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Association of housing stress with child maltreatment: A systematic review

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Abstract

Child maltreatment is a significant public health issue in the United States. Understanding key risk factors for child maltreatment is critical to informing effective prevention. Poverty is an established risk factor for child maltreatment. However, recent research indicates that material hardship (i.e., difficulties meeting basic needs) may serve as a more direct measure of the way in which poverty affects daily life. One form of material hardship that is common among families is housing stress. Previous reviews have summarized the existing literature regarding the association of economic insecurity with child maltreatment, but no reviews have synthesized and critically evaluated the literature specific to the association of various types of housing stress with child maltreatment. We conducted a systematic search of multiple electronic databases to identify peer-reviewed studies conducted in the U.S. regarding the association of housing stress with child maltreatment. We identified 21 articles that used nine distinct measures of housing stress including homelessness or eviction, homeless or emergency shelter stays, foreclosure filing, housing instability, inadequate housing, physical housing risk, living doubled-up, housing unaffordability, and composite housing stress indicators. Overall, results from this body of literature indicate that housing stress is associated with an increased likelihood of caregiver or child self-reported maltreatment, child protective services (CPS) reports, investigated and substantiated CPS reports, out-of-home placements, and maltreatment death. Additional theory-driven research is needed to further our understanding of the contribution of specific types of housing stress to risk for specific types of maltreatment.

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Keywords

Housing; homelessness; child maltreatment; child abuse and neglect; child protective services

Child maltreatment is an important public health issue in the United States given its magnitude and potential impacts on life course health and development. In 2018, child protective services (CPS) agencies in the U.S. received more than 4 million reports for suspected maltreatment involving 7.8 million children (U.S. Department of Health and Human Services, 2020). Child maltreatment is associated with a range of adverse outcomes in childhood, adolescence, and adulthood including depression, anxiety (Mills et al., 2013; Scott et al., 2010), substance use disorders (Cicchetti & Handley, 2019), chronic pain (Huffhines & Jackson, 2019), low socioeconomic status, and lower educational attainment (Pinto Pereira et al., 2017). Given the prevalence and potential consequences of child maltreatment, a comprehensive understanding of risk factors that are amenable to programmatic and policy intervention is key to informing prevention efforts.

Poverty is a well-established risk factor for child maltreatment. In the child maltreatment research literature, indicators of poverty often include family income below the Federal Poverty Level (FPL), participation in public benefits programs, Medicaid as the primary insurance payer, low parental education, and parental unemployment. Across numerous studies, these indicators of poverty demonstrate associations with maltreatment. For example, data from the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4) revealed that children of low socioeconomic status, defined as annual household income <\$15,000, parental education less than high school, or household participation in a public benefits program, were three times as likely to have experienced abuse and seven times as likely to have experienced neglect compared to their peers (Sedlak et al., 2010). In a randomized study of families receiving Temporary Assistance for Needy Families (TANF) cash benefits and child support, children in families randomized to receive more child support had a lower likelihood of CPS investigated maltreatment compared to families randomized to receive less child support (Cancian et al., 2013). In a 2002 birth cohort in California, lower levels of maternal education and Medicaid as the primary payer for delivery were associated with an increased likelihood of CPS involvement between birth and age five years (Putnam-Hornstein & Needell, 2011). Analyses of administrative data from a Midwestern metropolitan area revealed that the length of time families spent in poverty-related programs, such as Medicaid and TANF, was associated with an increased number of CPS reports between birth and age 15 years (Kim & Drake, 2017).

Recently, researchers have used measures of material hardship, or difficulties meeting basic needs such as housing, food, utilities, and medical care, as indicators of poverty (Conrad-Hiebner & Byram, 2018; Marcal, 2018; Pelton, 2015; Yang, 2015). These measures represent a more tangible manifestation of poverty and a novel way to capture the direct impacts of poverty on daily life for families (Gershoff et al., 2007). The existing evidence indicates that these measures of material hardship are associated with an increased likelihood of various forms of maltreatment (Yang, 2015). In a sample of families receiving TANF benefits, a greater number of material hardships, including housing instability, food

insecurity, and utility shut-offs, was associated with an increased likelihood of a CPS investigation (Yang, 2015). Additional studies have found food insecurity to be associated with an increased use of parent-to-child physical and emotional aggression (Marcal, 2018) and difficulties paying bills to be associated with repeated involvement with CPS (Kahn & Schwalbe, 2010).

Housing stress is one specific type of material hardship. As there is no standard definition in research or practice, we define housing stress broadly to include measures of housing instability, insecurity, and insufficiency such as homelessness, eviction, overcrowding, poor physical housing conditions, frequent moves, and high housing cost relative to income. National data indicate that various types of housing stress are experienced among a high proportion of U.S. families. For example, the U.S. Department of Housing and Urban Development (HUD) (2017) defines “worst case [housing] needs” as very low income renter households that experience severe rent burden (i.e., >50% of household income on rent and utilities) or live in severely inadequate housing (e.g., leaks, holes in the floor, no hot water, broken heating, etc.). In 2015, families with children under age 18 years made up the largest proportion of “worst case needs” household types, comprising 36% of “worst case needs” households (HUD, 2017). Moreover, according to HUD’s Annual Homelessness Assessment Report, 21% of individuals experiencing homelessness in 2017 were children under age 18 years, and families with children made up one-third of the total homeless population (Henry et al., 2017). Recent research also indicates that families with children are more likely to experience eviction compared to those without children and that one in four children in families living below the FPL experience eviction prior to age 15 years (Desmond et al., 2013; Lundberg & Donnelly, 2019). As such, housing stress represents a key form of material hardship for U.S. families.

Aims

Given the evidence supporting poverty as a critical risk factor for child maltreatment, a previous review examined the association of economic insecurity with child maltreatment and included housing stress as one indicator of economic insecurity (Conrad-Hiebner & Byram, 2018). However, to the best of our knowledge, no systematic reviews have been published that focus specifically on the association of housing stress with child maltreatment. A comprehensive assessment of the unique association of specific types of housing stress with child maltreatment can further our understanding of the potential for housing policies, programs, and reforms to function as a child maltreatment prevention strategy. Thus, the aim of our systematic review was to synthesize and critically evaluate the existing body of research regarding on the association of housing stress with child maltreatment.

Methods

Search strategy

We conducted a comprehensive search of multiple electronic databases including PubMed, PsycInfo, Social Work Abstracts, Sociological Abstracts, Web of Science, Social Services Abstracts, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) to

identify articles published from each database start date through July 2019. In collaboration with a trained clinical health sciences librarian, we developed a search strategy for each database with keywords related to forms of housing stress, childhood, and maltreatment (Figure 1).

Eligibility criteria

We included peer-reviewed articles published in English that reported quantitative data regarding the association of housing stress (e.g., housing instability, housing insecurity, housing insufficiency, homelessness, eviction, overcrowding, poor physical housing conditions, frequent moves, high housing cost relative to income, foreclosure filing) with child maltreatment (e.g., CPS involvement, caregiver self-reported maltreatment) in a U.S. study population. We limited inclusion to studies conducted in the U.S. as child welfare systems and housing markets vary by country. We excluded articles that reported the results of an intervention and those that measured housing stress at the neighborhood-level as we were primarily interested in the association of housing stress with child maltreatment at the individual-level in the absence of programmatic or policy intervention.

Screening protocol

Our electronic database search returned 5,478 articles (Figure 2). A total of 3,044 unique articles remained after we removed duplicates. Using our pre-specified eligibility criteria, two independent reviewers screened the title and abstract of each article for potential eligibility (AEA, CEC). We identified 46 articles as potentially relevant based on title and abstract screen. Two independent reviewers (AEA, CEC) then further screened the full text of these 46 articles for our eligibility criteria. Of the 46 articles, we determined that 18 met our full eligibility criteria. We conducted a hand search of reference lists of included articles and identified three additional studies. Thus, we retained and abstracted information from 21 articles. At all stages, discrepancies were resolved by a third reviewer (MES) or discussion and consensus.

Data abstraction

We conducted an in-depth examination of the 21 articles meeting full eligibility criteria. We developed a data abstraction tool specific to the aims of the review, with abstraction domains including study aims and design, sample characteristics, measures of housing stress and child maltreatment, analytic methods, key results, and study strengths and limitations. A primary reviewer abstracted data from each article, and a secondary reviewer confirmed the abstracted information. We resolved discrepancies through discussion and consensus.

Results

Study characteristics

Study characteristics including study population, data sources, and measures of housing stress and child maltreatment are described in Table 1. The most common study population was families involved with CPS in varying capacities (see Table 1) (Courtney et al., 2004; Douglas, 2015; Douglas & Mohn, 2014; Farrell et al., 2017; Font & Warren, 2013; Jones, 2004; Zlotnick et al., 1998). Additional study populations included families residing in

homeless or emergency shelters (Park et al., 2004; Rodriguez & Shinn, 2016; Wood et al., 1990), families receiving public benefits or social services such as Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and TANF (Berger et al., 2015; Hirsch et al., 2015; Howard et al., 2009; Slack et al., 2017; Yang, 2015), a longitudinal sample of high-risk families (Marcal, 2018; Park et al., 2015; Warren & Font, 2015), a birth cohort (Culhane et al., 2003), and state and nationally-representative samples (Merrick et al., 2018; Radcliff et al., 2019). To examine the association of housing stress with child maltreatment, seven studies used administrative data sources including data from CPS, homeless or emergency shelters, vital statistics, and public benefits programs (Berger et al., 2015; Culhane et al., 2003; Douglas, 2015; Douglas & Mohn, 2014; Farrell et al., 2017; Jones, 2004; Park et al., 2004), seven studies used data collected from surveys or interviews (Howard et al., 2009; Marcal, 2018; Merrick et al., 2018; Park et al., 2015; Radcliff et al., 2019; Warren & Font, 2015; Wood et al., 1990), and seven studies used a combination of survey and administrative data (Courtney et al., 2004; Font & Warren, 2013; Hirsch et al., 2015; Rodriguez & Shinn, 2016; Slack et al., 2017; Yang, 2015; Zlotnick et al., 1998).

Across the 21 studies reviewed, measures of housing stress included homelessness or eviction (Courtney et al., 2004; Jones, 2004; Park et al., 2015; Zlotnick et al., 1998), homelessness defined specifically as homeless or emergency shelter stays (Culhane et al., 2003; Font & Warren, 2013; Howard et al., 2009; Park et al., 2004; Rodriguez & Shinn, 2016; Wood et al., 1990), foreclosure filings (Berger et al., 2015), housing instability (Merrick et al., 2018; Slack et al., 2017), physical housing risk (Hirsch et al., 2015), inadequate housing (Douglas, 2015; Douglas & Mohn, 2014), living doubled-up (Courtney et al., 2004; Font & Warren, 2013; Park et al., 2015), housing unaffordability (Courtney et al., 2004; Radcliff et al., 2019; Warren & Font, 2015), and composite housing stress indicators (Farrell et al., 2017; Marcal, 2018; Warren & Font, 2015; Yang, 2015). Ten of the reviewed studies measured housing stress based on self-report, with eight using caregiver self-report (Courtney et al., 2004; Font & Warren, 2013; Hirsch et al., 2015; Marcal, 2018; Park et al., 2015; Slack et al., 2017; Warren & Font, 2015; Yang, 2015), one using caregiver or child self-report (Merrick et al., 2018), and one using adult retrospective self-report (Radcliff et al., 2019). Eleven studies measured housing stress based on administrative data, with one using court data (Berger et al., 2015), five using homeless or emergency shelter data (Culhane et al., 2003; Howard et al., 2009; Park et al., 2004; Rodriguez & Shinn, 2016; Wood et al., 1990), and five using CPS data (Douglas, 2015; Douglas & Mohn, 2014; Farrell et al., 2017; Jones, 2004; Zlotnick et al., 1998).

Measures of child maltreatment included parent self-report of CPS involvement (Courtney et al., 2004; Howard et al., 2009) or maltreatment on the Parent-Child Conflict Tactics Scale (Marcal, 2018; Park et al., 2015; Warren & Font, 2015), CPS reports (Culhane et al., 2003; Rodriguez & Shinn, 2016), investigated CPS reports (Berger et al., 2015; Hirsch et al., 2015; Slack et al., 2017; Wood et al., 1990; Yang, 2015), substantiated CPS reports (Berger et al., 2015; Farrell et al., 2017; Font & Warren, 2013; Jones, 2004), child out-of-home placements (Courtney et al., 2004; Jones, 2004; Park et al., 2004; Rodriguez & Shinn, 2016; Zlotnick et al., 1998), child maltreatment deaths (Douglas, 2015; Douglas & Mohn, 2014), and adolescent or adult retrospective self-report of maltreatment (Merrick et al., 2018; Radcliff

et al., 2019). Four studies examined specific types of abuse and neglect (Douglas, 2015; Radcliff et al., 2019; Warren & Font, 2015; Yang, 2015).

Key results

To present and synthesize results from the reviewed articles, we organized results according to the measure of housing stress examined (Table 2).

Homelessness or eviction.—Four studies examined the association of homelessness or eviction with child maltreatment (Courtney et al., 2004; Jones, 2004; Park et al., 2015; Zlotnick et al., 1998). Among families involved with CPS in Milwaukee County, Wisconsin, families with a child placed out-of-home were more likely to have been evicted or homeless in the past 12 months compared to families with a substantiated CPS report (Courtney et al., 2004). Similarly, among families with children placed out-of-home, families who experienced homelessness in the past 12 months were less likely to be reunified with their children compared to families who did not report recent homelessness (Courtney et al., 2004). Using a random sample of substantiated CPS cases from San Diego, California, additional research revealed that parental homelessness or eviction in the past year was associated with a reduced likelihood that the child remained in the home at case closure (Jones, 2004). In a longitudinal sample of children from high-risk families, homelessness experienced between child age 3 and 9 years was associated with an increased likelihood of maternal self-reported physical, but not emotional, abuse (Park et al., 2015). In contrast, in a random sample of children under age 4 years who were placed out-of-home in California, birth parent homelessness was not associated with out-of-home placement prior to age 1 year (Zlotnick et al., 1998).

Homelessness: shelter stays.—Six studies examined the association of homelessness with child maltreatment and explicitly defined homelessness as homeless or emergency shelter stays (Culhane et al., 2003; Font & Warren, 2013; Howard et al., 2009; Park et al., 2004; Rodriguez & Shinn, 2016; Wood et al., 1990). Four of these studies prospectively measured CPS involvement, including CPS reports, substantiated reports, and out-of-home placements, following homeless shelter entry (Culhane et al., 2003; Font & Warren, 2013; Park et al., 2004; Rodriguez & Shinn, 2016). Using linked administrative data, one study found that among mothers who delivered an infant in a Philadelphia hospital, mothers who requested emergency shelter had an increased likelihood of receipt of in-home services through CPS and child out-of-home placement in the 5 years post-birth compared to mothers who did not request shelter (Culhane et al., 2003). In contrast, among a nationally representative sample of families involved with CPS, past year emergency housing was not associated with substantiated CPS reports or, among families with a substantiated CPS report, CPS case closure within 18 months or receipt of services through CPS (Font & Warren, 2013). In two additional studies, CPS involvement generally increased among families after homeless shelter stays (Park et al., 2004; Rodriguez & Shinn, 2016). In one, an increasing number of homeless shelter stays and an increasing length of average shelter stay was associated with an increased likelihood of receipt of services through CPS and child out-of-home placement (Park et al., 2004). In the other, a greater number of shelter stays was associated with an increased likelihood of CPS reports, but not investigated or

substantiated reports or child out-of-home placement (Rodriguez & Shinn, 2016). Similarly, among homeless and housed poor families in Los Angeles, California, homeless families were more likely to have a CPS report compared to housed poor families (Wood et al., 1990). However, among families receiving social services in the District of Columbia, shelter stays were not associated with caregiver self-report of CPS involvement (Howard et al., 2009).

Foreclosure filing.—One study examined the association of filing for foreclosure with child maltreatment (Berger et al., 2015). Among Wisconsin residents enrolled in a public benefits program (e.g., TANF, Supplemental Nutrition Assistance Program (SNAP), Medicaid), households that filed for foreclosure had an increased likelihood of investigated and substantiated CPS reports in the quarter in which the filing occurred and the subsequent two quarters (i.e., in the 6 months after the filing) (Berger et al., 2015).

Housing instability.—Two studies examined the association of housing instability with child maltreatment, with housing instability measured in terms of the number of residential moves (Merrick et al., 2018; Slack et al., 2017). Among WIC-enrolled families in Wisconsin, housing instability, defined as more than one move in the past year, was associated with an increased likelihood of an investigated CPS report in the following 18 months (Slack et al., 2017). Similarly, in a nationally-representative sample of children, housing instability, defined as more than one move every 3.33 years of life, was associated with an increased likelihood of child or caregiver self-reported maltreatment in the previous year (Merrick et al., 2018).

Physical housing risk.—One study examined the association of physical housing risk, defined as the presence of at least one of seven factors (i.e., non-working toilets, water heater, or other plumbing, broken windows, exposed wires, and crowding) with child maltreatment among a sample of TANF families in Illinois (Hirsh et al., 2015). Results revealed that physical housing risk was not associated with CPS investigations in the year after the initial study survey (Hirsch et al., 2015).

Inadequate housing.—Two studies examined the association of inadequate housing with child maltreatment deaths using data on substantiated CPS reports from all state CPS agencies (Douglas, 2015; Douglas & Mohn, 2014). In one study, families of children with a substantiated CPS report that resulted in death were more likely to have inadequate housing compared to families of children with a substantiated CPS report that did not result in death (Douglas & Mohn, 2014). In the second study, inadequate housing was associated with an increased likelihood of overall maltreatment death, physical abuse death, and neglect death among children of all ages and overall maltreatment death among children under age 3 years (Douglas, 2015).

Doubled-up.—Three studies examined the association of living doubled-up (i.e., one or more adults living in the home beyond the head of household and a spouse or partner (HUD, 2014) with child maltreatment (Courtney et al., 2004; Font & Warren, 2013; Park et al., 2015). Among families involved with CPS in Milwaukee County, Wisconsin, a higher percentage of families with children placed out-of-home had moved in with family or friends

in the past 12 months compared to families with a substantiated CPS report who received voluntary in-home services (Courtney et al., 2004). In a nationally representative sample of families involved with CPS, living doubled-up was not associated with substantiated CPS reports, but, among families with a substantiated report, was associated with a decreased likelihood of CPS case closure within 18 months and an increased likelihood of receiving services through CPS (Font & Warren, 2013). In addition, in a longitudinal sample of children from high-risk families, doubling-up was not associated with maternal self-reported physical or emotional abuse (Park et al., 2015).

Unaffordable housing.—Three studies examined the association of unaffordable housing with child maltreatment (Courtney et al., 2004; Radcliff et al., 2019; Warren & Font, 2015). Among families involved with CPS in Milwaukee County, Wisconsin, the percentage of families who did not have enough money to pay rent or mortgage in the past 12 months was similar among families with a child placed out-of-home and families with a substantiated CPS report (Courtney et al., 2004). Similarly, housing unaffordability (i.e., rent or mortgage >50% of income) was not associated with maternal self-reported abuse or neglect in the past 12 months in a longitudinal sample of children from high-risk families (Warren & Font, 2015). In contrast, in a nationally representative sample of South Carolina adults, the percentage of adults who reported childhood physical, emotional, and sexual abuse was higher among those who reported that their family could not afford a place to live prior to age 18 years compared to those who did not report housing unaffordability in childhood (Radcliff et al., 2019).

Composite housing stress indicator.—Five studies created a composite housing stress indicator from several measures of housing stress (Farrell et al., 2017; Font & Warren, 2013; Marcal, 2018; Warren & Font, 2015; Yang, 2015). In one study of children from high-risk families, housing stress (i.e., maternal self-report of housing unaffordability, eviction, living doubled-up, or homelessness) when the child was age 5 was associated with a greater number of maternal self-reported maltreatment behaviors (e.g., hitting, threatening, cursing, improper supervision) when the child was age 9 years (Marcal, 2018). In another study of the same sample, housing stress (i.e., maternal self-report of eviction, multiple residential moves, or homelessness) was associated with an increased likelihood of maternal self-reported neglect, but not abuse, in the past 12 months (Warren & Font, 2015). Among families receiving TANF in Illinois, housing stress (i.e., maternal self-report of eviction, multiple residential moves, or homelessness) was associated with an increased likelihood of an investigated neglect report, but not an investigated physical abuse report (Yang, 2015). In a nationally representative sample of families involved with CPS, living doubled-up or experiencing homelessness in the past 12 months was not associated with substantiated CPS reports, but, among families with a substantiated CPS report, was associated with a decreased likelihood of CPS case closure within 18 months and an increased likelihood of receiving services through CPS (Font, 2013). Last, among families involved with CPS in Connecticut who were eligible for a housing demonstration project, families with a substantiated CPS report were more likely to have housing stress according to social worker assessment compared to families with an unsubstantiated CPS report (Farrell et al., 2017).

Covariates

Fifteen studies adjusted for covariates in analyses (Table 2). The most common covariates included in analyses were caregiver race/ethnicity (Berger et al., 2015; Courtney et al., 2004; Culhane et al., 2003; Font & Warren, 2013; Hirsch et al., 2015; Marcal, 2018; Park et al., 2015; Rodriguez & Shinn, 2016; Slack et al., 2017; Warren & Font, 2015; Yang, 2015), age (Berger et al., 2015; Culhane et al., 2003; Font & Warren, 2013; Marcal, 2018; Park et al., 2004; Park et al., 2015; Rodriguez & Shinn, 2016; Slack et al., 2017; Yang, 2015), and employment (Berger et al., 2015; Font & Warren, 2013; Hirsch et al., 2015; Marcal, 2018; Park et al., 2015; Rodriguez & Shinn, 2016; Warren & Font, 2015; Yang, 2015); household income (Berger et al., 2015; Courtney et al., 2004; Font & Warren, 2013; Marcal, 2018; Merrick et al., 2018; Park et al., 2015; Rodriguez & Shinn, 2016; Slack et al., 2017; Warren & Font, 2015; Yang, 2015), composition (Courtney et al., 2004; Douglas, 2015; Font & Warren, 2013; Marcal, 2018; Merrick et al., 2018; Slack et al., 2017; Warren & Font, 2015; Yang, 2015), and receipt of public benefits (Berger et al., 2015; Jones, 2004; Marcal, 2018; Park et al., 2015; Rodriguez & Shinn, 2016; Slack et al., 2017; Warren & Font, 2015; Yang, 2015); child age (Courtney et al., 2004; Douglas, 2015; Jones, 2004; Merrick et al., 2018; Park et al., 2004) and race/ethnicity (Douglas, 2015; Merrick et al., 2018; Park et al., 2004); and number of children in the household (Courtney et al., 2004; Hirsch et al., 2015; Marcal, 2018; Park et al., 2004; Park et al., 2015; Slack et al., 2017; Yang, 2015). In five articles, covariate selection was based on prior research (Courtney et al., 2004; Douglas, 2015; Slack et al., 2017; Warren & Font, 2015; Yang, 2015). The remaining articles did not specify methods for covariate selection.

Discussion

We conducted this systematic review with the goal of synthesizing the existing research literature regarding the association of housing stress with child maltreatment. We identified 21 studies that used nine distinct measures of housing stress including homelessness or eviction, homeless or emergency shelter stays, foreclosure filing, housing instability, inadequate housing, physical housing risk, living doubled-up, housing unaffordability, and composite housing stress indicators. Collectively, results from this body of literature suggest that housing stress is a form of material hardship that is common among families with children and that various types of housing stress are associated with an increased likelihood of child maltreatment (Table 2).

Though measures of housing stress and maltreatment varied across the reviewed studies, a few themes emerged (Table 3). The most common forms of housing stress measured were homelessness or eviction and homelessness defined specifically as homeless or emergency shelter stays. Two studies demonstrated an association of homelessness or eviction with an increased likelihood of child out-of-home placement (Courtney et al., 2004; Jones, 2004), one demonstrated an association of homelessness with maternal self-reported physical abuse (Park et al., 2015), and two demonstrated an association of homeless or emergency shelter stays with an increased likelihood of child out-of-home placement (Culhane et al., 2003; Park et al., 2004). In contrast, four studies did not find an association of homeless or emergency shelter stays with substantiated CPS reports (Font & Warren, 2013; Rodriguez

& Shinn, 2016), child out-of-home placement (Rodriguez & Shinn, 2016; Zlotnick et al., 1998), or caregiver self-report of CPS involvement (Howard et al., 2009). Differences in study design, sample, and operational definitions of homelessness and CPS involvement may explain the inconsistent findings across these studies.

Some types of housing stress consistently demonstrated associations with maltreatment. Two studies found an association of housing instability with an increased likelihood of investigated CPS reports (Slack et al., 2017) and child or caregiver self-reported maltreatment (Merrick et al., 2018). In addition, four studies found a composite housing stress indicator to be associated with an increased likelihood of maternal self-reported maltreatment (Marcal, 2018; Warren & Font, 2015) and investigated (Yang, 2015) and substantiated (Farrell et al., 2017) CPS reports. In contrast, other types of housing stress did not consistently demonstrate associations with maltreatment. For example, of the three studies that examined housing unaffordability, two did not find an association of housing unaffordability with child out-of-home placement or maternal self-reported maltreatment (Courtney et al., 2004; Warren & Font, 2015). In addition, living doubled up was not associated with substantiated CPS reports or maternal self-reported abuse in two of three studies (Font & Warren, 2013; Park et al., 2015).

Overall, results from the reviewed studies indicate an association of housing stress with child maltreatment. However, there are several limitations to the existing literature that are worth further consideration in terms of results and applications to policy and practice. These limitations are specific to measures of housing stress and child maltreatment, unmeasured confounding, and study populations.

Measures of housing stress

Across the reviewed studies, measures of housing stress lacked specificity. For example, three studies relied on CPS data to determine family housing stress but did not detail the criteria used to make this determination or note whether this information was systematically collected for all families (Douglas, 2015; Douglas & Mohn, 2014; Jones, 2004). Two additional studies measured housing stress as multiple residential moves, but did not have information regarding the reasons for these moves (e.g., moving to a safer home, moving due to difficulty affording rent or mortgage) which may affect associations with maltreatment risk (Merrick et al., 2018; Slack et al., 2017). While results from the four studies that only used a composite housing stress indicator are indicative of the overall association of housing stress with child maltreatment and capture the multi-dimensionality of housing stress, these studies do not further our understanding of maltreatment risk associated with specific types of housing stress (Farrell et al., 2017; Marcal, 2018; Warren & Font, 2015; Yang, 2015). Future research can be enhanced through the use and careful documentation of specific measures of housing stress and an exploration of which types of housing stress (i.e., physical housing risk, eviction, multiple moves, etc.) are most relevant to risk of maltreatment. Results from such research can help to provide clear directions for programmatic and policy intervention.

In nine of the reviewed studies, it was not possible to establish temporality between measures of housing stress and child maltreatment (Culhane et al., 2003; Farrell et al.,

2017; Howard et al., 2009; Merrick et al., 2018; Park et al., 2015; Radcliff et al., 2019; Warren & Font, 2015; Wood et al., 1990; Zlotnick et al., 1998). For example, one study asked children or their primary caregiver to report both the number of residential moves and child experiences of maltreatment in the past 12 months (Merrick et al., 2018). Similarly, one study asked caregivers to report on both housing stress and maltreatment behaviors in the past 12 months (Warren & Font, 2015). In another, housing stress was defined as birth parent history of homelessness, but it was not clear whether homelessness occurred when the birth parents had custody of the child or after the child was placed in out-of-home care (Zlotnick et al., 1998). Establishing temporality between measures of housing stress and child maltreatment is key to understanding whether housing stress precedes maltreatment and is an important risk factor to target in maltreatment prevention efforts.

Measures of child maltreatment

In 14 studies, child maltreatment was based on CPS data, including overall reports, investigated and substantiated reports, and out-of-home placements (Berger et al., 2015; Culhane et al., 2003; Douglas, 2015; Douglas & Mohn, 2014; Farrell et al., 2017; Font & Warren, 2013; Hirsch et al., 2015; Jones, 2004; Park et al., 2004; Rodriguez & Shinn, 2016; Slack et al., 2017; Wood et al., 1990; Yang, 2015; Zlotnick et al., 1998). In the remaining seven studies, child maltreatment was based on caregiver or child self-report (Courtney et al., 2004; Howard et al., 2009; Marcal, 2018; Merrick et al., 2018; Park et al., 2015; Radcliff et al., 2019; Warren & Font, 2015). Measures of child maltreatment based on CPS data and self-report each have specific limitations.

Official CPS data likely underestimate maltreatment as many children who experience maltreatment do not come to the attention of the child welfare system (Negriff et al., 2017; Shaffer et al., 2008). Notably, CPS data may underestimate maltreatment to a greater extent among families without housing stress compared to families with housing stress. One study in our review found that CPS reports increased dramatically in the 90 days immediately following shelter entry, but then declined (Rodriguez & Shinn, 2016), suggesting that families with housing stress are more closely monitored and therefore more likely to be reported to CPS than families without housing stress. In the case that CPS data underestimates maltreatment to a greater extent among families without compared to families with housing stress, results would be biased away from the null and overestimate the association of housing stress with maltreatment. Future research can use quantitative bias analyses to examine the extent to which such differential under-reporting may bias results (Lash et al., 2011).

In four studies, child maltreatment was based on caregiver report of maltreatment toward their child or knowledge of their child's experiences of maltreatment (Marcal, 2018; Merrick et al., 2018; Park et al., 2015; Warren & Font, 2015). Caregiver self-report may be subject to social desirability bias due to the stigma associated with maltreatment, such that caregivers under-report maltreatment (Bennett et al., 2006; Kobulsky et al., 2017). However, whether such under-reporting differs by specific family characteristics, such as housing stress, is unknown. Of note, three of the reviewed studies used data from the Fragile Families and Child Wellbeing Study, which asks parents to report on maltreatment risk using items from

the Parent-Child Conflict Tactics Scale (Marcal, 2018; Park et al., 2015; Warren & Font, 2015). The Fragile Families and Child Wellbeing Study intentionally excluded items from the Parent-Child Conflict Tactics Scale that might trigger mandated reporting to CPS and as such, measures risk for maltreatment (Warren & Font, 2015). Thus, while results from these studies indicate that caregivers with housing stress are at greater risk for maltreatment behaviors, they do not necessarily indicate that maltreatment has occurred. Future research relying on caregiver self-report of maltreatment should be carefully interpreted in the context of the specific scales and items employed.

In all but five studies (Douglas, 2015; Park et al., 2015; Radcliff et al., 2019; Warren & Font, 2015; Yang, 2015), overall measures of child maltreatment were used rather than separate measures for specific types of abuse and neglect. Results from these five studies suggest that there may be differential associations of housing stress with specific types of maltreatment. In two studies, housing unaffordability and a composite housing stress indicator were associated with an increased likelihood of maternal self-reported neglect and investigated neglect reports, but not maternal self-reported abuse or investigated physical abuse reports (Warren & Font, 2015; Yang, 2015). In another, homelessness was associated with an increased likelihood of maternal self-reported physical, but not emotional, abuse (Park et al., 2015). In future research, it will be important to further explore differential associations of specific types of housing stress with specific types of abuse and neglect. Such information will be important for informing more nuanced service provision.

Unmeasured confounding

Fifteen studies conducted multivariable analyses (Berger et al., 2015; Courtney et al., 2004; Culhane et al., 2003; Douglas, 2015; Font & Warren, 2013; Hirsch et al., 2015; Jones, 2004; Marcal, 2018; Merrick et al., 2018; Park et al., 2004; Park et al., 2015; Rodriguez & Shinn, 2016; Slack et al., 2017; Warren & Font, 2015; Yang, 2015). Across these studies, a variety of covariates were included in multivariable models to adjust for potential confounding (Table 2). Common causes of both housing stress and child maltreatment (i.e., confounders) that were omitted from multivariable models in more than half of studies were household income, caregiver mental health and substance use disorders, and other forms of material hardship. As each of these factors may increase the likelihood of both housing stress and child maltreatment, failure to adjust for these variables may bias results away from the null, over-estimating the association of housing stress with child maltreatment. Moreover, only three studies used a theory or framework, such as the Family Stress Model, to shape their analytic plan and identify key variables to include in multivariable analyses (Douglas, 2015; Font & Warren, 2013; Warren & Font, 2015). In future studies, it will be important for researchers to develop theory-driven models and consider the extent to which unmeasured confounding may bias results.

Study populations

Most of the reviewed studies identified study populations from families that were receiving services including families involved with CPS (Courtney et al., 2004; Douglas, 2015; Douglas & Mohn, 2014; Farrell et al., 2017; Font & Warren, 2013; Jones, 2004; Zlotnick et al., 1998), families staying in homeless or emergency shelters (Park et al., 2004; Rodriguez

& Shinn, 2016; Wood et al., 1990), and families receiving public benefits or social services (Berger et al., 2015; Hirsch et al., 2015; Howard et al., 2009; Slack et al., 2017; Yang, 2015). The seven studies that drew study populations from families already involved with CPS further our understanding of the association of housing stress with outcomes within the child welfare system and the potential needs of families involved with CPS. However, results from these studies do not further our understanding of the overall association of housing stress with maltreatment prior to an event occurring that brings the family to the attention of the child welfare system. Future research using study populations other than families involved with CPS will be important for informing primary and secondary prevention efforts. Similarly, restricting study populations to families staying in homeless shelters or emergency shelters does not capture the full range of housing stress experienced by families, thereby limiting our understanding of the association of housing stress and child maltreatment.

Implications for practice and policy

Given that results from studies with diverse study populations and measures of housing stress and child maltreatment largely indicate that housing stress is associated with an increased likelihood of maltreatment, practice and policy solutions are warranted (Table 4).

As noted above, seven studies used study populations from families involved with CPS (Courtney et al., 2004; Douglas, 2015; Douglas & Mohn, 2014; Farrell et al., 2017; Font & Warren, 2013; Jones, 2004; Zlotnick et al., 1998) and found that housing stress was associated with more severe CPS outcomes including substantiated reports (Farrell et al., 2017; Font & Warren, 2013, child out-of-home placements (Courtney et al., 2004; Jones, 2004; Zlotnick et al., 1998), and maltreatment deaths (Douglas, 2015; Douglas & Mohn, 2014). Thus, addressing housing needs among families involved with CPS through screening, appropriate referrals, and partnerships with housing and homelessness service systems may help to improve CPS outcomes for these families. Prior research has found that providing housing assistance to CPS involved families results in a decreased likelihood of future CPS involvement and a greater likelihood of reunification for families with children in out-of-home placements (Choi & Ryan, 2007; Ryan & Schuerman, 2004). Currently, some state and local agencies are implementing novel approaches to addressing the housing needs of CPS-involved families, such as partnering with housing authorities and local landlords to connect families with Housing Choice Vouchers to apartments that will accept these vouchers (Children's Bureau, 2018) and co-locating child welfare and housing agencies to integrate services (Burt et al., 2016). Continued implementation and evaluation of innovative approaches to addressing the housing needs of CPS-involved families through multi-system partnerships provides a promising avenue for improving outcomes among CPS-involved families.

In addition to expanding housing-related services and partnerships within the child welfare system, such expansions among other public benefit and social service programs may help to address housing needs prior to CPS involvement. Four of the reviewed studies examined the association of housing stress with child maltreatment among families receiving public benefits such as TANF or WIC (Berger et al., 2015; Hirsch et al., 2015; Slack

et al., 2017; Yang, 2015), with three finding that housing stress was associated with an increased likelihood of investigated CPS reports (Berger et al., 2015; Slack et al., 2017; Yang, 2015). This suggests that additional multi-system partnerships aimed at addressing housing stress alongside other services that low-income families already access may be a promising strategy for child maltreatment prevention efforts.

In forming programmatic and policy responses, federal, state, and local policymakers should consider the many ways in which families experience housing-related problems including housing affordability, safety, quality, insecurity, and loss of shelter (HUD, 2018). HUD (2018) is in the process of developing and testing a comprehensive housing stress index. This index is intended to be used across a variety of state and national surveys with the goal of improving consistency in measures of housing stress and furthering our understanding of the prevalence of specific types of housing stress in the U.S. Continued efforts to support the collection of high-quality, consistent data will be essential to informing programmatic and policy initiatives aimed at alleviating multiple types of housing stress and the associated consequences for children and families.

Limitations

Our review was limited to peer-reviewed studies and thus excludes studies published in non-peer-reviewed sources. We also limited inclusion to studies conducted in the U.S. given differences across countries in child welfare and housing systems. However, it is possible that literature from countries other than the U.S. could inform our understanding of the association of housing stress with maltreatment. In addition, though we conducted a systematic search of the peer-reviewed literature, it is possible that relevant studies were not captured by our search or missed in our review of the search results and that we did not correctly abstract study details.

Conclusion

Housing stress is a form of material hardship that is common among families in the U.S. Our review of the literature suggests that housing stress, including homelessness or eviction, homeless or emergency shelter stays, foreclosure filing, housing instability, inadequate housing, physical housing risk, living doubled-up, and housing unaffordability, is associated with an increased likelihood of child maltreatment. Additional theory-driven research is needed to further our understanding the specific risks associated with various types of housing stress. In the meantime, multi-system partnerships between CPS, housing and homeless service systems, and other social service systems may help alleviate housing stress and prevent maltreatment.

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(Housing AND (stress OR instability OR insecurity)) OR homeless OR homelessness OR eviction
OR evicted OR "Homeless persons"
AND
(Pediatric OR pediatrics OR paediatric OR paediatrics OR juvenile OR juveniles OR infant OR infants OR infantile
OR child OR children OR childhood OR preadolescent OR preadolescents OR prepubescent OR adolescent OR
adolescents OR adolescence OR youth OR youths OR teenager OR teenagers OR teenaged OR teen OR teens)
NOT (Adult NOT (Adolescent OR Child OR Infant))
AND
Maltreatment OR abuse OR neglect OR "child protective services" OR "child welfare" OR "Child welfare agency"
OR "child welfare agencies" OR "child abuse" OR mistreatment

Figure 1. Search terms

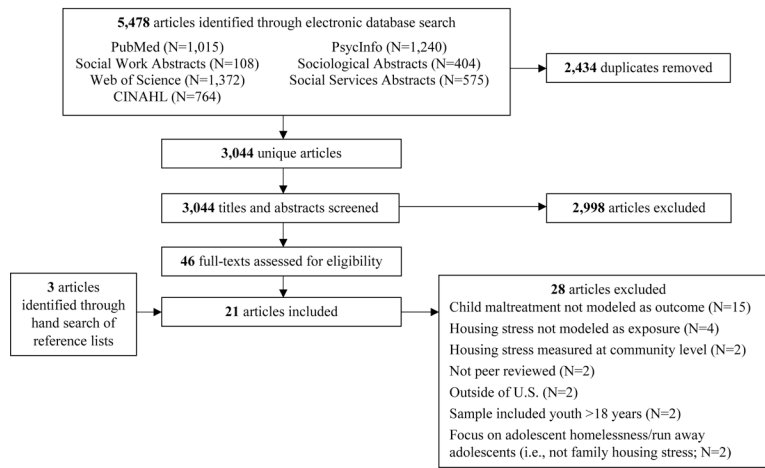


Figure 2. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) diagram

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Study characteristics

Table 1.

Citation	Data source and study population	Exposure	Outcome
Berger et al. (2015)	<ul style="list-style-type: none"> Linked administrative data from the Wisconsin Consolidated Court Automation Programs on foreclosure filings, CPS reports, and participation in public benefits programs in Wisconsin All households with a foreclosure filing from 2008–2011 and a random sample of adults in the Multi-Sample Person File with no foreclosure filing N=60,461 households 	<ul style="list-style-type: none"> <i>Foreclosure filing</i>: foreclosure filed from 2008–2011 based on administrative court data 	<ul style="list-style-type: none"> Investigated and substantiated CPS reports from 2008–2011 based on CPS data
Courtney et al. (2004)	<ul style="list-style-type: none"> Sample of Milwaukee County resident caregivers including those with a substantiated CPS report who were receiving voluntary safety services and those with a child in out-of-home care from 2000–2002 Data from case manager surveys and parent interviews N=289 caregivers 	<ul style="list-style-type: none"> <i>Homelessness</i>: caregiver report of experiencing homelessness for at least one night in past 12 months 	<ul style="list-style-type: none"> Substantiated CPS reports or out-of-home placements based on CPS data Among those with out-of-home placements, family reunification at case closure based on case manager or caregiver report
Culhane et al. (2003)	<ul style="list-style-type: none"> Linked administrative data (Office of Emergency Services and Shelter, CPS, and Vital Statistics) for a cohort of Philadelphia resident women who delivered live infants from 1993–1994 N=23,227 women 	<ul style="list-style-type: none"> <i>Homelessness (shelter stays)</i>: mother made a request for public shelter during the 9 years prior to May 1999 based on administrative data 	<ul style="list-style-type: none"> Receipt of in-home services through CPS and out-of-home placement in the 5-years post-birth based on CPS data
Douglas & Mohn (2014)	<ul style="list-style-type: none"> Sample of children from the National Child Abuse and Neglect Data Set (NCANDS) who had a substantiated CPS report or were a victim of fatal maltreatment in 2010 N=202,465 children 	<ul style="list-style-type: none"> <i>Inadequate housing</i>: inadequate housing as indicated in NCANDS 	<ul style="list-style-type: none"> Child maltreatment death as documented in NCANDS
Douglas (2015)	<ul style="list-style-type: none"> Sample of children from the National Child Abuse and Neglect Data Set (NCANDS) who had a substantiated CPS report or were a victim of fatal maltreatment from 2008–2012 N=3,131,902 children 	<ul style="list-style-type: none"> <i>Inadequate housing</i>: inadequate housing as indicated in NCANDS 	<ul style="list-style-type: none"> Child maltreatment death as documented in NCANDS
Farrell et al. (2017)	<ul style="list-style-type: none"> Families referred to Connecticut CPS who were eligible for a housing and child welfare demonstration project based on housing need and parent and child concerns (e.g., behavioral health, substance misuse, intimate partner violence, and delays in child development) over 22-months (dates not reported) 	<ul style="list-style-type: none"> <i>Composite housing stress indicator</i>: social worker ratings of housing safety and adequacy on the Quick Risks and Assets for Family Triage tool 	<ul style="list-style-type: none"> Substantiated CPS reports based on CPS data

Citation	Data source and study population	Exposure	Outcome
Font & Warren (2013)	<ul style="list-style-type: none"> N=6,828 families National Surveys of Child and Adolescent Wellbeing II, a nationally representative sample of children known to CPS in 2008–2009 who completed an 18-month follow-up Children excluded if they did not live with their biological family, the caregiver responding was not the permanent caregiver, the parent reported receiving subsidized housing, or final case substantiation status was not known N=2,987 children 	<ul style="list-style-type: none"> <i>Doubled-up</i>: caregiver report of at least two non-immediate family members residing in the household at the time of the interview <i>Homelessness (shelter stays)</i>: caregiver report of emergency housing in past 12 months <i>Composite housing stress indicator</i>: caregivers report of living doubled-up or use emergency housing 	<ul style="list-style-type: none"> Substantiated CPS reports, CPS reports closed within 18 months, and family receipt of services through CPS based on CPS data
Hirsch et al. (2015)	<ul style="list-style-type: none"> Illinois Families Study, a stratified random sample of Temporary Assistance for Needy Families (TANF) recipients from 9 counties in Illinois in 1998 Survey data linked to Illinois CPS data for 1981–1999 N=1,363 families 	<ul style="list-style-type: none"> <i>Physical housing risk</i>: caregiver report of an infestation of rodents or insects; a non-working heating system; non-working toilets, water heater, or plumbing; broken windows; non-working stove or refrigerator; exposed wires/electrical problems; or leaking roof, ceiling or walls 	<ul style="list-style-type: none"> Investigated CPS reports and substantiated CPS reports in the 12 months following the initial study survey based on CPS data
Howard et al. (2009)	<ul style="list-style-type: none"> Sample of low-income families receiving social services from seven non-profits in the District of Columbia from 2007–2008 Data from caregiver interviews N=566 families 	<ul style="list-style-type: none"> <i>Homeless (shelter stays)</i>: families eligible for a transitional housing program design for families leaving the shelter system (data collected at baseline prior to program initiation) 	<ul style="list-style-type: none"> Caregiver self-report of CPS involvement
Jones (2004)	<ul style="list-style-type: none"> Random sample of families with a substantiated CPS report who received in-home services in San Diego County, CA in 1995 N=443 families 	<ul style="list-style-type: none"> <i>Homelessness or eviction</i>: homelessness or eviction in the past year as indicated in CPS data 	<ul style="list-style-type: none"> Out-of-home placements based on CPS data
Marcal (2018)	<ul style="list-style-type: none"> Fragile Families and Child Wellbeing Study, a longitudinal sample of children born from 1998–2000, with oversampling of children born to unmarried parents Data restricted to mothers with primary custody of their children Data from interviews at child age 5 and 9 years Uncorrected sample: N=2,284 children; greedy matched sample: N=848 children 	<ul style="list-style-type: none"> <i>Composite housing stress indicator</i>: maternal report of difficulty affording rent, mortgage, or utilities; eviction for non-payment of rent; moving in with friends or family to avoid becoming homeless; or living in a homeless shelter or on the street at age 5 interview 	<ul style="list-style-type: none"> Maternal self-report of maltreatment on the Parent-Child Conflict Tactics Scale at age 9 interview
Merrick et al. (2018)	<ul style="list-style-type: none"> National Survey of Children's Exposure to Violence, a nationally representative sample of children age one month to 17 years in 2008, 2011, and 2014 	<ul style="list-style-type: none"> <i>Housing instability</i>: child (for children 10 years) or caregiver (for children <10 years) 	<ul style="list-style-type: none"> Past year maltreatment self-reported by children 10 years and by the child's primary

Citation	Data source and study population	Exposure	Outcome
Park et al. (2004)	<ul style="list-style-type: none"> N=12,935 children Department of Homeless Services and CPS data for children <16 years who entered the New York City public shelter system for the first time in 1996 N=7,784 children with no CPS involvement prior to shelter entry 	<ul style="list-style-type: none"> report of more than one move every 3.33 years of life <i>Homelessness (shelter stays)</i>: number of shelter admissions and average annual length of shelter stay based on Department of Homeless Services data 	<ul style="list-style-type: none"> caregiver for children <10 years using the Juvenile Victimization Questionnaire Receipt of preventive services through CPS or child placement in out-of-home care between first shelter entry in 1996 and 2001 based on CPS data
Park et al. (2015)	<ul style="list-style-type: none"> Fragile Families and Child Wellbeing Study, a longitudinal sample of children born from 1998–2000, with oversampling of children born to unmarried parents Restricted to households with income at or below the Federal Poverty Level Data from interviews at child age 3, 5, and 9 years N=2,332 children 	<ul style="list-style-type: none"> <i>Homelessness</i>: Maternal report of living in temporary housing, a shelter, or on the streets at the time of the interview or having stayed in a shelter, abandoned building, car, or other place not meant for housing in past 12 months <i>Doubled-up</i>: maternal report of living with relatives or friends or having moved in with others due to financial problems in past 12 months 	<ul style="list-style-type: none"> Maternal self-report of physical and emotional abuse in the past 12 months on the Parent-Child Conflict Tactics Scale
Radcliff et al. (2019)	<ul style="list-style-type: none"> 2016 South Carolina Behavioral Risk Factor Surveillance System, a representative sample of South Carolina adults >18 years N=7,490 adults 	<ul style="list-style-type: none"> <i>Housing unaffordability</i>: retrospective report of family not being able to afford a place to live prior to age 18 years 	<ul style="list-style-type: none"> Retrospective self-report of physical, sexual, and emotional abuse prior to age 18 years
Rodriguez & Shinn (2016)	<ul style="list-style-type: none"> Families with a child <15 years recruited from an emergency shelter in Alameda County, CA from 2010–2012 Data from family interviews, Alameda County CPS, and Alameda County's Homelessness Management Information System N=258 families 	<ul style="list-style-type: none"> <i>Homelessness (shelter stays)</i>: number of shelter stays and total number of days in the shelter from 2002–2014 based on data from the Homelessness Management Information System 	<ul style="list-style-type: none"> CPS reports, investigated reports, and substantiated reports from 1997–2014 and out-of-home placement from 1992–2014 based on CPS data
Slack et al. (2017)	<ul style="list-style-type: none"> Family Support Study, a survey of 2010–2011 Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) recipients in Wisconsin Survey data linked to administrative data including CPS, public benefits, child support, and earnings data N=1,065 WIC recipients 	<ul style="list-style-type: none"> <i>Housing instability</i>: caregiver report of more than one move in past year 	<ul style="list-style-type: none"> Investigated CPS reports in the 18 months following the initial study survey based on CPS data
Warren & Font (2015)	<ul style="list-style-type: none"> Fragile Families and Child Wellbeing Study, a longitudinal sample of children born from 1998–2000, with oversampling of children born to unmarried parents 	<ul style="list-style-type: none"> <i>Housing unaffordability</i>: maternal report of rent or mortgage >50% of income 	<ul style="list-style-type: none"> Maternal self-report of abuse or neglect in the past 12 months on

Citation	Data source and study population	Exposure	Outcome
Wood et al. (1990)	<ul style="list-style-type: none"> Data restricted to mothers with primary custody of their children Data from interviews at child age 3 and 5 years N=4,755 children 	<ul style="list-style-type: none"> <i>Composite housing stress indicator:</i> maternal report of recent eviction, one or more residential moves per year since the prior interview, or homelessness in past 12 months 	<p>the Parent-Child Conflict Tactics Scale</p> <ul style="list-style-type: none"> Investigated CPS reports (not noted if based on CPS data or maternal report)
Yang (2015)	<ul style="list-style-type: none"> Homeless families recruited from 10 homeless shelters and housed poor families (i.e., lived at current residents for 6 months and received welfare benefits continuously for 1 year) recruited from four welfare offices in Los Angeles, CA from 1987–1988 Structured interviews conducted with mothers N=382 families 	<ul style="list-style-type: none"> <i>Homelessness (shelter stays):</i> family residing in a homeless shelter at time of interview 	<ul style="list-style-type: none"> Investigated CPS reports in which the survey respondent was the alleged perpetrator between waves 1 and 2, waves 2 and 3, waves 3 and 4, and wave 4 and September 2003
Zlotnick et al. (1998)	<ul style="list-style-type: none"> Illinois Families Study, a longitudinal study of a random sample of Temporary Assistance for Needy Families recipients from 9 counties in Illinois in 1998 Four waves of survey data (wave 1 1999–2000, wave 2 2001, wave 3 2002, wave 4 2004) linked to 1999–2003 CPS data N=1,135 families 	<ul style="list-style-type: none"> <i>Composite housing stress indicator:</i> caregiver report of difficulty paying rent, doubling up, eviction, or homelessness in past 12 months at each wave 	<ul style="list-style-type: none"> Out-of-home placements prior to age one year, number of placements, and reason for placements based on CPS data

Note: CPS = child protective services

Table 2.

Key Study Results

Citation	Covariates	Key results
Berger et al. (2015)	<ul style="list-style-type: none"> Adult age, sex, race, income, unemployment; household receipt of welfare, food stamps, Medicaid, child support; year of foreclosure filing 	<p><i>Foreclosure filing</i></p> <ul style="list-style-type: none"> 51% of households filed for foreclosure (by design) Foreclosure filing was associated with an increased likelihood of investigated (HR=1.41, p<0.001) and substantiated CPS reports (HR=1.33, p<0.01; i.e., families that filed for foreclosure in the current quarter were at an increased risk of investigated and substantiated CPS reports in that quarter) Prior foreclosure filing was associated with an increased likelihood of investigated (e.g., HR=1.36, p<0.001 for prior quarter; HR=1.27, p<0.001 for 2 quarters before; HR=1.15, p<0.01 for 3-4 quarters before; HR=0.87, p>0.05 for 5 quarters before) and substantiated CPS reports (e.g., HR=1.41, p<0.01 for prior quarter; HR=1.31, p<0.05 for 2 quarters before; HR=1.20, p>0.05 for 3-4 quarters before; HR=0.22, p>0.05 for 5 quarters before; e.g., families that filed for foreclosure in the prior quarter were at an increased risk of investigated and substantiated CPS reports in the current quarter)
Courtney et al. (2004)	<ul style="list-style-type: none"> Caregiver age, sex, race/ethnicity, income, disability, alcohol/drug use, affective disorder, Parenting Stress Score, disposition, social support, years in neighborhood, and rating of neighborhood; secondary caregiver and number of children in household; prior out-of-home placement for child or sibling; child neglect, sexual abuse; parental physical and psychological aggression toward child; child age, sex, disability, social, behavior, motor, and social development 	<p><i>Homelessness or eviction</i></p> <ul style="list-style-type: none"> 19.4% of families were evicted in the past 12 months 26.0% of families with a child in out-of-home care were evicted in the past 12 months compared to 13.6% of those with a substantiated CPS report (p<0.01) 29.1% of families with a child in out-of-home care were homeless for at least one night in the past 12 months compared to 10.2% of those with a substantiated CPS report (p<0.01) Among families with a child in out-of-home care, families who were homeless in the past 12 months had lower likelihood of reunification compared to families who did not report homelessness (OR=0.537, p=0.047) <p><i>Doubled-up</i></p> <ul style="list-style-type: none"> 31.2% of families had moved in with family or friends in the past 12 months 41.9% of families with a child in out-of-home care had moved in with family or friends in the past 12 months compared to 21.6% of those with a substantiated CPS report (p<0.01) <p><i>Unaffordable housing</i></p> <ul style="list-style-type: none"> 42.9% of families did not have enough money to pay rent/mortgage in the past 12 months 45.7% of families with a child in out-of-home care did not have enough money to pay rent/mortgage in the past 12 months compared to 40.4% of those with a substantiated CPS report (p>0.01)
Culhane et al. (2003)	<ul style="list-style-type: none"> Maternal age, race, number of previous births, education 	<p><i>Homelessness (shelter stays)</i></p> <ul style="list-style-type: none"> 11.6% of mothers requested shelter

Citation	Covariates	Key results
Douglas & Mohn (2014)	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Mothers who requested shelter had an increased likelihood of receiving in-home services through CPS (OR=5.73, CI 5.02, 6.55) and child out-of-home placement (OR= 8.82, CI 7.32, 10.62) in the 5 years post-birth compared to mothers who were never homeless nor in the lowest income quintile
Douglas (2015)	<ul style="list-style-type: none"> Child age, sex, race/ethnicity, number of CPS reports; household structure; intimate partner violence in home; financial problems 	<p><i>Inadequate housing</i></p> <ul style="list-style-type: none"> 29.4% of families had inadequate housing Among children with substantiated CPS reports, children who experienced fatal maltreatment had a higher percent of families with inadequate housing than children did not die as a result of maltreatment (28.7% vs. 24.9%; p=0.009) <p><i>Inadequate housing</i></p> <ul style="list-style-type: none"> 40.0% of families had inadequate housing Among children <3 years with a substantiated CPS report, inadequate housing was associated with an increased likelihood of overall maltreatment death (OR=2.72, 95% CI 1.75, 4.18), but not neglect or physical abuse death Among children of all ages with a substantiated CPS report, inadequate housing was associated with an increased likelihood of overall maltreatment death (OR=2.72, 95% CI 1.75, 4.18), physical abuse death (OR=2.27, 95% CI 1.12, 4.62), and neglect death (OR=3.41, 95% CI 2.16, 3.35)
Farrell et al. (2017)	<ul style="list-style-type: none"> None 	<p><i>Composite housing stress indicator</i></p> <ul style="list-style-type: none"> 77.6% of families had housing stress due to inadequate housing, 86.9% due to unsafe housing, and 85.1% due to chronic housing safety or inadequacy issues Families with substantiated CPS reports were more likely to have housing stress compared to families with unsubstantiated CPS reports (p<0.01)
Font & Warren (2013)	<ul style="list-style-type: none"> Caregiver age, race, employment, mental health/substance misuse, domestic violence, poor parenting; household income; prior CPS involvement; family structure; CPS report allegations (abuse, neglect, other) 	<p><i>Homelessness (shelter stays)</i></p> <ul style="list-style-type: none"> 2.9% of families had used emergency housing in the past year Past year emergency housing was not associated with substantiated CPS reports (OR=1.11, p>0.10) Among families with a substantiated CPS report, past year emergency housing was not associated with CPS case closure within 18 months (OR=1.11, p>0.10) or receipt of services through CPS (OR=1.87, p<0.1) <p><i>Doubled-up</i></p> <ul style="list-style-type: none"> 8.4% of families had lived doubled-up Living doubled-up was not associated with substantiated CPS reports (OR=1.07, p>0.10) Among families with a substantiated CPS report, past year emergency housing was associated with a decreased likelihood of CPS case closure within 18 months (OR=0.40, p<0.05) and an increased likelihood of receiving services through CPS (OR=2.03, p<0.01) <p><i>Composite housing stress indicator</i></p>

Citation	Covariates	Key results
Hirsch et al. (2015)	<ul style="list-style-type: none"> Caregiver race, employment, education, depression, substance use, chronic conditions, parenting stress, parenting warmth; family residence in public housing, crowding (ratio of people per bedroom), housing instability (moved one or more times in past year), difficulties affording medical costs, food insufficiency; prior CPS involvement; number of children in household 	<ul style="list-style-type: none"> Using emergency housing or living doubled-up was not associated with substantiated CPS reports (OR=1.05, $p>0.01$) Among families with a substantiated CPS report, past year emergency housing was associated with a decreased likelihood of CPS case closure within 18 months (0.44, $p<0.05$) and an increased likelihood of receiving services through CPS (2.05, $p<0.001$) <p><i>Physical housing risk</i></p> <ul style="list-style-type: none"> 33.8% of families had physical housing risk Physical housing risk was not associated with CPS investigations in the year after the initial study survey (OR=1.59, 95% CI=0.98, 2.56)
Howard et al. (2009)	<ul style="list-style-type: none"> None 	<p><i>Homelessness (shelter stays)</i></p> <ul style="list-style-type: none"> -23.3% of families were homeless (by design) -13.8% of families who had a shelter stay reported CPS involvement compared to 17.1% of housed families ($p>0.10$)
Jones (2004)	<ul style="list-style-type: none"> Maternal drug and alcohol use, receipt of public assistance; medical professional or school reported to CPS; family services utilized; number of social work contacts; court mandated treatment plan; child age 	<p><i>Homelessness or eviction</i></p> <ul style="list-style-type: none"> 9.9% of families were evicted or homeless in the past year Eviction or homelessness in the past year was associated with a decreased likelihood of the child remaining in the home at case closure ($\beta=-1.68$, $p=0.0001$)
Marcal (2018)	<ul style="list-style-type: none"> At age 5: maternal age, race, depression, domestic violence, employment status, income level, marital/cohabitating status, welfare, Social Security, or food stamp receipt; number of children to calculate propensity scores and greedy matching At age 9: maternal age, race, income level, marital/cohabitating status, parenting stress 	<p><i>Composite housing stress indicator</i></p> <ul style="list-style-type: none"> 19.6% of families had housing stress at the age 5 interview Housing stress at the age 5 interview was associated with a greater number of maternal self-reported maltreatment behaviors at the age 9 interview ($\beta=0.99$, $p<0.001$ in uncorrected sample; $\beta 0.65$, $p<0.01$ in greedy matched sample; ($\beta =0.80$, $p<0.001$ in propensity score weighted sample)
Merrick et al. (2018)	<ul style="list-style-type: none"> Caregiver education; household income, composition; child age, race/ethnicity, sex 	<p><i>Housing instability</i></p> <ul style="list-style-type: none"> 25.4% of adults had moved more than once every 3.33 years of life during childhood More than one move every 3.33 years of life prior to age 18 years was associated with an increased likelihood of self-reported maltreatment (OR= 1.34, 95% CI=1.04, 1.72)

Citation	Covariates	Key results
Park et al. (2004)	<ul style="list-style-type: none"> Caregiver age, sex; child race, sex, age; number of children and adults in household; reason for homelessness 	<p><i>Homelessness (shelter stays)</i></p> <ul style="list-style-type: none"> The percent of children receiving services through CPS or placed out-of-home in the 5 years after shelter entry increased as the number of shelter stays increased (17.1% for 1 shelter stay, 22.3% for 2 stays, 27.1% for 3 stays) The percent of children receiving services through CPS or placed out-of-home in the 5 years after shelter entry increased as the average annual length of shelter stay increased (12.8% for 1–30 days, 7.2% for 31–60 days, 12.7% for 61–90 days, 39.5% for 91 days) A greater number of shelter stays (RR=1.70, p<0.001) and longer average length of shelter stay (RR=1.89, p<0.001) were associated with an increased likelihood of receiving services through CPS or out-of-home placement in the 5 years after shelter entry
Park et al. (2015)	<ul style="list-style-type: none"> Maternal race/ethnicity, age at first birth, marital/cohabitating status, immigration status, education, employment, welfare receipt, health conditions, depression, substance use disorders, parenting stress, partner support, intimate partner violence; number of children in the household; household income; child sex, physical disabilities, health status, internalizing and externalizing behaviors 	<p><i>Homelessness</i></p> <ul style="list-style-type: none"> 8% of families experienced homelessness between child age 3 and 9 years -Homelessness was associated with an increased likelihood of maternal self-reported physical abuse (OR=1.86, p<0.001) -Homelessness was not associated with maternal self-reported emotional abuse (OR=1.17, p>0.05) <p><i>Doubled-up</i></p> <ul style="list-style-type: none"> -21% of families lived doubled-up between child age 3 and 9 years -Living doubled-up was not associated with an increased likelihood of maternal self-reported physical (OR=1.10, p>0.05) or emotional (OR=0.86, p>0.05) abuse
Radcliff et al. (2019)	<ul style="list-style-type: none"> None 	<p><i>Unaffordable housing</i></p> <ul style="list-style-type: none"> 4.2% of adults reported housing unaffordability during childhood The percent of adults who reported childhood physical abuse (12.2% vs. 43.9%, p<0.001), emotional abuse (30.2% vs. 66.4%, p<0.001), an adult touching them sexually (10.4% vs. 32.7%, p<0.001), an adult forcing the child to touch them sexually (7.6% vs. 26.7%, p<0.001), and an adult forcing sex (4.5% vs. 22.4%, p<0.001) was high for those who reported childhood housing unaffordability compared to those who did not report childhood housing unaffordability
Rodriguez & Shinn (2016)	<ul style="list-style-type: none"> Caregiver age, race/ethnicity, employment, welfare receipt, psychosocial challenges index (e.g., alcohol or drug use, health issues, interpersonal violence); annual household income; prior evictions or problems with landlord; child age; prior CPS involvement 	<p><i>Homelessness (shelter stays)</i></p> <ul style="list-style-type: none"> 74.4% of families had one shelter stay, 10.1% two stays, and 15.5% three or more stays CPS reports increased dramatically 90 days after first entry and then declined to pre-entry levels Substantiated CPS reports and out-of-home placements increased modestly immediately after shelter entry and then more dramatically after One or more shelter stays prior to study entry was associated with an increased likelihood of CPS reports (OR=2.84, 95% CI 1.30, 6.19), but not investigated reports (OR=2.11, 95% CI 0.98, 4.52), substantiated

Citation	Covariates	Key results
Slack et al. (2017)	<ul style="list-style-type: none"> Caregiver race/ethnicity, education, age, marital/cohabitating status, parenting stress, depressive symptoms, social support, welfare receipt, Social Security receipt, annual income; number of children in the household; children <2 in the household; prior CPS involvement, home visiting site 	<p>Key results</p> <p>reports (OR=1.61, 95% CI 0.54, 4.82) or out-of-home placements (OR=2.16, 95% CI 0.68, 6.84), after shelter entry</p> <p><i>Housing instability</i></p> <ul style="list-style-type: none"> 18.5% of families had housing instability in the past year Housing instability in the past year was associated with an increased likelihood of an investigated CPS report in the 18 months following the survey interview (OR=2.02, p<0.05)
Warren & Font (2015)	<ul style="list-style-type: none"> Maternal race, education, marital/cohabitating status, age at first child, number of biological children, welfare receipt, employment, receipt of housing subsidy; annual household income, material hardship (i.e., food insecurity, difficulty paying bills, lack of access to medical care) 	<p><i>Unaffordable housing</i></p> <ul style="list-style-type: none"> 32.5% of families had housing unaffordability Housing unaffordability was not associated with maternal self-report of abuse ($\beta=-0.007$, $p>0.10$) or neglect in the past 12 months ($\beta=-0.008$, $p>0.10$) <p><i>Composite housing stress indicator</i></p> <ul style="list-style-type: none"> 8.9% of families had housing instability Housing stress was not associated of maternal self-report of abuse in the past 12 months ($\beta=0.027$, $p<0.10$) Housing stress was associated with an increased likelihood of maternal self-report of neglect in the past 12 months ($\beta=0.216$, $p<0.001$)
Wood et al. (1990)	<ul style="list-style-type: none"> None 	<p><i>Homelessness (shelter stays)</i></p> <ul style="list-style-type: none"> 50.2% of families were homeless (by design) Homeless families were more likely to have an investigated CPS report than families who were housed and poor (28% vs. 10%, 95% CI for difference 14, 22)
Yang (2015)	<ul style="list-style-type: none"> Caregiver race/ethnicity, sex, age, age at first birth, marital status, number of children, children <5 years, education, employment, welfare receipt, income-to-needs ratio, social support, parenting mastery skills, poor health, physical domestic violence, substance abuse, parenting stress, parental warmth 	<p><i>Composite housing stress indicator</i></p> <ul style="list-style-type: none"> 27.2% of families had housing stress Housing stress was associated with an increased likelihood of investigated CPS reports (OR=2.22, $p<0.05$) and neglect reports (OR=1.84, $p<0.005$) Housing stress was not associated with investigated physical abuse reports (OR=1.48, $p>0.05$)
Zlotnick et al. (1998)	<ul style="list-style-type: none"> None 	<p><i>Homelessness (shelter stays)</i></p> <ul style="list-style-type: none"> 48.7% of families were homeless

Citation	Covariates	Key results
		<ul style="list-style-type: none"> • There was no difference in the percent of children placed out-of-home prior to age one year among those whose birth parents had a history of homelessness and those whose birth parents had no history of homelessness (79.0% vs. 78.0%, $p>0.05$) • There was no difference in the number of out-of-home placements among children whose birth parents had a history of homelessness and those whose birth parents had no history of homelessness (1 placement: 52.6% vs 56.0%, 2 placements: 36.8% vs 35%, 3 placements: 10.5% vs. 9%, $p>0.05$) • Children whose birth parents had a history of homelessness were less likely to be placed out-of-home due to sexual abuse (0% vs. 8.0%, $p<0.01$) and more likely to be placed out-of-home due to sibling abuse (52.6% vs. 42.0%, $p<0.01$) compared to children whose parents had no history of homelessness • There was no difference in percent of children in out-of-home due to neglect (99.0% vs. 98.0%), abandonment (84.2% vs. 75.0%), parental incarceration (10.5% vs. 13.0%), physical abuse (4.2% vs. 3.0%), or sibling death (1.1% vs. 1.0%) among those whose birth parents had a history of homelessness and those whose birth parents had no history of homelessness

Note: CPS = child protective services

Table 3.

Critical findings of the systematic review

Finding	Citations
Homelessness or eviction associated with an increased likelihood of investigated CPS reports, child out-of-home placement, and maternal self-reported physical abuse	Courtney et al., 2004; Jones, 2004; Wood et al., 1990; Park et al., 2015
Homeless or emergency shelter stays associated with an increased likelihood of child out-of-home placement	Culhane et al., 2003; Park et al., 2004
No association of homeless or emergency shelter stays with substantiated CPS reports, child out-of-home placement, or caregiver self-reported CPS involvement	Font & Warren, 2013; Rodriguez & Shinn, 2016; Zlotnick et al., 1998; Howard et al., 2009
Foreclosure filing associated with an increased likelihood of investigated and substantiated CPS reports	Berger et al., 2015
Housing instability associated with an increased likelihood of investigated CPS reports and child or caregiver self-reported maltreatment	Slack et al., 2017; Merrick et al., 2018
No association of physical housing risk with CPS investigations	Hirsch et al., 2015
Housing inadequacy associated with an increased likelihood of child maltreatment death	Douglas, 2015; Douglas & Mohn, 2014
No association of living doubled-up with substantiated CPS reports or maternal self-reported abuse	Font & Warren, 2013; Park et al., 2015
Housing unaffordability in childhood associated with adult retrospective self-report of child maltreatment	Radcliff et al., 2019
No association of housing unaffordability with child out-of-home placement or maternal self-reported maltreatment	Courtney et al., 2004; Warren & Font, 2015
Composite housing stress indicators associated with an increased likelihood of maternal self-reported maltreatment and investigated and substantiated CPS reports	Marcal 2018; Warren & Font, 2015; Yang, 2015; Farrell et al. 2017

Table 4.

Implications for research, practice, and policy

Research	
•	Enhance specificity of measures of housing stress, including type, duration, and severity
•	Establish clear temporality between measures of housing stress and child maltreatment
•	Conduct quantitative bias analyses to examine the extent to which differential reporting to CPS for families with and without housing stress impacts results
•	Examine specific types of housing stress in relation to specific types of child abuse and neglect
•	Use theory-driven models to identify and include important potential confounders
•	Use study populations other than families involved with CPS
Practice and policy	
•	Promote partnerships and collaboration between CPS and housing and homeless service systems to address housing needs of families involved with CPS
•	Engage in other multi-system partnerships to address housing needs among families not involved with CPS, including between public benefits programs and housing and homeless service systems
•	Continue efforts to develop, refine, and use comprehensive housing stress measures across local, state, and national surveys

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