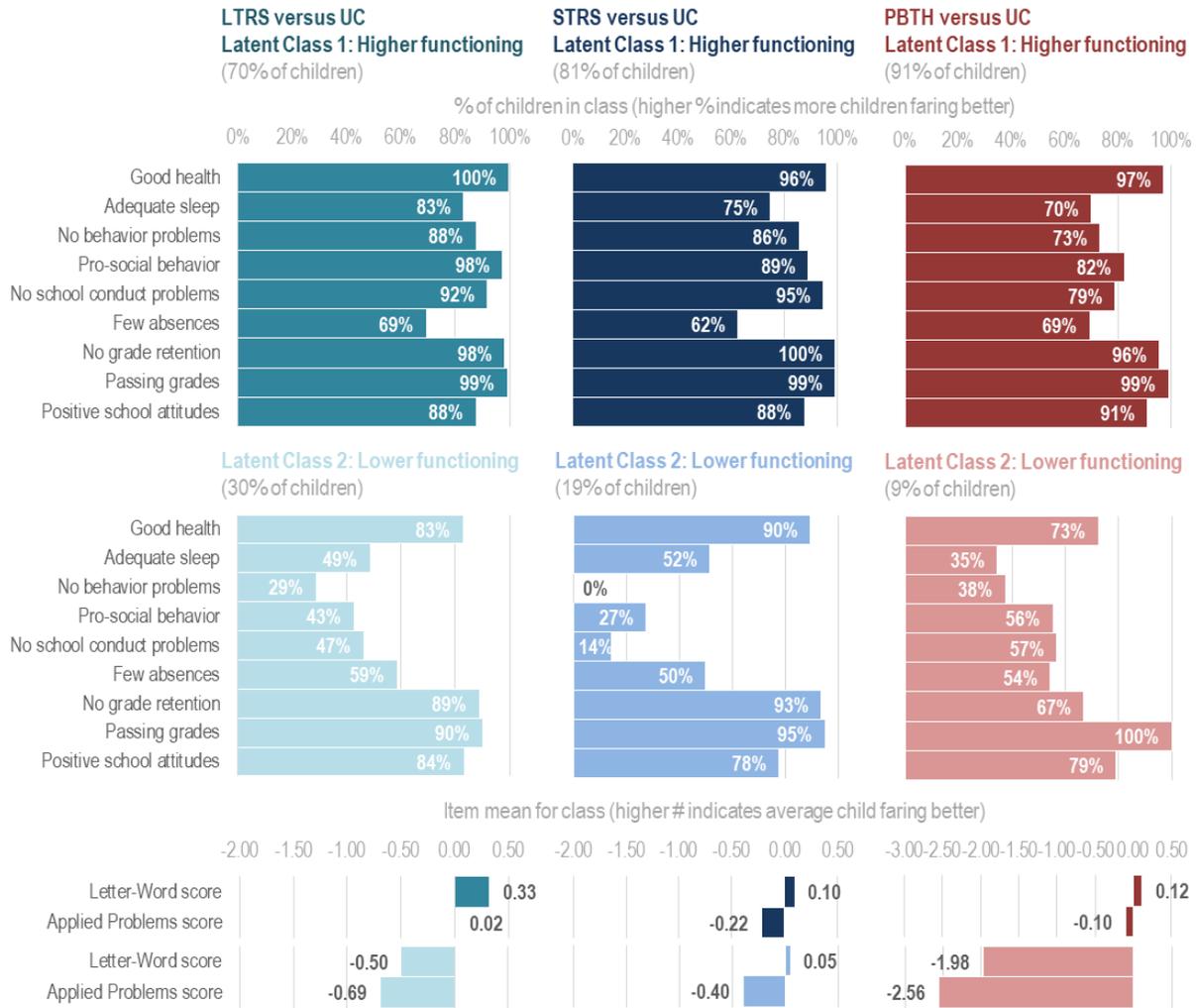
Over half of children age 3 to 4 were in a class characterized by average functioning three years after an experience of homelessness, though the exact proportion varied by comparison (52% LTRS vs. UC, 68% STRS vs. UC, and 78% PBTH vs. UC; Figure 2). The average child in this group resembled an average child their age nationally. Average cognitive test scores were at or near national norms, and rates of passing screenings for developmental delays and behavior problems were in line with national norms (approximately 77 to 86 percent and 80 percent respectively). Nearly all children in this group were in good overall health and most were getting adequate sleep. A higher proportion of children in the LTRS comparison did not have behavior problems (93 percent versus a national norm of 80 percent) relative to the other comparisons, which were near the national norm. A lower proportion of children in the PBTH comparison passed early developmental screens (74 percent) than in the LTRS and STRS comparisons, which were near national norms.

The remainder of children age 3 to 4 were in a lower-functioning group where the average child has cognitive scores well below national norms (ranging from -0.97 to -1.45 SDs for age-normed letter-word scores and -0.74 to -1.56 SDs for applied problems scores) and was indicated for both potential developmental delays (47 to 71 percent, by comparison) and behavior problems (44 to 71 percent, by comparison), with rates substantially above national norms. Yet children in this lower functioning group were still generally reported by parents as being in good overall physical health, and the majority were getting adequate sleep.

Over 70 percent of children age 5 to 7 were in the average functioning class, with the exact proportion varying by intervention comparison (70% LTRS vs. UC, 81% STRS vs. UC, 91%

**Figure 3**

*Latent Class Outcome Probabilities and Means 37 Months After Shelter Entry, Age 5 to 7 by Intervention Comparison*



*Note.* LTRS = Long-term rental subsidy; STRS = Short-term rental subsidy; PBTH = Project-based transitional housing; UC = usual care.

PBTH vs. UC; Figure 3). This profile of this class was similar to that of children age 3 to 4 on overlapping measures. In addition, most children in this class had positive school attitudes and

few had school conduct problems or had been retained in grade. A somewhat lower proportion had few school absences (60% to 70%). Though formal statistical tests of invariance were not possible given measurement differences by age group, a greater proportion of children age 5 to 7 appeared to be in the average functioning class compared to those age 3 to 4 in each intervention comparison (ranging from an additional 13 to 18 percentage points).

The profiles of the lower-functioning class for children age 5 to 7 varied across comparisons and were qualitatively different in some aspects from those of children age 3 to 4 on measures that overlapped between these age groups. For the LTRS and STRS comparisons, this class was most distinctly defined by the very high proportion of children displaying behavior problems. No children in STRS vs. UC comparison scored below diagnostic cutoffs for behavior problems and only 29 percent in LTRS vs. UC scored below cutoffs. In these comparisons, over half of children had school conduct problems and were not getting adequate sleep, and 1 in 10 had been retained in grade in the past 3 years. Cognitive test scores were moderately below national norms for applied problems in both groups and for letter-word in the LTRS comparison but were near national norms for letter-word in the STRS comparison. Compared to the average child age 3 to 4 in the lower functioning group, those age 5 to 7 in these two comparison groups appeared to have qualitatively higher rates of behavior problems but somewhat less disadvantage on cognitive test scores. The PBTH vs. UC comparison had a relatively low proportion of children (9%) in the lower-functioning class, but this class was characterized by extremely low cognitive scores (more than 2 SDs below the mean), elevated rates of behavior problems (only 38% pass screens), and a third of students having been retained in grade.

**Table 2***Effects of Housing Intervention Offer Versus Usual Care on Child Being in Average Functioning**Class 37 Months After Shelter Entry, By Intervention and Child Age Group*

Age group	Long-term rental subsidy		Short-term rental subsidy		Project-based transitional housing	
	OR [95% CI]	ES	OR [95% CI]	ES	OR [95% CI]	ES
Age 3 to 4	2.62 [1.24, 5.54]	0.58	1.55 [0.36, 6.73]	0.27	1.51 [0.57, 3.99]	0.25
Age 5 to 7	1.81 [0.92, 3.53]	0.36	1.81 [0.78, 4.20]	0.36	0.79 [0.33, 4.87]	-0.14

*Note.* OR = Odds ratio; 95% CI = 95% confidence interval; ES = effect size (Cox's index).

### **Intervention Effects on Child Functioning**

Table 2 below reports the effects of housing intervention offers on children being in the average functioning class three years after an initial shelter stay, with an odds ratio of one indicating no effect and an odds ratio greater than one indicating a favorable effect. Children aged 3 to 4 whose families were offered long-term rental subsidies had over twice the odds of being in the higher functioning class compared to children in the usual care group, with a moderate favorable effect size (Adjusted Odds Ratio [AOR] = 2.62; 95% CI [1.24, 5.54],  $g = 0.58$ ). There was a moderate degree of uncertainty in the impact estimate, with a plausible range including children having somewhat better than even odds (24% better) of being in the average functioning group to over five-and-a-half times better odds. This favorable effect reflected about 1 in 4 additional children in families offered LTRS being in the higher functioning class (66% for LTRS versus 39% for UC, based on classifying children according to their modal class probabilities). Neither short-term rental subsidies (AOR = 1.55; 95% CI [0.36, 6.73],  $g = 0.27$ ) nor transitional housing (AOR=1.51, 95% CI [0.57, 3.99],  $g = 0.25$ ) had significant effects on

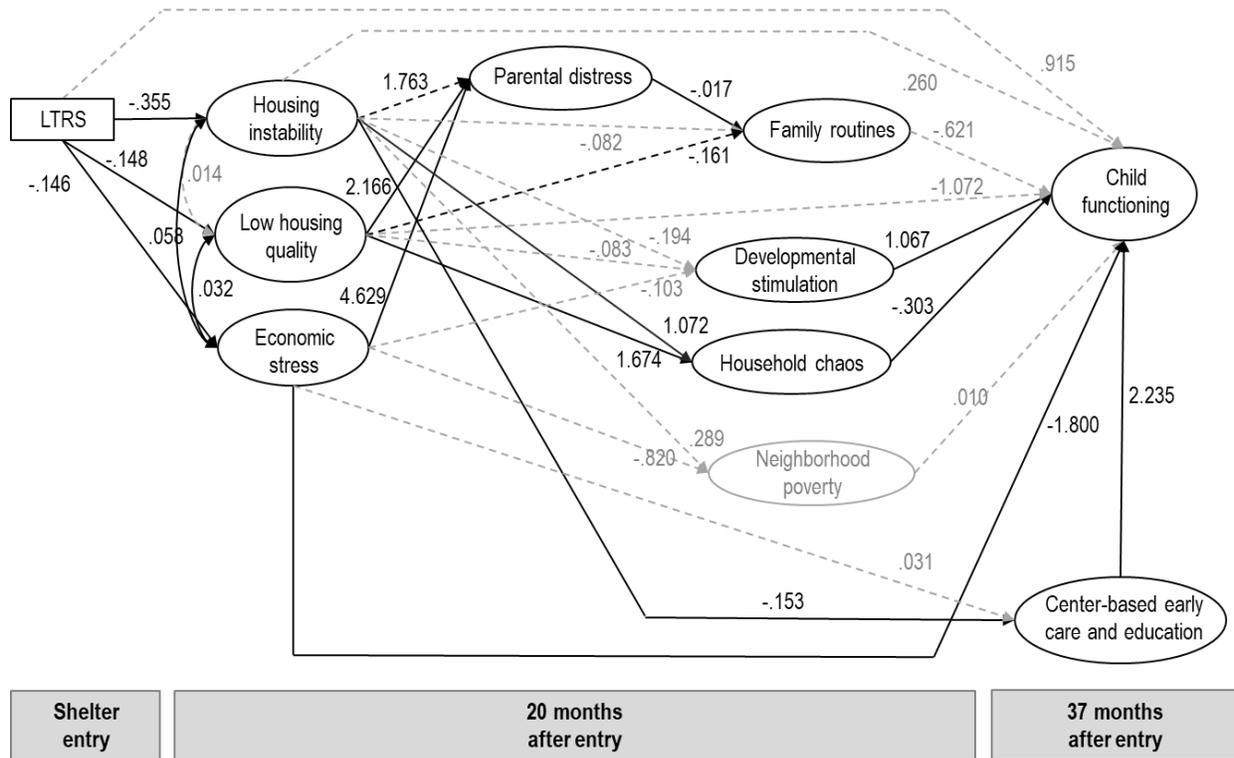
children age 3 to 4 being in the higher functioning class, with similar small favorable effect sizes. None of the interventions had detectible effects on children age 5 to 7 being in the higher functioning class. However, both long-term and short-term rental subsidies had small favorable effect sizes ( $g = 0.36$  for both interventions), whereas project-based transitional housing had a small unfavorable effect size ( $g = -0.14$ ).

### **Mediators of Intervention Effects on Higher Child Functioning**

This section focuses on tests of hypothesized mediators for the significant favorable effect of long-term rental subsidies on child functioning among children age 3 to 4 (detailed results for all comparisons and age groups shown in Supplementary Table S3). Figure 4 below shows unstandardized path model coefficients (expressed in logits for dichotomous outcomes) for children age 3 to 4 in the long-term subsidy comparison (95% CIs and effect sizes for all paths shown in Supplemental Table S3). Long-term rental subsidies significantly reduced families' housing instability ( $\beta = -0.355$ ,  $g = -0.24$ ), low housing quality ( $\beta = -0.148$ , Cox's index =  $-0.09$ ) and economic stress ( $\beta = -0.146$ ,  $g = -0.34$ ) by 20 months after shelter entry. Housing instability was significantly associated with greater parental distress and household chaos 20 months after shelter entry ( $\beta = 1.763$ ,  $g = 1.94$ ;  $\beta = 1.072$ ,  $g = 0.40$ , respectively) and lower center-based ECE enrollment rates 37 months after shelter entry ( $\beta = -0.153$ ,  $g = -0.09$ ). Low housing quality was associated with greater parental distress and household chaos ( $\beta = 2.166$ ,  $g = 2.39$ ;  $\beta = 1.674$ ,  $g = 0.62$ , respectively). Economic stress was significantly associated with parental distress ( $\beta = 4.629$ ,  $g = 5.10$ ). Among the predictors of child functioning, developmental stimulation ( $\beta = 1.067$ ,  $g = 0.65$ ), less household chaos ( $\beta = -0.303$ ,  $g = -0.18$ ), and current

**Figure 4**

*Path Coefficients for Mediation Model for Long-Term Rental Subsidy Effects 37 Months After Shelter Entry, Age 3 to 4*



*Note.* LTRS = Long-term rental subsidy offer. Solid black lines =  $p < .05$ , dotted black lines =  $p < .10$  for estimate, grey dotted lines =  $p \geq .10$  for estimate.

center-based ECE enrollment ( $\beta = 2.235$ ,  $g = 1.35$ ) were statistically significant predictors of children age 3 to 4 being in the higher functioning class, with economic stress also having a significant direct negative association ( $\beta = -1.800$ ,  $g = -1.09$ ).

For children age 5 to 7, LTRS significantly reduced housing instability ( $\beta = -0.419$ ,  $g = -0.17$ ) but not economic stress or low housing quality (Supplementary Table S6). Household chaos was the only statistically significant predictor of child functioning ( $\beta = -0.145$ ,  $g = -0.09$ )

**Table 3***Estimates of Total and Specific Indirect Mediation Effects and Direct Effects of Long-Term**Rental Subsidies (LTRS) on Higher Child Functioning, Age 3 to 4*

Mediating path to child functioning	Estimate	[95% CI]
<i>Total indirect effects</i>		
Total indirect effect of LTRS	0.679	[-0.089, 1.462]
Total direct effect of LTRS	0.914	[-0.535, 2.364]
<i>Specific indirect effect paths</i>		
LTRS → Economic stress	<b>0.262</b>	<b>[0.021, 0.613]</b>
LTRS → Low housing quality	0.159	[-0.080, 0.499]
LTRS → Housing instability → Center-based ECE	0.119	[-0.007, 0.331]
LTRS → Housing instability → Household chaos	0.115	[-0.007, 0.326]
LTRS → Low housing quality → Household chaos	0.077	[-0.001, 0.220]
LTRS → Housing instability → Developmental stimulation	0.072	[-0.015, 0.214]
LTRS → Economic stress → Developmental stimulation	0.017	[-0.032, 0.091]
LTRS → Low housing quality → Developmental stimulation	0.015	[-0.000, 0.050]
LTRS → Economic stress → Neighborhood poverty	0.001	[-0.014, 0.020]
LTRS → Housing instability → Neighborhood poverty	-0.001	[-0.045, 0.043]
LTRS → Low housing quality → Distress → Family routines	-0.004	[-0.042, 0.027]
LTRS → Housing instability → Distress → Family routines	-0.007	[-0.083, 0.053]
LTRS → Economic stress → Distress → Family routines	-0.007	[-0.082, 0.055]
LTRS → Economic stress → Center-based ECE enrollment	-0.013	[-0.098, 0.045]
LTRS → Housing instability → Routines	-0.014	[-0.242, 0.186]
LTRS → Low housing quality → Family routines	-0.016	[-0.176, 0.117]
LTRS → Housing instability	-0.097	[-0.641, 0.397]

*Note.* CI = confidence interval. Estimates and confidence intervals are in logits. Bolded estimates

statistically significant based on bootstrapped asymmetric 95% confidence intervals using Monte

Carlo Method for Assessing Mediation with one million repetitions.

with the exception of the direct effect of low housing quality on functioning ( $\beta = -1.063$ ,  $g = -$

0.64) net of other predictors.

Table 3 above provides estimates from statistical tests of mediation of the effects of long-term rental subsidies on children age 3 to 4, including tests of the total indirect effect and of specific mediating paths. The hypothesized indirect effects accounted for 43 percent of the total effect long-term rental subsidies have on children being in the higher functioning class three years after a shelter stay, but the total indirect effect was not statistically significant ( $\beta = 0.679$ , 95% CI [-0.089, 1.462]). One favorable effect for a specific path was detectibly different from zero—long-term subsidies improved functioning through the direct relationship between economic stress and functioning, net of the indirect influence of economic stress via parental distress, developmental stimulation, ECE enrollment, and neighborhood poverty ( $\beta = 0.262$ , 95% CI [0.021, 0.613]), which accounted for 16 percent of the total effect. Specific indirect effects via housing instability and low housing quality via household chaos both approached statistical significance, collectively accounting for 12 percent of the total effect. For children age 5 to 7, the effect of long-term rental subsidies on child functioning was not statistically significant, but there was a favorable indirect effect on functioning through reduced housing instability via less household chaos ( $\beta = 0.041$ , 95% CI [0.002, 0.110], see Supplementary Table S9 for full results).

In the other two intervention groups, intervention effects on housing stability, housing quality, and economic stress were not statistically significant (Supplementary Tables S4, S5, S7, S8). Transitional housing did not have a significant direct effect on parental distress or family routines (Supplementary Tables S5, S8).

## Discussion

Three years after an experience of homelessness, young children varied quite widely in their functioning, characterized by one higher functioning and one lower functioning group—similar to the patterns observed in studies of children in homeless shelters. The majority of children were in a group characterized by functioning similar to a normative group of children their age across physical, behavioral, educational, and cognitive functioning and progress on developmental milestones. In general, the proportion of children in this higher functioning group was higher than in studies of children in shelters, even among children in the usual care only group. This is consistent with evidence of recovery in functioning, on average, after an experience of homelessness from prior longitudinal research. A smaller group of children displayed lower functioning in multiple domains of development, including elevated rates of behavioral problems and notable lags in early reading and math skills compared to children their age nationally. These findings also suggest that recovery in functioning from an experience of homelessness tends to be holistic—though individual children may improve in some domains and not others, distinct clusters of children who displaying high functioning in individual domains and lower functioning in others were not empirically supported in this study.

The favorable effects of long-term housing subsidies on young children's functioning indicates that housing is both an important source of disparities in early development and a malleable target for intervention. The favorable effect of priority access to long-term rental subsidies translated to an additional 1 out of every 4 infants in shelters being in a group of children that were, on average, faring well in their development three years later instead of being in a group faring poorly in multiple domains. Effects of this intervention among preschool children in shelter (age 3 to 5 years) were still favorable but smaller in magnitude and not

detectibly different from zero. These findings provide further evidence that infants' development may be more sensitive to exposure to homelessness and housing-related stressors relative to older children. Prior randomized trials of housing interventions among families who are in poverty but are not homeless also find evidence that effects are larger among young children but that these effects take longer to emerge (Chetty et al., 2016). More intense housing problems and deeper poverty observed among families who experience homelessness may explain why favorable developmental effects from housing interventions were observable earlier in development than in prior intervention studies with less disadvantaged families.

Mediation results identified that long-term housing subsidies reduced children's exposure to parental economic stress, housing instability, and low housing quality. These effects collectively accounted for over 40 percent of the intervention effect, but the proximal mechanisms transmitting these effects were unclear. Among family process mediating paths, paths based on Conger and Elder's (1994) family stress model did not detectibly mediate reductions in economic stress, despite very strong associations with parental distress. The main parenting measure assessed (family routines) was more weakly associated with functioning at 37 months than expected. This could in part be due to housing continuing to change in the usual care group, as more usual families had accessed long-term subsidies at 37 months relative to 20 months. Qualitative evidence suggests family routines can change quite rapidly once housing is stabilized (Brown, 2021; Mayberry et al., 2014). Another possibility is measurement. Parenting was self-reported, and observational measurement may be more reliable and sensitive to change. Further research is needed to understand the best ways to measure parenting and the timing of changes in parenting relative to changes in housing in the context of homelessness and housing instability.

Among parental investment mechanisms tested, developmental stimulation or early education and care were predictive of functioning, as expected, but were only weakly related to reduction in economic stress. Reduced economic stress did mediate the intervention effect, net of these theorized proximal factors and despite no detectible differences in household income. It is possible that spillover economic benefits from subsidies reducing expenditures on rent had positive development benefits in ways not captured in current theories linking housing affordability and child functioning.

Prior studies with housed families in poverty have focused on neighborhood quality as a key causal mechanism for housing interventions, but the present study found no evidence that neighborhood poverty mediated intervention effects on functioning. One explanation is that prior studies found relatively long exposure times are needed for favorable effects to manifest—favorable effects have largely been detected in young adulthood, not during childhood. Qualitative evidence from the Welfare to Work study indicated simply finding an acceptable unit before the voucher search period expired was a primary consideration for initial moves, whereas families often placed greater emphasis on neighborhood quality in subsequent moves (Gubits et al., 2009). Further, moving is often disruptive for children in the short-run (Leventhal & Newman, 2010), which may also indicate why favorable effects from improved neighborhood quality takes time to emerge (though evidence on short-run effects of residential mobility during early childhood is scant). Prior intervention studies with already housed low-income families may confound the influence of short-term moves on development with intervention use (as families not offered vouchers may be more likely to stay put). In contrast, families in homeless shelters all must move out within months of entering due to length-of-stay limits, whether offered an intervention or not, and subsidies in the present study reduced moves in the short-run.

Findings were suggestive that effects on housing instability and low housing quality may have primarily operated through improvements in the home environment (via reduced household chaos and improved developmental stimulation), which collectively accounted for over 10 percent of the intervention effect. Very young children likely spend a large amount of their time in their home environments, amplifying the influence of developmentally stimulating opportunities (positively) or chaos and noise (negatively) in these environments. As children age, exposure to environments outside the home increases, such as time spent in early care and education or schools. Findings from prior reports from the present study affirm that the large majority of young children remained at home, but use of ECE rose with age from about one-in-ten children age 1 to about four-in-ten children age 4. Thus, differences in exposure to the home environment may help to explain why housing interventions have stronger effects when received in infancy, though evidence from the present study should be considered suggestive.

This study builds on the strengths of the randomized design and breadth of mediators and outcomes assessed in the Family Options Study but has some limitations. First, the study collected survey data only for children with the family. As a result, we likely underestimate intervention effects on child functioning to the extent that children separated from their family due to housing instability are likely to be faring worse. However, separations were less common among younger children in the study than among older children and adolescents (Gubits et al., 2013). Long-term subsidies reduced child separations by the 20-month follow-up, potentially dampening intervention effects, although the effect was no longer significant at the 37-month follow-up. Second, we were unable to collect baseline information on child functioning or to examine how the environmental factors examined at each ecological level are transmitted through micro-level processes of development, which constrained the mediation analyses (e.g.,

whether physiological stress mechanisms connect parental distress and parenting of child exposure to household chaos and functioning). Third, low take-up rates for the transitional housing intervention complicates interpretation of null intent-to-treat effects on parent and family mediators targeted by the services it offers, and standard methods of adjusting for this (treatment-on-treated estimates) are not possible due to complex patterns of intervention cross-over. Fourth, the fact that about one in three families in the comparison group had obtained long-term housing subsidies by the time of the 37-month follow-up likely attenuated the effects of this intervention.

Findings and limitations suggest three directions for future research. First, conducting longer-term follow-ups with could help assess whether early gains attributable to long-term rental subsidies are sustained as children transition into school or whether children in usual care “catch up” once they enter school and whether prior findings of favorable effects in young adulthood are replicated among children who have experienced homelessness. Second, determining the extent to which intervention effects in infancy are a function of developmental sensitivity to stress and environmental inputs relative to preventing the cumulative pile-up of stressors and detrimental effects from ongoing housing instability could also help inform early intervention practices and the structure of housing assistance. Should assistance specifically target infancy or is it more important to provide sustained assistance in early childhood to realize developmental benefits? A third direction is teasing out the dynamics of housing and parenting processes in early childhood. How do parents understand conventional measures when their contexts are frequently changing and their preferred routines differ from the constraints imposed on their parenting from “parenting in public” and shelter rules? How do we capture qualitative

shifts in parenting that may occur when families transition out of a spell of housing instability into more stable housing arrangements and the correct timing for elucidating causal processes?

Lastly, study findings highlight two policy implications for improving outcomes for young children in families that experience homelessness. First, interventions effective in ending family homelessness support positive developmental outcomes, particularly when received during infancy. Homeless infants may particularly benefit from their families being prioritized for long-term housing subsidies: infancy is the age at which children are at greatest risk for experiencing homelessness (Brown et al., 2017) and also appears to be a period where housing environments have a stronger influence on development. Yet only one-in-four eligible families currently receive long-term rental subsidies. Expansion of this program would simultaneously reduce homelessness and help achieve early childhood policy goals. Second, school entry may be an important factor in promoting higher functioning for young children who experience homelessness. Among children receiving usual care, over three-quarters of school-age children (age 5 to 7 at follow-up) were in the higher functioning group, with an additional 1 in 5 children being in this group relative to preschool-aged children (age 3 to 4 at follow-up). Expanding access to similarly supportive educational environments may help promote better functioning among preschool-aged children who experience homelessness. Among preschool-aged children, contemporaneous access to center-based early care and education was a strong predictor of children age 3 to 4 being in the higher functioning group, though interventions did not affect access to center-based ECE. This pattern may reflect federal efforts to prioritize Head Start access for families experiencing homelessness that were ongoing during the study time period. More recent efforts to expand access to childcare subsidies for families experiencing homelessness that occurred after the study time period through provisions in the re-authorization

of the Child Care Development Fund should support additional gains in access to ECE. Findings from this study are encouraging in that so many children are faring well despite experiencing homelessness but also indicate that we have readily available levers to ensure that even more children have the opportunity to do so.

### References

- Andersson, F., Haltiwanger, J. C., Kutzbach, M. J., Palloni, G. E., Pollakowski, H. O., & Weinberg, D. H. (2016). *Childhood housing and adult earnings: A between-siblings analysis of housing vouchers and public housing*. NBER Working Paper 2271. National Bureau of Economic Research. <https://doi.org/10.3386/w22721>
- Bartlett, S. (1998). Does inadequate housing perpetuate children's poverty? *Childhood*, 5, 403–420. <https://doi.org/10.1177/0907568298005004004>
- Bradley, R. H., Corwyn, R. F., Burchinal, M., McAdoo, H. P., & García Coll, C. (2001). The home environments of children in the United States Part II: Relations with behavioral development through age thirteen. *Child Development*, 72, 1868–1886. <https://doi.org/10.1111/1467-8624.t01-1-00383>
- Bradley, R. H., Corwyn, R. F., McAdoo, H. P., & García Coll, C. (2001). The home environments of children in the United States part I: Variations by age, ethnicity, and poverty status. *Child Development*, 72, 1844–1867. <https://doi.org/10.1111/1467-8624.t01-1-00382>
- Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (6th Ed., pp. 793–828). Wiley. <https://doi.org/10.1002/9780470147658.chpsy0114>

- Brown, S. R. (2021). *How do housing interventions for families experiencing homelessness affect children's functioning?* [Doctoral dissertation, Vanderbilt University].
- Brown, S. R., Shinn, M., Khadduri, J. (2017). *Well-being of young children after experiencing homelessness*. OPRE Report No. 2017-06. U.S. Department of Health and Human Services, Office of Policy Research and Evaluation.
- Buckner, J. C. (2008). Understanding the impact of homelessness on children: Challenges and future research directions. *American Behavioral Scientist*, *51*, 721–736.  
<https://doi.org/10.1177/0002764207311984>
- Burt, M. (2010). *Life after transitional housing for homeless families*. U.S. Department of Housing and Urban Development.  
<https://www.huduser.gov/portal/publications/pdf/LifeAfterTransition.pdf>
- Chetty, R., Hendren, N., & Katz, L. F. (2016). The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment. *American Economic Review*, *106*(4), 855-902. <https://doi.org/10.1257/aer.20150572>
- Coley, R. L., Leventhal, T., Lynch, A. D., & Kull, M. (2013). Relations between housing characteristics and the well-being of low-income children and adolescents. *Developmental Psychology*, *49*, 1775–1789. <https://doi.org/10.1037/a0031033>
- Coley, R. L., & Kull, M. (2016). Cumulative, timing-specific, and interactive models of residential mobility and children's cognitive and psychosocial skills. *Child Development*, *87*(4), 1204-1220. <https://doi.org/10.1111/cdev.12535>
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family*, *72*, 685–704.  
<https://doi.org/10.1111/j.1741-3737.2010.00725.x>

- Conger, R. D., & Elder, G. H., Jr. (1994). *Families in troubled times: Adapting to change in rural America. Social institutions and social change*. Aldine de Gruyter.
- Cutuli, J. J., Desjardins, C. D., Herbers, J. E., Long, J. D., Heistad, D., Chan, C. K., Hinz, E., & Masten, A. S. (2013). Academic achievement trajectories of homeless and highly mobile students: Resilience in the context of chronic and acute risk. *Child Development, 84*, 841–857. <https://doi.org/10.1111/cdev.12013>
- Cutuli, J. J., & Herbers, J. E. (2014). Promoting resilience for children who experience family homelessness: Opportunities to encourage developmental competence. *Cityscape, 16*, 113–140.
- Duncan, G. J., & Magnuson, K. (2013). Investing in preschool programs. *The Journal of Economic Perspectives, 27*, 109–132. <https://doi.org/10.1257/jep.27.2.109>
- Ellen, I. G. (2018). What do we know about housing choice vouchers?. *Regional Science and Urban Economics*. <https://doi.org/10.1016/j.regsciurbeco.2018.07.003>
- Ellen, I. G., Mijanovich, T., & Dillman, K. N. (2001). Neighborhood effects on health: Exploring the links and assessing the evidence. *Journal of Urban Affairs, 23*, 391–408. <https://doi.org/10.1111/0735-2166.00096>
- Eriksen, M. D., & Ross, A. (2013). The impact of housing vouchers on mobility and neighborhood attributes. *Real Estate Economics, 41*(2), 255–277. <https://doi.org/10.1111/j.1540-6229.2012.00342.x>
- Evans, G. W., Gonnella, C., Marcynyszyn, L. A., Gentile, L., & Salpekar, N. (2005). The role of chaos in poverty and children’s socioemotional adjustment. *Psychological Science, 16*, 560–565. <https://doi.org/10.1111/j.0956-7976.2005.01575.x>
- Evans, G. W., & Wachs, T. D. (2010). *Chaos and its influence on children’s development*.

American Psychological Association.

Fantuzzo, J. W., LeBoeuf, W. A., Chen, C. C., Rouse, H. L., & Culhane, D. P. (2012). The unique and combined effects of homelessness and school mobility on the educational outcomes of young children. *Educational Researcher*, *41*, 393–402.

<https://doi.org/10.3102/0013189X12468210>

Fisher, B. W., Mayberry, L. S., Shinn, M., & Khadduri, J. (2014). Leaving homelessness behind: Housing decisions among families exiting shelter. *Housing Policy Debate*, *24*, 364–386.

<https://doi.org/10.1080/10511482.2013.852603>

Fowler, P. J., Henry, D. B., Schoeny, M., Taylor, J., & Chavira, D. (2014). Developmental timing of housing mobility: Longitudinal effects on externalizing behaviors among at-risk youth. *Journal of the American Academy of Child & Adolescent Psychiatry*, *53*, 199–208.

<https://doi.org/10.1016/j.jaac.2013.12.003>

Friedman, D. H. (2000). *Parenting in public: Family shelter and public assistance*. Columbia University Press.

Gershoff, E. T., Aber, J. L., Raver, C. C., & Lennon, M. C. (2007). Income is not enough: Incorporating material hardship into models of income associations with parenting and child development. *Child Development*, *78*, 70–95. [https://doi.org/10.1111/j.1467-](https://doi.org/10.1111/j.1467-8624.2007.00986.x)

[8624.2007.00986.x](https://doi.org/10.1111/j.1467-8624.2007.00986.x)

Grant, R., Shapiro, A., Joseph, S., Goldsmith, S., Rigual-Lynch, L., & Redlener, I. (2007). The health of homeless children revisited. *Advances in Pediatrics*, *54*, 173–187.

<https://doi.org/10.1016/j.yapd.2007.03.010>

Gubits, D., Shinn, M., Wood, M., Bell, S., Dastrup, S., Solari, C. D., Brown, S. R., McInnis, D., McCall, T., & Kattel, U. (2016). *Family Options Study: 3-year impacts of housing and*

*service interventions for homeless families*. U.S. Department of Housing and Urban Development.

Gubits, D., Shinn, M., Wood, M., Brown, S. R., Dastrup, S. R., & Bell, S. H. (2018). What interventions work best for families who experience homelessness? Impact estimates from the family options study. *Journal of Policy Analysis and Management*, *37*(4), 835–866. <https://doi.org/10.1002/pam.22071>

Gubits, D., Spellman, B., Dunton, L., Brown, S., & Wood, M. (2013). *Family Options Study: Interim report*. Washington, D.C.: U.S. Department of Housing and Urban Development.

Gubits, D., Khadduri, J., & Turnham, J. (2009). *Housing patterns of low income families with children: Further analysis of data from the study of the effects of housing vouchers on welfare families*. Report W09-7. Joint Center for Housing Studies.

Huntington, N., Buckner, J. C., & Bassuk, E. (2008). Adaptation in homeless children: An empirical examination using cluster analysis. *American Behavioral Scientist*, *51*, 737–755. <https://doi.org/10.1177/0002764207311985>

Huston, A. C., & Bentley, A. C. (2010). Human development in societal context. *Annual Review of Psychology*, *61*, 411–437. <https://doi.org/10.1146/annurev.psych.093008.100442>

Jacob, B. A., Kapustin, M., & Ludwig, J. (2015). The impact of housing assistance on child outcomes: Evidence from a randomized housing lottery. *The Quarterly Journal of Economics*, *130*, 465–506. <https://doi.org/10.1093/qje/qju030>

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., Walters, E. E., & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, *32*(6), 959–976. <https://doi.org/10.1017/S0033291702006074>

- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin*, *126*, 309–337. <https://doi.org/10.1037/0033-2909.126.2.309>
- Leventhal, T., Martin, A., & Brooks-Gunn, J. (2004). The EC-HOME across five national datasets in the 3rd to 5th year of life. *Parenting*, *4*(2-3), 161–188. <https://doi.org/10.1080/15295192.2004.9681269>
- Leventhal, T., & Newman, S. (2010). Housing and child development. *Children and Youth Services Review*, *32*, 1165–1174. <https://doi.org/10.1016/j.childyouth.2010.03.008>
- Matheny, A. P., Wachs, T. D., Ludwig, J. L., & Phillips, K. (1995). Bringing order out of chaos: Psychometric characteristics of the confusion, hubbub, and order scale. *Journal of Applied Developmental Psychology*, *16*, 429–444. [https://doi.org/10.1016/0193-3973\(95\)90028-4](https://doi.org/10.1016/0193-3973(95)90028-4)
- Mayberry, L. S., Shinn, M., Benton, J. G., & Wise, J. (2014). Families experiencing housing instability: The effects of housing programs on family routines and rituals. *American Journal of Orthopsychiatry*, *84*, 95–109. <https://doi.org/10.1037/h0098946>
- Mills, G., Gubits, D., Orr, L., Long, D., Feins, J., Kaul, B., & Wood, M. (2006). *Effects of housing vouchers on welfare families*. U.S. Department of Housing and Urban Development.
- Newman, S. J., & Holupka, C. S. (2014). Housing affordability and investments in children. *Journal of Housing Economics*, *24*, 89–100. <https://doi.org/10.1016/j.jhe.2013.11.006>
- Newman, S. J., & Holupka, C. S. (2015). Housing affordability and child well-being. *Housing Policy Debate*, *25*, 116–151. <https://doi.org/10.1080/10511482.2014.899261>
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in

- latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling*, *14*, 535–569. <https://doi.org/10.1080/10705510701575396>
- Obradović, J., Long, J. D., Cutuli, J. J., Chan, C. K., Hinz, E., Heistad, D., & Masten, A. S. (2009). Academic achievement of homeless and highly mobile children in an urban school district: Longitudinal evidence on risk, growth, and resilience. *Development and Psychopathology*, *21*, 493–518. <https://doi.org/10.1017/S0954579409000273>
- Obradović, J. (2010). Effortful control and adaptive functioning of homeless children: Variable-focused and person-focused analyses. *Journal of Applied Developmental Psychology*, *31*, 109–117. <https://doi.org/10.1016/j.appdev.2009.09.004>
- 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*, S255–S261. <https://doi.org/10.2105/AJPH.2010.300098>
- Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior*, *19*, 2–21. <https://doi.org/10.2307/2136319>
- Perlman, S., & Fantuzzo, J. (2010). Timing and influence of early experiences of child maltreatment and homelessness on children's educational well-being. *Children and Youth Services Review*, *32*, 874–883. <https://doi.org/10.1016/j.childyouth.2010.02.007>
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891. <https://doi.org/10.3758/BRM.40.3.879>
- Preacher, K. J., & Selig, J. P. (2012). Advantages of Monte Carlo confidence intervals for indirect effects. *Communication Methods and Measures*, *6*, 77–98.

<https://doi.org/10.1080/19312458.2012.679848>

Schteingart, J. S., Molnar, J., Klein, T. P., Lowe, C. B., & Hartmann, A. E. (1995).

Homelessness and child functioning in the context of risk and protective factors moderating child outcomes, *Journal of Clinical Child Psychology*, 24(3), 320-331.

[https://doi.org/10.1207/s15374424jccp2403\\_9](https://doi.org/10.1207/s15374424jccp2403_9)

Selig, J. P., & Preacher, K. J. (2008, June). Monte Carlo method for assessing mediation: An interactive tool for creating confidence intervals for indirect effects [Computer software]. Available from <http://quantpsy.org/medmc/medmc.htm>.

Shinn, M., Samuels, J., Fischer, S. N., Thompkins, A., & Fowler, P. J. (2015). Longitudinal impact of a Family Critical Time Intervention on children in high-risk families experiencing homelessness: A randomized trial. *American Journal of Community Psychology*, 56, 205–216. <https://doi.org/10.1007/s10464-015-9742-y>

Shinn, M., Schteingart, J. S., Williams, N. C., Carlin-Mathis, J., Bialo-Karagis, N., Becker-Klein, R., & Weitzman, B. C. (2008). Long-term associations of homelessness with children's well-being. *American Behavioral Scientist*, 51, 789–809. <https://doi.org/10.1177/0002764207311988>

Solari, C. D., Morris, S., Shivji, A., & de Souza, T. (2016). *The 2015 Annual Homelessness Assessment Report (AHAR) to Congress*. U.S. Department of Housing and Urban Development.

Squires, J., Twombly, E., Bricker, D., & Potter, L. (2009). *Ages & Stages Questionnaires, Third Edition*. Brookes Publishing.

Sterba, S. (2014). Handling missing covariates in conditional mixture models under missing at random assumptions. *Multivariate Behavioral Research*, 49, 614–632.

<https://doi.org/10.1080/00273171.2014.950719>

Sytsma, S. E., Kelley, M. L., & Wymer, J. H. (2001). Development and initial validation of the Child Routines Inventory. *Journal of Psychopathology and Behavioral Assessment*, 23, 241–251. <https://doi.org/10.1023/A:1012727419873>

Taylor, J., Gibson, B., & Hurd, K. (2015). Parental preschool choices and challenges when young children and their families experience homelessness. *Children and Youth Services Review*, 56, 68–75. <https://doi.org/10.1016/j.childyouth.2015.06.010>

Yoshikawa, H., Weiland, C., Brooks-Gunn, J., Burchinal, M. R., Espinosa, L. M., Gormley, W. T., Ludwig, J., Magnuson, K., Phillips, D., & Zaslow, M. J. (2013). *Investing in our future: The evidence base on preschool education*. Society for Research in Child Development.

YouthInMind. (2014). Scoring the strengths and difficulties questionnaire for age 4-17. [www.sdqinfo.org](http://www.sdqinfo.org)

## Supplementary Materials

**Supplementary Table S1**

*Descriptive Statistics for Covariates, Outcomes, and Mediators for Children Age 3 to 7, By Intervention Comparison and Age Group*

	Intervention	LTRS	UC	LTRS	UC	STRS	UC	STRS	UC	PBTH	UC	PBTH	UC
Age group (years)	3-4	3-4	5-7	5-7	3-4	3-4	5-7	5-7	3-4	3-4	5-7	5-7	
Measure	Mean												
	(SD)												
<i>Sample size</i>	173	147	177	125	165	147	123	133	103	83	92	76	
Child age (37-month follow-up)	4.32 (0.76)	4.39 (0.75)	6.69 (0.80)	6.59 (0.76)	4.44 (0.77)	4.32 (0.73)	6.64 (0.73)	6.72 (0.75)	4.37 (0.79)	4.40 (0.78)	6.70 (0.71)	6.74 (0.76)	
<i>Baseline characteristics</i>													
Child gender: Female (%)	50.3	47.6	45.8	53.6	50.9	45.6	48.0	52.6	44.7	44.6	43.5	56.6	
Minority race/ethnicity (%)	76.3	78.2	81.9	80.0	78.2	81.0	85.4	83.5	84.5	85.5	83.7	82.9	
Parent severe distress (%)	22.0	23.1	20.9	20.0	14.5	23.8	19.5	25.6	19.4	21.7	21.7	23.7	
Parent less than high school education (%)	33.5	42.9	36.2	43.2	35.2	42.9	29.3	43.6	35.9	48.2	42.4	52.6	
Parent drug or alcohol dependence (%)	20.2	19.0	16.4	24.8	20.0	13.6	17.1	18.0	19.4	19.3	28.3	19.7	
<i>Child outcomes at 37-month follow-up</i>													
No developmental delay (%)	73.9	69.0	n/a	n/a	70.2	67.7	n/a	n/a	64.6	69.4	n/a	n/a	
Good health (%)	97.6	96.4	94.7	94.8	95.6	96.3	94.2	95.2	95.8	97.4	94.3	95.9	
Adequate sleep (%)	83.6	73.2	78.6	64.3	76.2	73.4	71.9	68.8	77.1	72.5	67.8	65.3	
No behavior problems (%)	74.2	65.2	74.6	63.2	73.1	67.2	75.4	64.0	69.1	65.8	77.0	62.0	
Pro-social behavior (%)	78.4	67.6	84.0	76.5	76.9	71.0	81.5	72.8	70.2	64.6	82.8	76.4	
No school conduct problems (%)	88.7	95.4	83.3	70.2	91.9	93.7	77.5	70.8	87.2	88.2	76.5	78.6	
Few absences (%)	n/a	n/a	64.4	68.0	n/a	n/a	62.2	56.6	n/a	n/a	70.6	65.5	
No grade retention (%)	n/a	n/a	96.3	94.5	n/a	n/a	99.1	97.5	n/a	n/a	90.6	95.8	
Passing grades (%)	n/a	n/a	96.3	97.7	n/a	n/a	99.0	97.9	n/a	n/a	100.0	98.3	

Intervention	LTRS	UC	LTRS	UC	STRS	UC	STRS	UC	PBTH	UC	PBTH	UC
Age group (years)	3-4	3-4	5-7	5-7	3-4	3-4	5-7	5-7	3-4	3-4	5-7	5-7
Measure	Mean											
	(SD)											
Positive school attitudes (%)	n/a	n/a	92.2	78.7	n/a	n/a	87.5	83.0	n/a	n/a	94.1	85.7
Letter-Word	-0.40	-0.65	0.13	0.00	-0.53	-0.61	0.16	0.03	-0.56	-0.60	-0.10	-0.04
(z-score)	(0.93)	(0.89)	(1.01)	(1.07)	(0.94)	(0.92)	(0.95)	(1.02)	(0.96)	(0.95)	(1.10)	(1.17)
Applied Problems	-0.16	-0.31	-0.25	-0.12	-0.24	-0.43	-0.32	-0.20	-0.30	-0.49	-0.40	-0.23
(z-score)	(1.04)	(0.90)	(0.95)	(0.95)	(0.70)	(0.98)	(0.93)	(0.83)	(0.95)	(1.16)	(1.04)	(1.10)
<i>Mediators (at 20-month follow-up)</i>												
Homeless, past 6 mos (%)	4.1	18.8	8.5	22.9	23.2	21.2	23.1	24.6	14.9	18.2	24.7	14.3
Doubled up, past 6 mos (%)	7.1	20.1	13.4	30.3	27.1	30.4	30.8	28.8	28.7	24.7	37.0	22.2
Number of places lived	1.28	1.52	1.43	1.78	1.65	1.75	1.74	1.68	1.63	1.60	1.75	1.61
	(0.67)	(0.99)	(0.91)	(1.22)	(0.95)	(1.18)	(1.15)	(1.05)	(1.09)	(1.03)	(1.10)	(1.19)
Low housing quality (%)	25.3	39.4	31.3	25.7	32.7	36.0	25.9	31.4	37.2	40.0	34.6	27.0
Economic stress	-0.35	-0.21	-0.21	-0.09	-0.24	-0.19	-0.16	-0.12	-0.18	-0.13	-0.12	-0.14
(-1 to 1)	(0.40)	(0.48)	(0.46)	(0.45)	(0.46)	(0.49)	(0.50)	(0.48)	(0.44)	(0.47)	(0.48)	(0.41)
Parent distress	0.97	1.32	1.11	1.23	1.00	1.29	1.05	1.23	1.17	1.40	1.38	1.34
(1 to 5)	(0.80)	(1.02)	(0.91)	(0.77)	(0.81)	(0.97)	(0.84)	(0.86)	(0.87)	(1.00)	(0.85)	(0.85)
Family routines	4.49	4.48	4.51	4.39	4.50	4.45	4.43	4.34	4.25	4.37	4.26	4.30
(1 to 5)	(0.65)	(0.67)	(0.56)	(0.67)	(0.64)	(0.70)	(0.60)	(0.70)	(0.84)	(0.68)	(0.65)	(0.73)
Developmental stimulation (z-score)	0.65	0.40	0.84	0.77	0.48	0.35	0.75	0.70	0.23	0.30	0.77	0.66
	(0.79)	(1.02)	(0.77)	(0.90)	(1.00)	(1.11)	(0.80)	(0.90)	(1.09)	(1.11)	(0.83)	(0.97)
Household chaos	2.08	2.69	2.32	2.48	2.80	2.66	2.64	2.64	3.08	3.43	3.10	2.71
(1 to 14)	(2.24)	(3.11)	(2.73)	(2.84)	(2.76)	(3.14)	(2.90)	(3.03)	(2.64)	(3.19)	(2.93)	(2.14)
ECE enrollment (20m, %)	n/a	n/a	71.4	60.0	n/a	n/a	52.2	56.3	n/a	n/a	40.7	72.7
ECE enrollment (37m, %)	48.3	47.7	n/a	n/a	40.9	47.6	n/a	n/a	48.4	41.7	n/a	n/a
Neighborhood poverty rate	24.6	25.4	25.0	25.7	25.1	26.1	26.7	26.2	28.8	25.4	26.5	26.1
	(12.3)	(14.3)	(12.2)	(13.2)	(13.5)	(14.0)	(13.4)	(13.2)	(16.4)	(14.1)	(14.3)	(14.1)

Note. LTRS = Long-term rental subsidy, STRS = Short-term rental subsidy, PBTH = Project-based transitional housing, UC = Usual

care, SD = Standard deviation, ECE = Center-based early care and education, m= month.

## Supplementary Table S2

*Model Fit Results for One Through Four-Class Models, By Intervention Comparison and Age*

*Group*

Age group	LTRS vs UC		STRS vs UC		PBTH vs UC		UC Only	
	3-4	5-7	3-4	5-7	3-4	5-7	3-4	5-7
Classes	<u>BIC</u>							
1	2,567.6	3,022.4	2,522.3	2,545.6	1,578.3	1,773.8	1,597.8	1,709.3
2	<b>2,550.4</b>	<b>2,935.7</b>	<b>2,493.2</b>	<b>2,422.5</b>	<b>1,563.4</b>	<b>1,758.5</b>	<b>1,591.9</b>	<b>1,684.9</b>
3	2,558.1	2,933.4	2,516.3	2,437.0	1,574.5	1,781.8	1,604.3	1,704.8
4	2,585.0	2,972.2	2,540.6	2,462.6	1,593.4	1,819.8	1,635.4	1,733.4

*Note.* LTRS = Long-term rental subsidy, STRS = Short-term rental subsidy, PBTH = Project-

based transitional housing, UC = Usual care, BIC = Bayesian Information Criterion

### Supplementary Table S3

#### *Path Regression Results for Long-Term Rental Subsidy Versus Usual Care, Age 3 to 4*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	-0.355	[-0.516, -0.194]	-0.24
Intervention → Low housing quality	-0.148	[-0.266, -0.030]	-0.09
Intervention → Economic stress	-0.146	[-0.252, -0.040]	-0.34
Housing instability → Distress	1.763	[-0.197, 3.723]	1.94
Low housing quality → Distress	2.166	[0.772, 3.560]	2.39
Economic stress → Distress	4.629	[2.898, 6.360]	5.10
Distress → Family routines	-0.017	[-0.033, -0.001]	-0.03
Housing instability → Family routines	-0.082	[-0.266, 0.102]	-0.12
Low housing quality → Family routines	-0.161	[-0.335, 0.013]	-0.24
Housing instability → Developmental stimulation	-0.194	[-0.429, 0.041]	-0.21
Low housing quality → Developmental stimulation	-0.083	[-0.346, 0.180]	-0.09
Economic stress → Developmental stimulation	-0.103	[-0.415, 0.209]	-0.11
Housing instability → Household chaos	1.072	[0.074, 2.070]	0.40
Low housing quality → Household chaos	1.674	[0.931, 2.417]	0.62
Housing instability → ECE enrollment	-0.153	[-0.300, -0.006]	-0.09
Economic stress → ECE enrollment	0.031	[-0.136, 0.198]	0.02
Housing instability → Neighborhood poverty	0.289	[-4.060, 4.638]	0.02
Economic stress → Neighborhood poverty	-0.820	[-4.720, 3.080]	-0.06
Family routines → Higher functioning	-0.621	[-1.485, 0.243]	-0.38
Developmental stimulation → Higher functioning	1.067	[0.205, 1.929]	0.65
Household chaos → Higher functioning	-0.303	[-0.597, -0.009]	-0.18
ECE enrollment → Higher functioning	2.235	[0.230, 4.240]	1.35
Neighborhood poverty → Higher functioning	0.010	[-0.035, 0.055]	-0.01
Housing instability → Higher functioning	0.260	[-1.120, 1.640]	0.16
Low housing quality → Higher functioning	-1.072	[-2.695, 0.551]	-0.65
Economic stress → Higher functioning	-1.800	[-3.315, -0.285]	-1.09
Intervention → Higher functioning	0.915	[-0.535, 2.365]	0.55
Child age (within group) → Higher functioning	-0.102	[-0.862, 0.658]	-0.06
Child is female → Higher functioning	0.919	[-0.529, 2.367]	0.56
Minority race or ethnicity → Higher functioning	0.865	[-0.470, 2.200]	0.52
Baseline severe distress → Higher functioning	-1.292	[-2.991, 0.407]	-0.78

### Supplementary Table S4

#### *Path Regression Results for Short-Term Rental Subsidy Versus Usual Care, Age 3 to 4*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	-0.079	[-0.314, 0.156]	-0.04
Intervention → Low housing quality	-0.038	[-0.156, 0.080]	-0.02
Intervention → Economic stress	-0.050	[-0.170, 0.070]	-0.11
Housing instability → Distress	0.979	[-0.105, 2.063]	1.10
Low housing quality → Distress	1.659	[0.279, 3.039]	1.87
Economic stress → Distress	3.709	[2.251, 5.167]	4.18
Distress → Family routines	-0.013	[-0.033, 0.007]	-0.02
Housing instability → Family routines	-0.015	[-0.138, 0.108]	-0.02
Low housing quality → Family routines	-0.288	[-0.478, -0.098]	-0.43
Housing instability → Developmental stimulation	-0.279	[-0.506, -0.052]	-0.26
Low housing quality → Developmental stimulation	-0.329	[-0.609, -0.049]	-0.31
Economic stress → Developmental stimulation	-0.321	[-0.599, -0.043]	-0.30
Housing instability → Household chaos	0.783	[0.117, 1.449]	0.27
Low housing quality → Household chaos	2.155	[1.379, 2.931]	0.73
Housing instability → ECE enrollment	-0.065	[-0.173, 0.043]	-0.04
Economic stress → ECE enrollment	0.045	[-0.122, 0.212]	0.03
Housing instability → Neighborhood poverty	0.582	[-2.191, 3.355]	0.04
Economic stress → Neighborhood poverty	-0.956	[-4.751, 2.839]	-0.07
Family routines → Higher functioning	0.577	[-0.260, 1.414]	0.35
Developmental stimulation → Higher functioning	0.477	[-0.285, 1.239]	0.29
Household chaos → Higher functioning	-0.118	[-0.377, 0.141]	-0.07
ECE enrollment → Higher functioning	1.208	[-0.184, 2.600]	0.73
Neighborhood poverty → Higher functioning	-0.044	[-0.085, -0.003]	-0.03
Housing instability → Higher functioning	0.027	[-0.900, 0.954]	0.02
Low housing quality → Higher functioning	-0.144	[-1.871, 1.583]	-0.09
Economic stress → Higher functioning	-0.890	[-2.162, 0.382]	-0.54
Intervention → Higher functioning	0.431	[-0.657, 1.519]	0.26
Child age (within group) → Higher functioning	0.356	[-0.283, 0.995]	0.22
Child is female → Higher functioning	0.017	[-0.992, 1.026]	0.01
Minority race or ethnicity → Higher functioning	-0.218	[-2.229, 1.793]	-0.17
Baseline severe distress → Higher functioning	-0.572	[-1.819, 0.675]	-0.35

## Supplementary Table S5

*Path Regression Results for Project-Based Transitional Housing Versus Usual Care, Age 3 to 4*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	-0.022	[-0.261, 0.217]	-0.01
Intervention → Low housing quality	-0.043	[-0.210, 0.124]	-0.03
Intervention → Economic stress	-0.053	[-0.202, 0.096]	-0.12
Housing instability → Distress	2.681	[0.047, 5.315]	2.87
Low housing quality → Distress	2.348	[0.476, 4.220]	2.52
Economic stress → Distress	3.592	[1.019, 6.165]	3.85
Intervention → Distress	-1.029	[-2.648, 0.590]	-1.10
Distress → Family routines	-0.003	[-0.032, 0.026]	0.00
Housing instability → Family routines	-0.036	[-0.369, 0.297]	-0.05
Low housing quality → Family routines	0.038	[-0.219, 0.295]	0.05
Intervention → Family routines	-0.124	[-0.361, 0.113]	-0.16
Housing instability → Developmental stimulation	-0.468	[-1.093, 0.157]	-0.42
Low housing quality → Developmental stimulation	-0.150	[-0.556, 0.256]	-0.14
Economic stress → Developmental stimulation	-0.124	[-0.624, 0.376]	-0.11
Housing instability → Household chaos	1.355	[-0.025, 2.735]	0.47
Low housing quality → Household chaos	2.624	[1.646, 3.602]	0.90
Family routines → Higher functioning	-1.495	[-3.606, 0.616]	-0.90
Developmental stimulation → Higher functioning	2.647	[0.179, 5.115]	1.60
Household chaos → Higher functioning	-0.421	[-0.891, 0.049]	-0.25
Housing instability → Higher functioning	1.385	[-0.940, 3.710]	0.84
Low housing quality → Higher functioning	1.203	[-1.547, 3.953]	0.73
Economic stress → Higher functioning	-2.483	[-5.198, 0.232]	-1.50
Intervention → Higher functioning	0.674	[-0.916, 2.264]	0.41

*Note.* Due to smaller sample size in this comparison and relatively few cases being in the lower-functioning group, the following non-significant predictors of child functioning were dropped to enable model estimation: child age, child gender, minority race/ethnicity, baseline severe parental distress, enrollment in center-based early care and education (and housing instability and economic stress as predictors of enrollment in center-based early care and education), and

neighborhood poverty (and housing instability and economic stress as predictors of neighborhood poverty).

## Supplementary Table S6

### *Path Regression Results for Long-Term Rental Subsidy Versus Usual Care, Age 5 to 7*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	-0.419	[-0.691, -0.147]	-0.17
Intervention → Low housing quality	0.068	[-0.050, 0.186]	0.04
Intervention → Economic stress	-0.115	[-0.231, 0.001]	-0.25
Housing instability → Distress	1.185	[0.317, 2.053]	1.39
Low housing quality → Distress	1.333	[0.090, 2.576]	1.56
Economic stress → Distress	4.200	[2.797, 5.603]	4.92
Distress → Family routines	0.001	[-0.017, 0.019]	0.00
Housing instability → Family routines	-0.043	[-0.145, 0.059]	-0.07
Low housing quality → Family routines	-0.151	[-0.329, 0.027]	-0.25
Housing instability → Developmental stimulation	-0.151	[-0.325, 0.023]	-0.18
Low housing quality → Developmental stimulation	-0.064	[-0.307, 0.179]	-0.08
Economic stress → Developmental stimulation	-0.257	[-0.500, -0.014]	-0.31
Housing instability → Household chaos	0.640	[0.081, 1.199]	0.23
Low housing quality → Household chaos	1.168	[0.337, 1.999]	0.42
Housing instability → ECE enrollment	-0.147	[-0.284, -0.010]	-0.09
Economic stress → ECE enrollment	-0.145	[-0.343, 0.053]	-0.09
Housing instability → Neighborhood poverty	-0.987	[-3.231, 1.257]	-0.08
Economic stress → Neighborhood poverty	0.649	[-3.238, 4.536]	0.05
Family routines → Higher functioning	0.703	[0.042, 1.364]	0.43
Developmental stimulation → Higher functioning	0.190	[-0.333, 0.713]	0.12
Household chaos → Higher functioning	-0.157	[-0.275, -0.039]	-0.10
ECE enrollment → Higher functioning	-0.343	[-2.050, 1.364]	-0.21
Neighborhood poverty → Higher functioning	-0.010	[-0.049, 0.029]	-0.01
Housing instability → Higher functioning	-0.399	[-1.056, 0.258]	-0.24
Low housing quality → Higher functioning	-1.063	[-1.906, -0.220]	-0.64
Economic stress → Higher functioning	-0.678	[-1.797, 0.441]	-0.41
Intervention → Higher functioning	0.435	[-0.451, 1.321]	0.26
Child age (within group) → Higher functioning	0.312	[-0.278, 0.902]	0.19
Child is female → Higher functioning	-0.097	[-0.924, 0.730]	-0.06
Minority race or ethnicity → Higher functioning	0.416	[-0.856, 1.688]	0.25
Baseline severe distress → Higher functioning	-0.538	[-1.792, 0.716]	-0.33

**Supplementary Table S7**

*Path Regression Results for Short-Term Rental Subsidy Versus Usual Care, Age 5 to 7*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	0.004	[-0.268, 0.276]	0.00
Intervention → Low housing quality	-0.054	[-0.177, 0.069]	-0.03
Intervention → Economic stress	-0.049	[-0.184, 0.086]	-0.10
Housing instability → Distress	0.484	[-0.318, 1.286]	0.57
Low housing quality → Distress	2.643	[1.189, 4.097]	3.11
Economic stress → Distress	2.680	[1.273, 4.087]	3.15
Distress → Family routines	-0.013	[-0.031, 0.005]	-0.02
Housing instability → Family routines	0.035	[-0.085, 0.155]	0.05
Low housing quality → Family routines	-0.193	[-0.420, 0.034]	-0.30
Housing instability → Developmental stimulation	-0.148	[-0.326, 0.030]	-0.17
Low housing quality → Developmental stimulation	-0.003	[-0.287, 0.281]	0.00
Economic stress → Developmental stimulation	-0.094	[-0.331, 0.143]	-0.11
Housing instability → Household chaos	0.792	[0.100, 1.484]	0.27
Low housing quality → Household chaos	1.963	[0.977, 2.949]	0.66
Housing instability → ECE enrollment	-0.112	[-0.237, 0.013]	-0.07
Economic stress → ECE enrollment	0.064	[-0.138, 0.266]	0.04
Housing instability → Neighborhood poverty	-0.127	[-2.728, 2.474]	-0.01
Economic stress → Neighborhood poverty	-1.066	[-5.472, 3.340]	-0.08
Family routines → Higher functioning	0.336	[-0.483, 1.155]	0.20
Developmental stimulation → Higher functioning	0.639	[0.210, 1.068]	0.39
Household chaos → Higher functioning	-0.244	[-0.397, -0.091]	-0.15
ECE enrollment → Higher functioning	-0.805	[-2.291, 0.681]	-0.49
Neighborhood poverty → Higher functioning	0.014	[-0.029, 0.057]	0.01
Housing instability → Higher functioning	0.410	[-0.198, 1.018]	0.25
Low housing quality → Higher functioning	-0.193	[-1.159, 0.773]	-0.12
Economic stress → Higher functioning	-0.117	[-0.930, 0.696]	-0.07
Intervention → Higher functioning	0.464	[-0.402, 1.330]	0.28
Child age (within group) → Higher functioning	-0.042	[-0.720, 0.636]	-0.03
Child is female → Higher functioning	-0.236	[-1.528, 1.056]	-0.14
Minority race or ethnicity → Higher functioning	0.963	[-0.133, 2.059]	0.58
Baseline severe distress → Higher functioning	-0.077	[-1.712, 1.558]	-0.05
Less than high school → Higher functioning	0.004	[-0.268, 0.276]	0.00

Drug or alcohol abuse → Higher functioning      -0.054    [-0.177, 0.069]    -0.03

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## Supplementary Table S8

*Path Regression Results for Project-Based Transitional Housing Versus Usual Care, Age 5 to 7*

<u>Path</u>	<u><math>\beta</math></u>	<u>95% CI</u>	<u>ES</u>
Intervention → Housing instability	0.227	[-0.104, 0.558]	0.10
Intervention → Low housing quality	0.062	[-0.101, 0.225]	0.04
Intervention → Economic stress	0.030	[-0.125, 0.185]	0.07
Housing instability → Distress	1.048	[-0.422, 2.518]	1.23
Low housing quality → Distress	1.569	[-0.446, 3.584]	1.84
Economic stress → Distress	2.669	[0.744, 4.594]	3.13
Distress → Family routines	-0.002	[-0.029, 0.025]	0.00
Housing instability → Family routines	0.109	[-0.077, 0.295]	0.16
Housing instability → Developmental stimulation	-0.003	[-0.293, 0.287]	0.00
Low housing quality → Developmental stimulation	0.048	[-0.319, 0.415]	0.05
Economic stress → Developmental stimulation	-0.289	[-0.671, 0.093]	-0.32
Low housing quality → Household chaos	1.478	[0.486, 2.470]	0.57
Housing instability → ECE enrollment	-0.089	[-0.285, 0.107]	-0.05
Economic stress → ECE enrollment	0.197	[-0.124, 0.518]	0.12
Housing instability → Neighborhood poverty	0.903	[-2.394, 4.200]	0.06
Economic stress → Neighborhood poverty	-4.685	[-10.820, 1.450]	-0.33
Family routines → Higher functioning	a	a	a
Developmental stimulation → Higher functioning	a	a	a
Household chaos → Higher functioning	a	a	a
Housing instability → Higher functioning	a	a	a
Low housing quality → Higher functioning	a	a	a
Economic stress → Higher functioning	a	a	a
Intervention → Higher functioning	a	a	a

*Note.* <sup>a</sup>Due to the smaller sample size in this comparison and very few cases being in the lower-functioning group, estimates for predictors of child functioning approached extreme values and are not displayed. Estimates for the individual mediating paths are not affected by this issue and are shown.

**Supplementary Table S9**

*Estimates of Indirect Mediation Effects of Long-Term Rental Subsidy Offers Compared to Usual*

*Care on Child Being in Higher Functioning Class, Age 5 to 7*

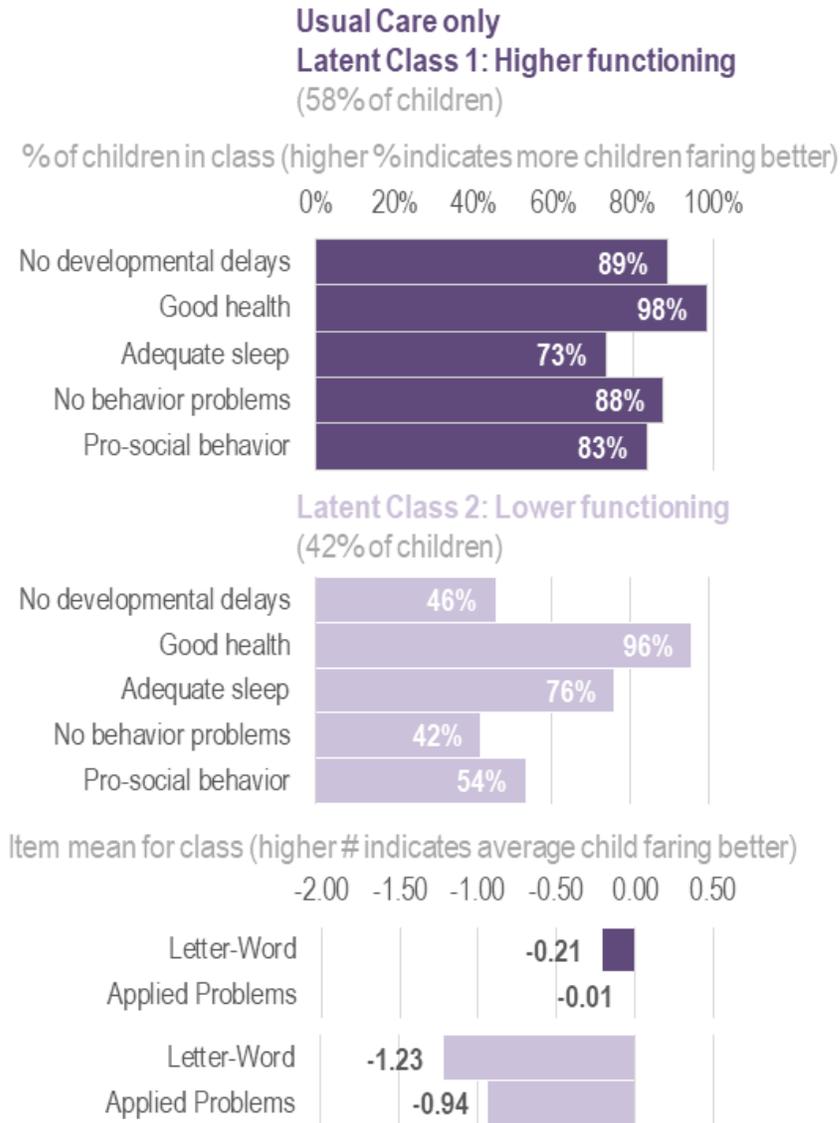
<u>Mediating path to child functioning</u>	<u>Estimate</u>	<u>[95% CI]</u>
<i>Total indirect effects</i>		
Total indirect effect of LTRS	0.172	[-0.219, 0.579]
Total direct effect of LTRS	0.434	[-0.452, 1.319]
<i>Specific indirect effect paths (descending from largest positive effect)</i>		
LTRS → Housing instability	0.156	[-0.124, 0.466]
LTRS → Economic stress	0.074	[-0.059, 0.260]
LTRS → Housing instability → Household chaos	0.041	[0.002, 0.110]
LTRS → Housing instability → Routines	0.014	[-0.016, 0.064]
LTRS → Housing instability → Developmental stimulation	0.013	[-0.021, 0.067]
LTRS → Economic stress → Developmental stimulation	0.006	[-0.011, 0.032]
LTRS → Economic stress → Neighborhood poverty	0.001	[-0.011, 0.015]
LTRS → Low housing quality → Distress → Family routines	0.000	[-0.001, 0.002]
LTRS → Low housing quality → Developmental stimulation	0.000	[-0.009, 0.008]
LTRS → Economic stress → Distress → Family routines	0.000	[-0.009, 0.007]
LTRS → Housing instability → Distress → Family routines	-0.001	[-0.009, 0.006]
LTRS → Housing instability → Neighborhood poverty	-0.004	[-0.039, 0.021]
LTRS → Economic stress → Center-based ECE enrollment	-0.006	[-0.058, 0.033]
LTRS → Low housing quality → Family routines	-0.007	[-0.032, 0.007]
LTRS → Low housing quality → Household chaos	-0.012	[-0.044, 0.010]
LTRS → Housing instability → Center-based ECE enrollment	-0.026	[-0.182, 0.080]
LTRS → Low housing quality	-0.073	[-0.249, 0.051]

*Note.* LTRS = Long-term rental subsidy; ECE = early care and education.

**Supplementary Figure S1**

*Outcome Probabilities and Means for Higher and Lower Functioning Latent Classes 37 Months*

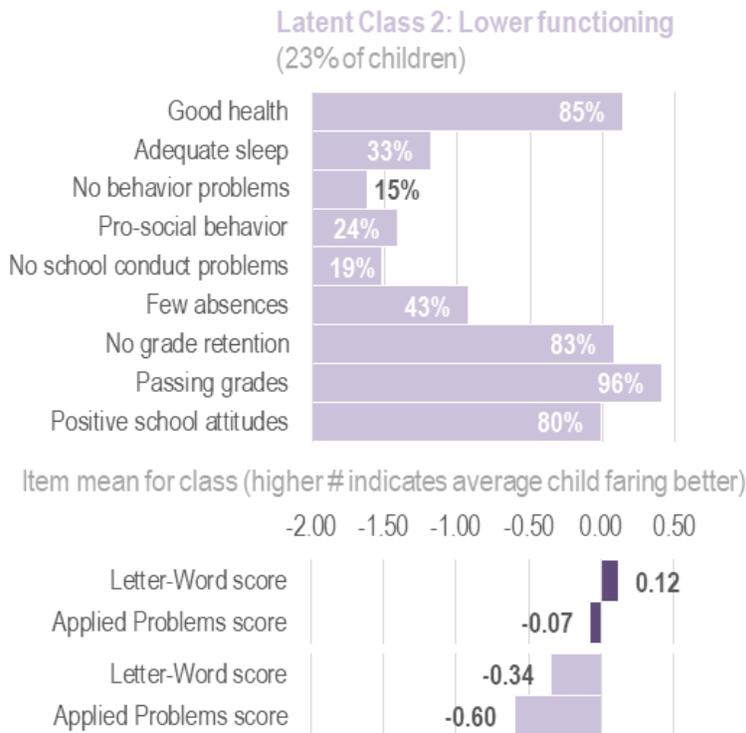
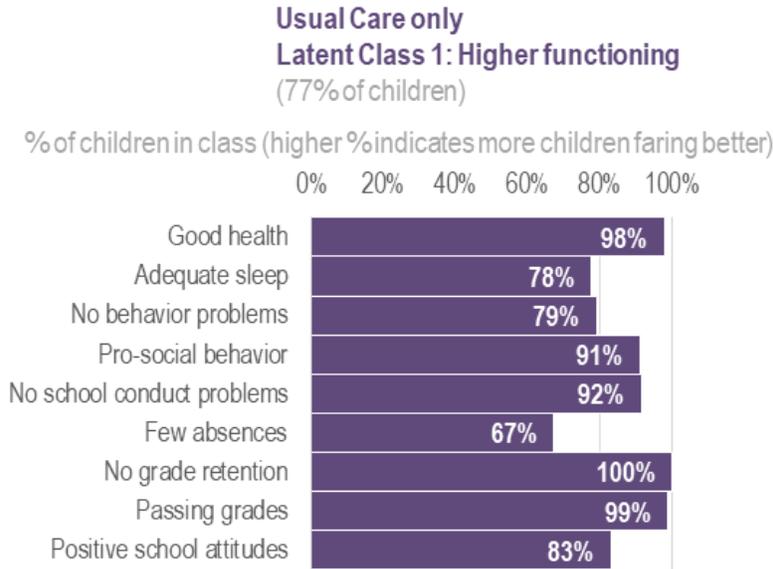
*After Shelter Entry for Children Age 3 to 4, Usual Care Only*



**Supplementary Figure S2**

*Outcome Probabilities and Means for Higher and Lower Functioning Latent Classes 37 Months*

*After Shelter Entry for Children Age 5 to 7, Usual Care Only*



## Conclusion

This dissertation builds on earlier findings that priority access to long-term rental assistance for families experiencing homelessness effectively ends homeless (Gubits et al., 2018), demonstrating that this assistance also improves developmental outcomes for young children and adolescents. These findings are particularly noteworthy given that prior research on long-term housing assistance has generally found that favorable effects take a long time to emerge—often not appearing until adulthood (Andersson et al., 2016; Chetty et al., 2016; Ellen, 2018). This dissertation also proposed a broader conceptual model for homelessness and child functioning, integrating an ecological-developmental model of childhood homelessness with specific theoretical mediating mechanisms from research on housing and child development. It argues that the current dominant model treating homelessness as a family risk factor fails to adequately account for wide variation in child functioning after an experience of homelessness and the mechanisms by which housing interventions may affect functioning.

Across the individual papers, findings indicated ways in which the proposed conceptual model for housing and child development helps explain intervention effects but also ways the model can be augmented to better reflect the context of homelessness. In-depth interviews identified additional salient aspects of families' housing that are exposed when families cannot afford conventional rental housing. Quantitative tests of mediation models affirmed changes in housing helped explain intervention effects and provided evidence for some specific mediating paths, varying by children's age. Findings point to limitations of the continuum of risk framework and suggest an augmented theoretical model. The chapter concludes with policy

implications, particularly the need for expanding access to long-term rental subsidies and benefits of approaches providing families with their own housing.

### **Limitations of Conceptualizing Homelessness as a Family Risk Factor**

Prior research on homelessness and child development has primarily operated under assumptions consistent with the “continuum of risk” hypothesis—that family homelessness is an additional risk factor for children’s development beyond a general constellation of risks connected to poverty alone (Brumley et al., 2015). Partial support for this model was found in that the intervention effective at reducing returns to homelessness, long-term rental assistance, also was the only intervention that had favorable effects on child outcomes. Findings on how housing shapes and constrains family processes and wide variation in functioning also highlights important limitations of this model—particularly for understanding the lack of effectiveness of transitional housing—and the utility of ecologically-based frameworks for understanding intervention effects and mechanisms. Notably, the continuum of risk model implicitly directs attention to family and individual-level processes because homelessness is treated as a family risk factor. This dissertation identified broader ecological factors tied to families’ housing as important contextual influences on family processes and child functioning. These findings are more in line with the “continuum of resources” framework proposed in Haber and Toro’s (2004) ecological-developmental model. In particular, this model provides additional insight into the lack of favorable effects of transitional housing, which directly targets both families’ housing and broader psychosocial risk factors.

Haber and Toro's (2004) ecological-developmental model places greater focus on how environmental resources in children's contexts shape family processes than the continuum of risk model, which does not differentiate sources of risk for functioning. Housing's potential to support or strain family processes is a theme evident across this dissertation—helping explain the disruptiveness of shelter stays, the trend of recovery in functioning after leaving shelters, and the additional beneficial effects of long-term rental assistance. Haber and Toro's model places equal emphasis on how family processes can help buffer the strain of loss of resources in children's environment and how restoration of these resources is an important support for engaging the “ordinary magic” of family and individually-driven processes of recovery after crises. When families moved into their own housing, parents commonly reported children's behavior recovering quite rapidly, even when it had been severely disrupted during their shelter stays. Parents commonly attributed these improvements to restored autonomy—particularly being able to re-establish family processes and routines disrupted by shelters and being able to tailor these processes to their children's specific developmental needs. These qualitative descriptions were borne out in the quantitative survey findings, with behavioral improvements being evident within 37 months in the long-term rental subsidy group in the larger study (Gubits et al., 2018) and the majority of children faring well across developmental domains three years later in the two quantitative papers from the present study. In contrast, persistent homelessness and housing instability were associated with substantially worse functioning. By parsing environmental resources from family and individual resources, the ecological-developmental framework accounts for not only patterns of recovery but also why some families and children continued to fare poorly.

Conversely, because it does not explicitly address variation in families' housing resources, the continuum of risk model may lead to overly individualized interpretations of findings. It also may overlook important variation in resources across both "homeless" and "non-homeless" living situations, especially between institutionalized and community-based approaches to re-housing families. First, the continuum of risk model fails to differentiate types of homelessness living situations. An ecological-developmental framework assesses the extent to which shelter environments may be straining or depleting families' adaptive resources, which could account for variation in functioning. It also raises questions about whether families experiencing housing crises might fare better under different shelter policies or emergency housing arrangements. Second, the continuum of risk model lacks an explanation for variation observed between families offered rental subsidies and those offered project-based transitional housing, as both are "non-homeless" living situations. Several families offered transitional housing appreciated the resource of the stability it offered but left early because their children were aware it was not a "real home" and the situation may have been perceived as being homeless in other contexts, such as school. Some found the additional service resources offered to be in conflict with other goals to enhance their families' resources. Others turned it down because the location was too far away from other resources, such as family members, or the neighborhood was perceived as poor quality. Parents' broader view of the risks and resources of their housing options goes beyond the ways "homelessness" is typically defined and is better accounted for by an ecological-developmental framework. Closer attention to context, particularly how housing resources shape family processes, can help explain both the disruptiveness of homelessness and differences in the effectiveness of intervention approaches.

Lastly, the present studies found important differences in intervention effects across children's age, which are explicitly addressed in ecological-developmental models but are not addressed in the continuum of risk model. Haber and Toro's ecological-developmental model specifies that children's dependency on their caregiver and their salient developmental contexts outside the home may vary with age. However, it does not identify the specific aspects of children's housing that are developmentally salient or provide an explicit model for how variation in housing resources influence functioning through their more proximal contexts of development. A key argument of this dissertation is that understanding homelessness in the broader context of how housing affects child development provides a stronger basis for interpreting the differences in intervention effects by child age found both in the present study and prior evaluation research conducted with families in poverty.

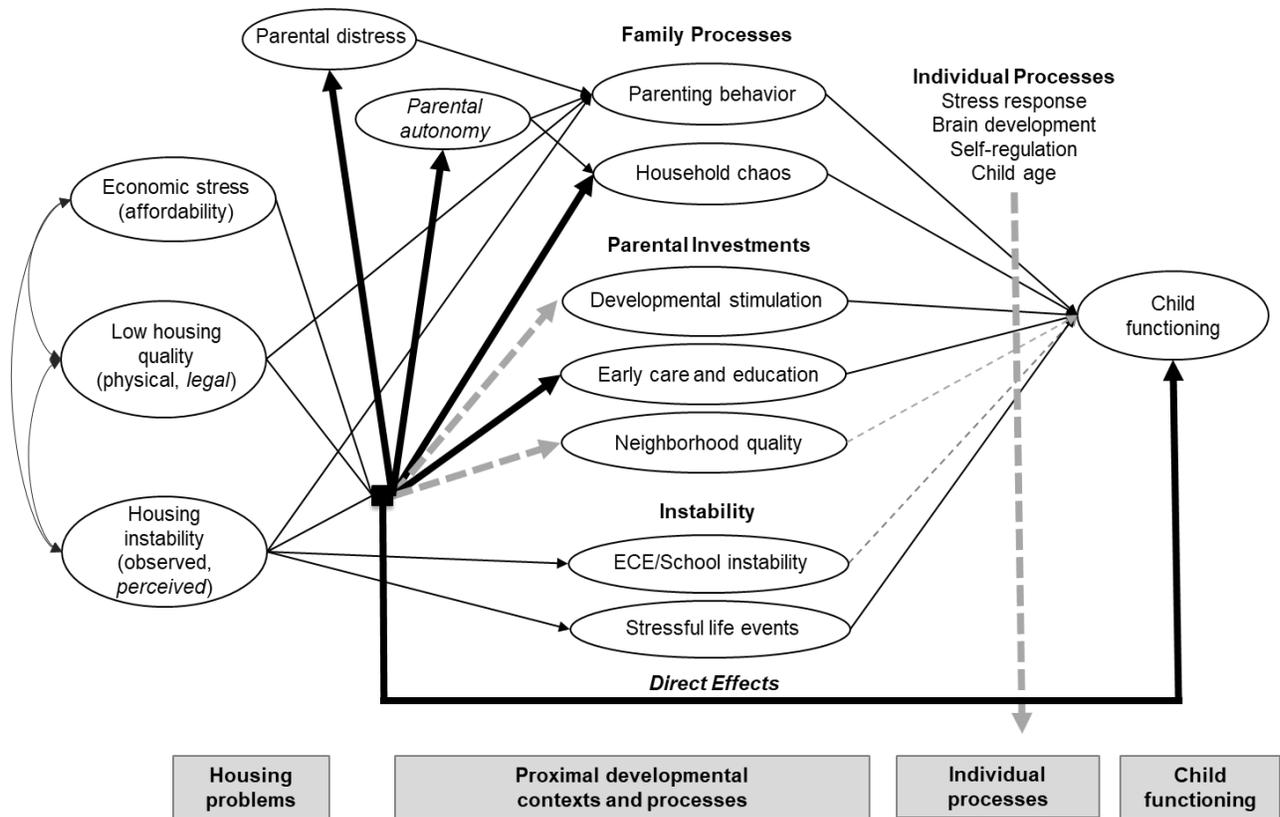
### **Reconsidering How Homelessness Affects Children—A Revised Conceptual Model**

This dissertation proposed an initial conceptual model to integrate insights from the ecological-developmental model of childhood homelessness with research on how housing affects child development to provide testable hypotheses about how housing interventions affect child functioning. Findings indicated both some support for key mechanisms proposed in the initial model and the need for augmenting the model to better account for housing challenges and problems specific to homelessness.

Findings confirmed the salience of three traditional dimensions of housing for children's development—quality, stability, and affordability—but also pointed out embedded assumptions in each dimension that need to be refined in the context of homelessness. Figure 1 below shows a

**Figure 1**

*Revised Conceptual Model for Processes Linking Housing Problems to Child Functioning*



*Note.* Bold black lines represent paths that include housing affordability, quality, and stability for parsimony. Grey dotted lines indicate parts of model evidenced in broader housing literature but not in the dissertation. Intersection with grey dotted line indicates moderating individual factors. Italicized text indicates additional elements added to revised model. ECE = early care and education.

revised conceptual model that includes: 1) additional dimensions of housing quality and instability, 2) an explicit role for parental autonomy as a mediating factor between housing and family processes, 3) and more explicit recognition of ways housing can directly affect child

functioning (moderated by individual processes)—particularly through instability. Overall, three general hypotheses from the conceptual model linking the housing problems of homelessness to children’s functioning were supported by findings from this dissertation. First, path analyses demonstrated multiple aspects of housing influence the functioning of children who experience homelessness. Second, differences in housing experiences among families who experience homelessness help explain differences in child outcomes and intervention effects. Third, the magnitude of intervention effects and influence of specific mediating pathways varied by age. The remainder of this section revisits each specific aspect of the revised model in light of these overall findings.

## **Housing Dimensions**

### ***Housing Affordability***

Housing affordability has been viewed in the developmental literature on investments primarily as a matter of *relative* affordability – the proportion of income spent on housing relative to other household needs and investments in children. However, families in the qualitative study were primarily focused on *absolute* affordability – being able to afford any kind of conventional housing – informed by perceptions that children would fare better in a place of their own. Long-term housing assistance solves issues with absolute affordability by guaranteeing that a family stays housed in a physically adequate home regardless of income. In paying 30 percent of income toward rent, vouchers also address relative affordability. Economic stress from difficulty affording essentials—rent, food, transportation, and health care—weighed

heavily on parents in the in-depth interviews. Long-term housing subsidies were the only intervention that effectively reduced economic stress, which in turn was associated with significantly lower parental distress. In the qualitative results, the sense of relief and hope from being able to focus on things other than maintaining a roof over their head for the next month was palpable among families who received long-term housing subsidies.

Housing is typically the most expensive and least flexible expense for families struggling to make ends meet, so housing subsidies also free up substantial economic resources. From one perspective, the limited evidence in this dissertation for the effects of long-term rental assistance being mediated through the hypothesized parental investment processes is somewhat surprising. However, incomes remained quite low, so families may still have had very limited cash resources for investing in children despite only spending 30 percent of income on housing. For example, a family at the median income of \$12,000 at the three-year follow-up (Gubits et al., 2018) receiving a housing voucher would only have approximately \$8,400 remaining for other expenditures (the exact amount depends on a complicated adjusted income formula). The market-rate value of the quality of the median family's housing likely exceeds the implied median of \$300 per month (\$3,600 annually) spent on rent though. This may be particularly true in higher-cost housing markets, where the lowest cost market rate units may fall far above that threshold. That is, long-term rental subsidies are quite effective at preserving the absolute affordability of housing even at extremely low incomes, but families may still experience substantial poverty and resource limitations compared to typical unassisted families spending the same proportion of their income on housing (i.e., similar relative affordability).

### ***Housing Quality***

Physical housing quality mattered for children's development and health, consistent with the broader literature on housing and health. In the qualitative interviews, multiple families in dwellings with substantial physical defects (e.g., holes, broken doors) or problems (e.g., severe pest infestations) reported substantial personal and child stress and concerns over children's health. The present study also found evidence that physical housing quality influences family processes. Improved physical housing quality partially mediated the effect of long-term rental subsidies for functioning among children age 13 to 17 via reduced parental distress and improved family routines. Qualitative interviews pointed toward reduced crowding and improved privacy from adults and children having their own rooms (or at least separate rooms from parents, if shared with siblings), as important aspects of housing quality. Parents viewed these improvements in housing quality as contributing toward improved family processes and reduced family conflict and stress. Parents particularly valued having greater flexibility and space when dealing with disciplinary issues (e.g., having a separate space for a time out with young children or for an adolescent child to cool off after an argument).

Homelessness exposes legal dimensions of housing quality that have received less consideration relative to physical quality but are deeply tied to parental autonomy and may be an important influence on family processes. Most conventional housing arrangements provide parents with a high degree of autonomy in setting rules and routines for their household, but many homeless living situations require sacrificing at least some of the basic rights over use of space typically afforded to renters or owners. That is, families who are struggling to afford conventional housing are faced with the prospect of trading off autonomy for affordability. Qualitative findings indicated many parents in shelters perceived emergency shelter rules and

surveillance as disrupting their parenting and contributing to child behavioral difficulties. Few conventional living situations dictate key aspects of daily family routines such as the times of day a family can eat, sleep, enter, or exit their dwelling. Yet in shelters, parents must comply with these policies or face swift eviction. Parents directly connected the associated loss of autonomy in their parenting to elevated child behavior problems and, conversely, the restoration of control when in their own housing to improved child behavior. Families in shared living situations also reported interferences in their parenting, though generally to a lesser degree, but reported fewer constraints on children's daily routines relative to shelters.

Findings on the relationship between housing and parental autonomy—particularly in emergency shelters—imply a need to re-examine the influence of “homelessness” on child functioning with respect to the specific effects of living in an emergency shelter. Because much of the research evidence on childhood homelessness comes from studies of families living in emergency shelters, it has confounded challenges of a particular institutionalized congregate housing environment with challenges of deep poverty and acute housing crises. Expanding the scope of research on childhood homelessness to alternative emergency options (e.g., motel vouchers or eviction prevention funding) and other living situations that fall below the level of autonomy provided by having one's own housing (e.g., doubling up) would help disentangle the effects of specific living situations from factors associated with homelessness. For example, some localities have used hotel or motel vouchers when shelters are full or in lieu of family shelters; other families live in extended stay motels. To what extent would families offered motel vouchers or living week to week (without assistance) in motels report similar levels of behavioral disruption as families in emergency shelters? Exploration of these questions could help identify potential variation in child and family functioning across differing methods of delivering

emergency assistance and ways to reduce disruptions in family and child functioning during a particularly stressful time in families' lives.

### ***Housing Instability***

Housing instability has primarily been conceptualized in developmental research as consisting of individual, discrete moves, assessed retrospectively. The present study also identified subjective and prospective aspects of housing instability as potentially important dimensions—particularly for family processes and family stress. The qualitative study evidenced how living in unstable housing arrangements, such as shelters and doubling up, affected parents' *prospective* assessments of their family's stability. Further, other research from the Family Options Study indicated pessimism from families offered shorter term assistance about whether they could remain stably housed once their assistance expired (Fisher et al., 2014). One implication is that families with similar numbers of recent moves may have substantially differing prospective assessments about their stability that influence present behavior through stress and family processes. For example, some families that had moved multiple times while trying to lease up with a voucher indicated their children were unhappy in these interim living arrangements but were faring better now that they had a home and expected to stay there. In contrast, consider a family offered short-term rental assistance who moved in right away and had fewer moves overall but was more pessimistic about their family's prospective stability. In cases where stability is uncertain, parents may avoid communicating a sense of permanency about their living arrangements to their children to reduce emotional disruptions from a move. In contrast, changes in expected stability were often reported as supporting change in children's behavior and functioning. Changes in expectations about housing stability were also linked toward

expectations about stability in other important settings—schools in particular. Changes in perceptions of a threat from a potential future stressor also may produce relatively rapid changes in stress or distress—such as the parents who expressed their own relief after moving into housing with long-term rental assistance and also observed decreases in their children’s stress. As a result, the quantitative studies took a step toward a more holistic assessment of instability by operationalizing housing instability as a construct indicated by both recent moves and unstable living arrangements (homelessness and doubling up) that may subjectively influence families’ prospective assessment of their stability. This latent housing instability variable was strongly associated with parental distress and partially mediated the favorable effects of long-term rental subsidies on adolescent functioning through parental distress and family routines.

The qualitative study also raised questions about the need to identify instability as a direct influence on family functioning and children, apart from its influence on changes in other contexts. First, families who were moving frequently often focused more on routines and rituals as a way of creating a sense of stability, whereas families who obtained their own housing emphasized stability of place. Second, extreme instability can become its own developmental context. Children are not exposed to any one environment long enough for it to exert a strong influence on development—change is the norm. Adaptive responses to frequent moves may begin to supplant specific features of children’s living space as their developmental context when families enter a nomadic state. More so than the immediate physical housing environment, the commonalities and routines shared across different forms of unstable housing arrangements may begin to operate in the aggregate as a developmental context. Instability in place may put stronger pressures on family routines and rituals to serve as a source of psychological stability in the midst of constant environmental change and instability in place.

## **Family Processes**

Across age groups, results indicated housing factors were strongly connected to family processes. For adolescents, the strongest mediating paths for intervention effects were based on Conger and Elder's (1994) family stress model. Both reduced economic stress and improvements in housing – greater stability and better housing quality – were tied to lower parental distress and stronger family routines, which in turn were associated with better child functioning. For younger children, housing factors were associated with family processes, but the associations between these processes and functioning were weaker, with correspondingly weaker evidence of these paths mediating intervention effects. This dissertation provides further evidence that housing-related stressors may affect children through similar family stress processes as those triggered by economic stress. Housing is a basic need and a core developmental context for children. The pressure parents felt to provide stable, adequate housing for their children was a clear source of stress and strain in the qualitative interviews. Conversely, so was the relief expressed by parents who were able to secure their own housing through long-term rental subsidies. Greater housing instability was also associated with greater exposure to household chaos and stressful life events connected to family instability, though these factors were not as strongly associated with children's subsequent functioning.

Greater consideration needs to be given to environmental influences of housing environments for interpreting the relationship between parenting and child functioning in the context of housing instability. As rules governing housing environments become more restrictive, compromising parental autonomy, parenting behavior increasingly becomes a

function of the environment rather than a quality of the parent. The housing environment then may exert an independent influence on family processes, separate from family stress. Qualitative interviews suggested some of the recovery in child functioning may come simply from restoration of parental autonomy and normal family processes after a family moves out of a shelter.

The absence of findings on involved-vigilant parenting as a mediator in the dissertation study of children age 8 to 17 should also be considered in light of how homelessness can compromise parental autonomy. For example, shelter stays may increase both parental distress and parental monitoring, as shelter living is stressful for parents but also requires their children to remain with them at all times and may impose curfew requirements that restrict children's ability to be outside the home. This dynamic would weaken an otherwise hypothesized negative relationship between parental distress and parental vigilance and monitoring, whereby extremely stressed parents may not be monitoring their child's behavior as closely. Children who living in their own housing may report somewhat lower levels of monitoring or vigilance that reflect a normal and healthy transition from a hyper-vigilant mode of parenting imposed by "parenting in public" in shelters and other people's homes (see Freidman, 2000).

### **Parental Investments**

The papers in this dissertation found mixed evidence for parental investment being a mediating pathway linking housing and child functioning among families experiencing homelessness. Obtaining stable, adequate housing appears to be a substantial investment in children's well-being, but none of the statistically significant mediating pathways identified were

through the three parental investment mediators examined. The average household income was still quite low three years after a shelter stay, but children whose families who were able to secure adequate, stable housing were more likely to be faring better. The qualitative interviews indicated how parents viewed stable, adequate housing as a platform for supporting their child's well-being. For young children in particular, economic stress from not being able to afford housing was strongly associated with functioning, though it did not appear to operate through the proposed intervening investment paths. This may reflect that differences in economic strain among families with young children are contributing to differences in outcomes through some other parental investment mechanisms apart from the ones previously considered in the literature on housing and child development. Center-based early childcare and education enrollment was strongly associated with child functioning, with housing instability being associated with lower enrollment rates. However, economic stress was not associated with childcare enrollment rates, suggesting that unstable housing was a more important barrier to access than affordability in this sample. This also may be due to a large proportion of center-based ECE enrollment being in Head Start centers (Brown et al., 2017), which prioritize families who experience homelessness and are free to eligible parents.

Though developmental stimulation in the home environment was associated with child functioning, none of the housing factors were associated with developmental stimulation, so it did not appear to mediate intervention effects. As previously discussed, even families receiving long-term housing subsidies that fix rent to 30 percent of income may not have substantial additional cash resources available after paying for essentials like food, child care, or healthcare. Another reason may be issues with measurement error in assessing the home environment during periods of housing instability. For example, it is unclear how a family who had returned to

shelter would interpret questions about books or toys in the home relative to a family receiving a long-term rental subsidy in their own place. In general, as families experience greater housing instability, children's immediate housing environments become more exogenous to the family – reflecting what is on hand at a friend or family member's home or a shelter – and any individual environment exerts less influence. Also, families may adapt to homelessness by spending less time in their immediate home environment and more time in developmentally enriching environments external to the home. Some families adapted to chaos in shelters by reducing their time spent in the shelter and spending more time in community spaces like libraries or parks. Measures of the home environment may need to be adapted in the context of homelessness to account for a broader conceptualization of “home.” This could include factors such as assessing whether the family is in their own housing, the environments in which children spend the most time with their family, and availability of resources in children's broader environment. These sources of measurement error may help explain why housing instability was not correlated with developmental stimulation in the home environment of young children.

The lack of findings on neighborhood quality as an investment mechanism in the present study are worth considering, as neighborhood quality is an important housing-based investment mechanism with strong evidence of links to child outcomes. First, neighborhood exposure effects may take longer to emerge than the time horizon of this study, as housing mobility experiments have found dose-response relationships between time spent in a lower poverty neighborhood and adult employment and criminal justice outcomes (Andersson et al., 2016; Chetty et al., 2016). Second, effects on neighborhood mobility in prior studies tend to be small. In studies where conventionally housed families are offered long-term rental subsidies, typically there are greater gains in housing quality relative to neighborhood quality (Ellen, 2018). Qualitative evidence

suggests families offered vouchers often look relatively close to their current neighborhood for housing (Gubits et al., 2009). Families experiencing homelessness may have high search costs, and ensuring they are able to lease up before a voucher expires is often their highest priority. Further, families who desire to move into lower poverty neighborhoods can face both programmatic and practical barriers to using housing choice vouchers to do so. The fair market rent (FMR) payment standard is currently pegged to the 40<sup>th</sup> percentile of *metropolitan area* rents in metro counties. In higher-cost, low poverty neighborhoods, even the cheapest rental housing may be priced well above the 40<sup>th</sup> percentile of rent in the city, making many high-quality neighborhoods inaccessible to families offered vouchers. A demonstration project with using smaller geographic areas (ZIP codes) for computing FMRs found families with children offered vouchers were more likely to live in higher-rent and higher opportunity ZIP codes than in comparison cities, with better school districts cited as a motivating factor (Dastrup et al., 2018). Recent research has identified source of income discrimination, where landlords refuse to accept renters on the basis of using vouchers to pay their rent, as another obstacle to families leasing up eligible units in low poverty neighborhoods, as relatively few localities have laws preventing this form of discrimination (Cunningham et al., 2018).

## **Instability**

This dissertation found some evidence to support the hypothesis that housing instability affects children through changes in their more proximal environments. Greater housing instability was associated with reduced enrollment in center-based early care and education and greater school instability. Attending center-based ECE was strongly correlated with young

children's functioning, and housing instability was associated with ECE enrollment. However, policies prioritizing families experiencing homelessness for Head Start access and providing additional support for accessing childcare subsidies through the Child Care Development Fund may be attenuating the relationship between housing instability and ECE access. These policies may help explain why indirect effect of this pathway was not stronger, despite its strong connection to functioning.

Surprisingly, though housing instability was associated with school instability, school instability was not strongly associated with child functioning. Prior research on school instability has rarely accounted for family processes, so it may be that a portion of the effects attributed to school instability may be reflective of disruptions in the home environment and its influence on children's behavior. Highly mobile populations also may have qualitatively different patterns of school moves in terms of intensity and chronicity. Conventionally housed families may rarely change schools more than once in a year, but some families in the qualitative study had changed schools three or four times in less than a year. In this context, associations between schools moves and functioning may be attenuated if there is substantial heterogeneity in patterns of school moves. For example, some children may experience intense, but brief periods of instability (e.g., changed schools two or three times in three months but then were stable for three years) and some more chronic, but less intense instability (e.g., changed schools each school year over a three-year period). Such differences may produce subjectively difference experiences of stability for children in ways that could affect school engagement and outcomes. For example, one family in the qualitative interviews had a history of residential and school instability and reported challenges with children's school engagement. After receiving a housing voucher, the children were able to remain at the same school and expected to remain there, with

grades and behavior improving. The survey data available in the present study only captured the total number of school changes since study entry, so it was not feasible to assess these kinds of patterns. However, the timing of when a period of school instability actually ends and the duration of stability then may provide important contextual information and could be explored using school administrative data matching in future research.

Homelessness is associated with a much higher degree of housing instability even relative to low-income conventionally housed families. Qualitative interviews suggested that persistent or intense periods of instability may operate as an influence on development in its own right. Persistent housing instability could contribute to children becoming disengaged or acting out in frustration over lack of control over their environment. However, the quantitative mediation analyses generally did not find evidence of a significant direct effect of housing instability on functioning net of its indirect influence on family processes and changes in children's contexts.

### **Individual Developmental Processes**

This dissertation was unable to examine how the contextual factors affected by housing may “get under the skin” to affect individual-level processes of development directly. However, the literature on developmental differences in stress exposure, self-regulation, and brain development suggest these are plausible individual-level developmental mechanisms for the age differences observed in the study. There was suggestive evidence for the influence of child stress on functioning in the qualitative interviews. Parents in the qualitative interviews were acutely aware of their stress their children were experiencing, and multiple parents who had received

long-term rental subsidies and were in their own housing observed their children's mood improving and perceived their stress levels as decreasing.

The key features of the lower-functioning group among children age 3 to 4 were high rates of developmental delays and behavioral problems—factors plausibly connected to early brain development and self-regulation. Toxic stress can impair brain morphology and connectivity to the prefrontal cortex, increasing risk for emotional regulation and behavioral disorders (Klumpp et al., 2014). Long-term rental assistance greatly reduced economic stress during children's infancy, which was a key direct mediator of displaying higher functioning when they were preschoolers. This scale included difficulty making ends meet on basic necessities, such as food, rent, and healthcare, so it is plausible that a portion of this effect could reflect improvements in children's basic biological needs being met. Reductions in economic stress could also be correlated with exposure to adverse childhood experiences, as the larger study also found evidence long-term subsidies reduced exposure to intimate partner violence (Gubits et al., 2018). These factors could reduce biological stress on children's bodies during a sensitive period of brain growth, helping limit stress from homelessness to tolerable rather than toxic levels. The strength of the relationship between enrollment in high-quality center-based ECE, particularly in Head Start programs, and functioning could also be reflecting additional resources for preventing the build-up of early toxic stress. High-quality center-based ECE can provide relationships with additional supportive adults, content targeting self-regulatory development, and potential identification of developmental delays and access to early interventions. Head Start centers also provide additional services and supports to parents and children.

Among school-aged children, child-reported stressful life events were an important mediating pathway for housing instability among children age 8 to 17 (data was not collected on life events for children age 3 to 7). Reduction in exposure to stressful life events through reduced housing instability accounted for about 5 percent of the favorable effect of long-term rental subsidies on children age 13 to 17. These children would have been age 10 to 14 at study entry, within the range where the majority of U.S. youth experience pubertal onset (Euling et al., 2008; Herman-Giddens et al., 1997). Release of pubertal hormones is associated with greater sensitivity to stress (Gunnar et al., 2009). Thus, the intervention-induced reduction in exposure to stressful life events and family stress (vis a vis reduced parental distress and more stable family routines) may have been particularly beneficial for averting the development of behavioral and mental health problems during a period where youth may be at greater risk for adverse stress responses.

Though the present study did not have the ability to directly assess whether these individual-level mechanisms contributed to the beneficial intervention effects observed, advances in reliable collection of cortisol levels in field research could permit examining changes in biomarkers of stress in response to housing interventions in future research. Large-scale collection of neuroimaging data for assessing brain development is likely prohibitive for field research, but future field experiment studies could attempt to collect such data for a random subsample of children and families. Problems with the psychometrics of the early self-regulation measure collected in the Family Options Study did not permit exploration of self-regulation as a mediator in the present study. Multiple brief self-regulation measures with strong psychometric properties are now available for use in field research (Lipsey et al., 2017), which could permit

testing of intervention effects on early self-regulation as a potential longer-term mediator of behavioral and academic outcomes.

### **Limitations and Implications for Future Research**

This dissertation capitalized on the strengths of the randomized design and breadth of mediators and outcomes assessed in the Family Options Study but has some limitations. First, the study collected survey data only for children with the family. As a result, intervention effects on child functioning are underestimated to the extent that children separated from their family due to housing instability are likely to be faring worse. Long-term subsidies reduced child separations by the 20-month follow-up, potentially dampening intervention effects, although the effect was no longer significant at the 37-month follow-up. Separations were less common among younger children in the study than among older children and adolescents (Gubits et al., 2013), which could partially explain the larger effects observed among younger children related to adolescents. Second, the larger study did not collect survey information or assessments on child functioning at study entry. This precluded a cross-lagged design for assessing mediation or broader assessment of how children were faring during their shelter stay. The qualitative study suggests children were faring worse during their shelter stays. Third, the lack of data on biological or individual-level processes of development is an important gap in understanding how the effects of housing are transmitted through children's more proximal context of development. Fourth, low take-up rates for the transitional housing intervention complicates interpretation of null intent-to-treat effects on parent and family mediators targeted by the services it offers, and standard methods of adjusting for this (treatment-on-treated estimates) are

not possible due to complex patterns of intervention cross-over. However, family rejection of transitional housing is an important finding in its own right – suggesting strong selection effects for families that do enter transitional housing. Though preferences were not explicitly tested, the higher take-up rates for the other interventions likely reflect parental preferences for approaches using private rental housing.

Future studies of homelessness could benefit from exploration of a broader set of unstable living situations, direct assessment of environmental interferences in parenting, and gathering children’s perspectives on their housing. Researchers could begin by drawing on natural variation in policies used to rehouse families to triangulate findings on family processes from studies of families in shelter with processes observed in other physical settings—such as various shared living arrangements or motels – or in varying degrees of housing security (e.g., foreclosure or eviction notices). Understanding what aspects of homelessness are common across settings and specific to shelters would result in a broader understanding of housing and family processes and what children and families in different housing situations need to support better child functioning. Differences in how children of varying ages and in varying contexts perceive their living situations would also provide important context for furthering our understanding of unstable housing situations and family processes.

Growing evidence for a U-shaped pattern of housing mattering most in infancy and adolescence has sparked growing interest in why these age groups may be more sensitive to housing. But better explanations for why homelessness seems to be less disruptive during children’s elementary school years are also needed. To what extent might these findings be explained in terms of differences in contextual resources in children’s environments versus differing stages of development and developmental tasks? From an intervention perspective, an

important future direction, if feasible, would be to expand our understanding of how housing assistance affects the transition to adulthood. Prior research finds large effects for a less disadvantaged group of children and families receiving long-term assistance (Andersson et al., 2016, Chetty et al., 2016). National administrative data sources on earnings and higher educational enrollment could be used to assess long-term outcomes. Evidence of greater economic self-sufficiency in adulthood would be an important point for policymakers to consider in weighing the costs of expanding the housing choice voucher program.

### **Policy Implications**

This study adds to a growing body of evidence that housing is both an important source of early disparities in developmental outcomes (Clark et al., 2019; Coley et al., 2013; Newman & Holupka, 2014; Sandel et al., 2018) and is a malleable target for early intervention, as young children appear to particularly benefit from housing interventions (Andersson et al., 2016; Chetty et al., 2016; Ellen, 2018). Variation in child outcomes among families who experienced homelessness was partially explained by differences in their housing experiences. This coincides with prior research finding gaps in functioning between children who experience homelessness and children in low-income families that are conventionally housed. Offering long-term rental subsidies helped an additional 1 in 4 children who experienced homelessness in infancy to be faring well in behavioral, early developmental, and physical health outcomes three years later. This provides strong evidence that young children's housing is a malleable intervention target. Study findings indicate that expanding funding for housing choice vouchers to cover all eligible

families would not only effectively end family homelessness but would also be a societal investment in promoting healthy early childhood development.

Though this study supports the notion that stable, adequate, affordable housing is foundational for child well-being, it also suggests limits on what can be accomplished through a focus on housing assistance alone and a need for complementary policy initiatives. First, some families at risk for homelessness would not be eligible for long-term rental subsidies due to public housing authority policies, with 4 percent of families screened in the Family Options Study not meeting eligibility requirements (Shinn et al., 2017). The main reason families were ineligible for long-term rental subsidies in the Family Options Study was prior criminal conviction, accounting for 60 percent of exclusions (Shinn et al., 2017). Exclusions based on criminal history are being re-examined in light of criminal justice reforms to address the racially disproportionate effects of mass incarceration (Western, 2006). Recent federal guidance indicates blanket policies of refusing to rent to persons with arrest records may violate the Fair Housing Act due to systemic disparities in the justice system, as may policies based on prior convictions (HUD, 2016). Similar considerations could apply to exclusions based on eviction or credit history, given growing evidence of racial disproportionalities in eviction rates (Hepburn et al., 2020). Second, disasters and psychosocial challenges may still trigger a need for short-term crisis housing, even if all eligible families had access to long-term housing subsidies. For example, experiences of intimate partner violence were pervasive, reported by over half of study families in shelters (Gubits et al., 2013), and may still generate housing instability. In the larger study, access to long-term rental assistance reduced, but did not eliminate, exposure to intimate partner violence (Gubits et al., 2018). Third, average family incomes remained quite low and did not differ by intervention group three years after a shelter stay. Long-term rental subsidies are highly

effective at mitigating deep poverty and income instability, but families still face substantial challenges related to poverty and income inequality. Stable housing lays an important foundation for well-being, but needs to be part of a comprehensive efforts to address the effects of inequality in multiple systems—such as transportation, child care, health care, schooling, and or varying and unpredictable job schedules.

Policymakers should consider whether in-home services could enhance the benefits of long-term rental assistance on promoting positive developmental outcomes for young children. Infants lack access to programs or institutions outside the home that are often used as platforms for intervention among older children—such as Head Start for preschoolers and schools among older children. Offering effective strengths-based in-home services to interested parents with young children, such as home visiting programs, could build on the residential stability offered by long-term housing assistance while preserving parental autonomy. States could potentially fund these programs through evidence-based in-home programs eligible for reimbursement under Family First Prevention Services Act provisions.

### **Summary**

This dissertation makes three key contributions to our understanding of homelessness, housing, and child development. First, it provides strong evidence that effective long-term rental assistance that solves the problem of housing affordability not only effectively ends family homelessness but also improves children’s outcomes. The fact that findings are evident in childhood for children in families who experience homelessness, compared to being evident primarily in adulthood in prior research on children in low-income families, affirms the importance of meeting children’s basic housing needs for promoting positive developmental outcomes. Conversely, time-limited measures that do not solve the underlying problem of being

able to afford adequate housing are unlikely to benefit children substantially. Structural challenges and inequity with the nature of low-wage work appear to limit the utility of shorter-term assistance efforts, whether combined with services or not. That is, when the rental assistance ends, the average family looks like other families in deep poverty – typically on long waiting lists for long-term rental assistance.

Second, understanding homelessness as a housing problem refines our understanding of how housing affects child development. In particular, this dissertation points toward multiple avenues by which homelessness can disrupt family processes—through parental and family stress, by reducing parental autonomy and disrupting family routines, and by increasing children’s exposure to environmental chaos in congregate and shared living settings. Most research on housing and child development has focused on variation among conventionally housed families. The present study reveals additional dimensions of housing that become evident when families become unable to afford their own housing and are forced to seek out non-conventional arrangements. In particular, the degree of parental autonomy conferred by housing environments appears to be an important influence shaping family processes and child outcomes. These findings point toward the need to move from a binary understanding of homelessness as a risk factor toward a more holistic consideration of housing environments and tradeoffs made by families that cannot afford conventional housing. Currently, policy and research focus primarily on whether families return to the homeless service system (Henry et al., 2020; Spellman et al., 2014; HUD, 2020), with less attention given to variation in non-homeless living situations. This study suggests that the specific ways families are rehoused matter for children and help explain variation in their outcomes after an experience of homelessness, even if the majority of families do not return to an emergency shelter again.

Lastly, findings affirm prior observational research on developmental differences in the effects of homelessness on children and indicate differential benefits of intervention by age. Young children appear to be more sensitive to variation in housing conditions and particularly benefit from intervention. The beneficial effects on adolescents add to evidence of beneficial effects from a prior study of assisted housing for families experiencing homelessness (see Shinn et al., 2015), but are contrary to prior intervention research on low-income families. Housing stability may be the salient mechanism in both cases. That is, for families in shelters, assistance produces substantial gains in stability even in the short run, whereas assistance offered to already housed families tends to introduce additional instability (moves) in the short run—and adolescents have less time to experience the benefits of greater stability observed over the medium run (roughly 3 to 5 years after voucher offer in other studies; Wood et al., 2008). Stability may be particularly important in developmental periods with heightened biological sensitivity to stress and environmental inputs. However, all children benefit from having access to stable, adequate, affordable housing. Ending family homelessness should be viewed as a critical element of reducing broader developmental disparities connected to economic inequality.

## References

- Andersson, F., Haltiwanger, J. C., Kutzbach, M. J., Palloni, G. E., Pollakowski, H. O., & Weinberg, D. H. (2016). *Childhood housing and adult earnings: A between-siblings analysis of housing vouchers and public housing*. NBER Working Paper 2271. National Bureau of Economic Research. <https://doi.org/10.3386/w22721>
- Brown, S. R., Shinn, M., Khadduri, J. (2017). *Well-being of young children after experiencing*

*homelessness*. OPRE Report No. 2017-06. U.S. Department of Health and Human Services, Office of Policy Research and Evaluation.

- Brumley, B., Fantuzzo, J., Perlman, S., & Zager, M. L. (2015). The unique relations between early homelessness and educational well-being: An empirical test of the continuum of risk hypothesis. *Children and Youth Services Review*, 48, 31–37.  
<https://doi.org/10.1016/j.chilyouth.2014.11.012>.
- Chetty, R., Hendren, N., & Katz, L. F. (2016). The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment. *American Economic Review*, 106(4), 855–902. <https://doi.org/10.1257/aer.20150572>
- 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>
- Coley, R. L., Leventhal, T., Lynch, A. D., & Kull, M. (2013). Relations between housing characteristics and the well-being of low-income children and adolescents. *Developmental Psychology*, 49, 1775–1789. <https://doi.org/10.1037/a0031033>
- Conger, R. D., & Elder, G. H., Jr. (1994). *Families in troubled times: Adapting to change in rural America. Social institutions and social change*. Aldine de Gruyter.
- Cunningham, M. K., Galvez, M., Aranda, C. L., Santos, R., Wissoker, D., Oneto, A., Pitingolo, R., & Crawford, J. (2018). *A pilot study of landlord acceptance of housing choice vouchers*. U.S. Department of Housing and Urban Development.
- Dastrup, S., Finkel, M., Burnett, K., & de Sousa, T. (2018). *Small Area Fair Market Rent demonstration evaluation: Final report*. U.S. Department of Housing and Urban Development.

- Ellen, I. G. (2018). What do we know about housing choice vouchers?. *Regional Science and Urban Economics*. <https://doi.org/10.1016/j.regsciurbeco.2018.07.003>
- Euling, S. Y., Herman-Giddens, M. E., Lee, P. A., Selevan, S. G., Juul, A., Sørensen, T. I., Dunkel, L., Himes, J. H., Teilmann, G., & Swan, S. H. (2008). Examination of US puberty-timing data from 1940 to 1994 for secular trends: panel findings. *Pediatrics*, *121*(Supplement 3), S172–S191. <https://doi.org/10.1542/peds.2007-1813D>
- Fisher, B. W., Mayberry, L. S., Shinn, M., & Khadduri, J. (2014). Leaving homelessness behind: Housing decisions among families exiting shelter. *Housing Policy Debate*, *24*, 364–386. <https://doi.org/10.1080/10511482.2013.852603>
- Friedman, D. H. (2000). *Parenting in public: Family shelter and public assistance*. Columbia University Press.
- Gubits, D., Khadduri, J., & Turnham, J. (2009). *Housing patterns of low income families with children: Further analysis of data from the study of the effects of housing vouchers on welfare families*. Report W09-7. Joint Center for Housing Studies.
- Gubits, D., Shinn, M., Wood, M., Brown, S. R., Dastrup, S. R., & Bell, S. H. (2018). What interventions work best for families who experience homelessness? Impact estimates from the family options study. *Journal of Policy Analysis and Management*, *37*(4), 835–866. <https://doi.org/10.1002/pam.22071>
- Gubits, D., Spellman, B., Dunton, L., Brown, S., & Wood, M. (2013). *Family Options Study: Interim report*. U.S. Department of Housing and Urban Development.
- Gunnar, M. R., Wewerka, S., Frenn, K., Long, J. D., & Griggs, C. (2009). Developmental changes in hypothalamus-pituitary-adrenal activity over the transition to adolescence: Normative changes and associations with puberty. *Development and Psychopathology*,

21(1), 69–85. <https://doi.org/10.1017%2FS0954579409000054>

- Haber, M. G., & Toro, P. A. (2004). Homelessness among families, children, and adolescents: An ecological-developmental perspective. *Clinical Child and Family Psychology Review*, 7, 123–164. <https://doi.org/10.1023/B:CCFP.0000045124.09503.f1>
- Henry, M., Mahathey, A., & Takashima, M. (2020). *The 2018 Annual Homelessness Assessment Report (AHAR) to Congress*. U.S. Department of Housing and Urban Development.
- Hepburn, P., Louis, R., & Desmond, M. (2020). Racial and gender disparities among evicted Americans. *Sociological Science*, 7, 649–662. <https://doi.org/10.15195/v7.a27>
- Herman-Giddens, M. E., Slora, E. J., Wasserman, R. C., Bourdony, C. J., Bhapkar, M. V., Koch, G. G., & Hasemeier, C. M. (1997). Secondary sexual characteristics and menses in young girls seen in office practice: A study from the Pediatric Research in Office Settings network. *Pediatrics*, 99(4), 505–512. <https://doi.org/10.1542/peds.99.4.505>
- Klumpp, H., Keutmann, M.K., Fitzgerald, D.A., Shankman, S.A., and Phan, K.L. (2014). Resting-state amygdala-prefrontal connectivity predicts symptom change after cognitive behavioral therapy in generalized social anxiety disorder. *Biology of Mood & Anxiety Disorders*, 4(1), 14. <https://doi.org/10.1186/s13587-014-0014-5>
- Lipsey, M. W., Nesbitt, K. T., Farran, D. C., Dong, N., Fuhs, M. W., & Wilson, S. J. (2017). Learning-related cognitive self-regulation measures for prekindergarten children: A comparative evaluation of the educational relevance of selected measures. *Journal of Educational Psychology*, 109(8), 1084–1102. <https://doi.org/10.1037/edu0000203>
- Newman, S. J., & Holupka, C. S. (2014). Housing affordability and investments in children. *Journal of Housing Economics*, 24, 89–100. <https://doi.org/10.1016/j.jhe.2013.11.006>
- Sandel, M., Sheward, R., de Cuba, S. E., Coleman, S., Heeren, T., Black, M. M., Casey, P. H.,

- Chilton, M., Cook, J., Cutts, D. B., Rose-Jacobs, R., & Frank, D. (2018). Timing and duration of pre- and postnatal homelessness and the health of young children. *Pediatrics*, *142*(4), e20174254. <https://doi.org/10.1542/peds.2017-4254>
- Shinn, M., Brown, S. R., Spellman, B. E., Wood, M., Gubits, D., & Khadduri, J. (2017). Mismatch between homeless families and the homelessness service system. *Cityscape*, *19*(3), 293–307.
- Shinn, M., Samuels, J., Fischer, S. N., Thompkins, A., & Fowler, P. J. (2015). Longitudinal impact of a Family Time Critical Intervention on children in high-risk families experiencing homelessness: A randomized trial. *American Journal of Community Psychology*, *56*(3), 205–216. <https://doi.org/10.1007/s10464-015-9742-y>
- Spellman, B., Henry, M., Finkel, M., Matthews, N., & McCall, T. (2014). *Brief#3. Rapid Re-housing for Homeless Families Demonstration: Subsequent returns to shelter for all families served*. U.S. Department of Housing and Urban Development, Office of Policy Development and Research. <https://www.huduser.gov/portal/sites/default/files/pdf/RRHD-Brief-3.pdf>
- U.S. Department of Housing and Urban Development. (2016). *Office of General Counsel guidance on application of Fair Housing Act standards to the use of criminal records by providers of housing and real estate-related transactions*. [https://www.hud.gov/sites/documents/HUD\\_OGCGUIDAPPFHASTANDCR.PDF](https://www.hud.gov/sites/documents/HUD_OGCGUIDAPPFHASTANDCR.PDF)
- U.S. Department of Housing and Urban Development. (2020). *National summary – CoC system performance measures, 2015-2019*. <https://files.hudexchange.info/resources/documents/National-Summary-of-Homeless-System-Performance-2015-2019.pdf>

Western, B. (2006). *Punishment and inequality in America*. Russell Sage Foundation.

Wood, M., Turnham, J., & Mills, G. (2008). Housing affordability and family well-being:

Results from the housing voucher evaluation. *Housing Policy Debate*, 19(2), 367–412.

<https://doi.org/10.1080/10511482.2008.9521639>