



A Growth Curve Analysis of Housing Quality among Transition-Aged Foster Youth

Fanita A. Tyrell¹ · Tuppett M. Yates¹

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Abstract

Background Procuring safe housing is a salient developmental task during emerging adulthood, one that is especially challenging for emancipated foster youth. Yet, little is known about factors that influence foster youths' housing experiences.

Objective This investigation documented changes in foster youth's housing quality during the first 24 months following their emancipation. Analyses also evaluated associations between changes in housing quality and youth's sociodemographic characteristics, childhood maltreatment experiences, and out-of-home placement history.

Method Recently emancipated foster youth ($N = 172$; 66 % female; $M_{\text{age}} = 19.63$ years, 84.3 % non-White) who were participating in an ongoing longitudinal study of *Adapting to Aging Out* provided sociodemographic information, a history of their childhood maltreatment and out-of-home placement experiences, and a month-by-month summary of their housing since emancipation.

Results Parenting youth and youth with a high school degree had higher housing quality 6 months post-emancipation. Females and youth who emancipated at older ages showed a linear increase in housing quality at 6 months post-emancipation. Childhood exposure to domestic violence, older age of entry into foster care, and placement with a relative just prior to emancipation were associated with declining housing quality over time.

Conclusions These findings highlight the need to provide safe and stable housing opportunities for transition-aged foster youth, and elucidate risk and protective factors to guide applied efforts to support particularly vulnerable foster youth, including those who are male, have lower education attainment, have a history of childhood domestic violence

✉ Fanita A. Tyrell
fityre001@ucr.edu

Tuppett M. Yates
tuppett.yates@ucr.edu

¹ Department of Psychology, University of California, Riverside, 900 University Avenue, Riverside, CA 92521, USA

exposure, entered foster care at older ages, and/or resided with a relative at the time of their emancipation.

Keywords Child welfare · Emancipation · Foster youth · Growth curve analysis · Housing quality · Out-of-home placement · Transition-aged youth

Introduction

Procuring safe, affordable, and reliable housing is a salient developmental challenge for youth who are transitioning to adulthood as it both reflects and supports their strivings for independence and self-sufficiency (Ryan and Thompson 2013). Understanding changes in housing attainment and maintenance during emerging adulthood is important because housing quality has been associated with various aspects of multi-domain competence, such as physical health (Brown et al. 2012; Oishi and Schimmack 2010), educational achievement (Leventhal and Newman 2010; Ziol-Guest and McKenna 2014), and socio-emotional functioning (Burgard et al. 2012; Cairney 2005; Coley et al. 2013). Whereas most young adults typically rely on family and friends to help them obtain safe and affordable housing, foster youth who have “aged out” or “emancipated” from state-sponsored care often lack the social support and resources needed to negotiate this developmental issue. Insufficient preparation, poor life skills, and deficits in social resources may hinder transition-aged foster youth’s efforts to obtain high quality housing, resulting in disproportionate rates of homelessness and precarious housing upon their emancipation from the child welfare system.

Recent advances in policies and programs to support transition-aged foster youth, such as California’s implementation of extended foster care services to age 21 (California Fostering Connections to Success Act 2010), were motivated, at least in part, by evidence of disproportionate rates of homelessness and other negative outcomes among former foster youth (Courtney et al. 2009). Emancipated foster youth experience significantly more residential instability and precarious housing than their non-fostered peers (Berzin et al. 2011), and are more than seven times more likely to reside in jail or prison than their non-fostered peers (Courtney et al. 2010). Between 11 and 37 % of emancipated foster youth report one or more episodes of homelessness during the first few years after they leave the system (Dworsky et al. 2012; Fowler et al. 2009), which is substantially higher than reported rates of homelessness in the general population of 18–24 year olds, which range from 5 to 7.7 % (National Alliance to End Homelessness 2006). Although alarming, these rates of homelessness likely underestimate the true challenges emancipated foster youth encounter in procuring housing because precarious housing, such as “doubling up” or “couch surfing,” remains largely undocumented in this population (Dworsky et al. 2012). Indeed, when rates of precarious housing are combined with homelessness, the percentage of emancipated youth who reside in unsafe or unstable housing increases dramatically to nearly 50 % (Courtney and Dworsky 2006; Courtney et al. 2010).

Despite growing recognition that former foster youth are at elevated risk for poor quality housing, empirical work on this population remains limited with research focusing predominantly on point prevalence estimates of homelessness among these youth (Dworsky et al. 2012). Thus, this study sought to understand changes in foster youth’s housing quality across the transition to adulthood to identify periods of vulnerability versus

security and corresponding risk versus protective factors to guide prevention and intervention efforts to promote housing quality among transition-aged foster youth, as well as in other vulnerable populations, such as unaccompanied refugees and youth exiting the juvenile justice system. Although some studies have identified risk factors for homelessness among transition-aged foster youth, such as inadequate social support and psychological distress (Dworsky et al. 2012; Dworsky et al. 2013), less is known about protective factors that might enable some youth to procure safe and affordable housing despite these risks. Framed within the overarching paradigm of risk and resilience research (Luthar 2006; Masten 2001; Yates and Grey 2012), this study examined foster youth's housing quality across the first 24 months following their emancipation from the child welfare system to identify risk *and* protective factors associated with the level and/or change in youth's housing quality in the wake of foster care. Thus, this study advanced beyond extant knowledge regarding point prevalence estimates of housing configurations among former foster youth (Dworsky et al. 2012, 2013), to elucidate specific factors that compromise or support youth's housing quality in the wake of foster care and inform actionable policies and programs to intervene on behalf of these and other residentially vulnerable youth.

Documenting Housing Quality in the Wake of Emancipation

Housing quality is a multi-faceted construct that encompasses the structural features of the home (e.g., physical characteristics, cleanliness, safety), household crowding (e.g., ratio of persons in residence to available rooms), homeownership status (e.g., owning, leasing), affordability of the home (e.g., subsidized housing, rent/mortgage), and residential stability (e.g., homelessness, frequency of moves; Leventhal and Newman 2010). Additional factors, such as neighborhood, school, and community resources, also contribute to the overarching quality of one's housing, as do objective and subjective evaluations of personal safety, toxic influences (e.g., pest infestations or mold), and the availability and cost of central utilities (e.g., heat and air conditioning). Using all available information, this investigation assessed foster youth's housing quality along several of these dimensions, including (1) structural characteristics, such as the physical features of the home with regard to protection from the elements, (2) financial factors, such as the cost of the housing itself and related utilities, (3) youth's status in the home as visitor, renter, or owner, and (4) the stability of residence.

The current study is among the first to document the overarching pattern of housing quality among newly emancipated foster youth over time. In contrast to the relatively gradual transition from child to adult status that is experienced by most youth who do not have a history of out-of-home placement (Arnett 2000; Ward and Spitze 2007), foster youth encounter an abrupt transition to adulthood upon their emancipation from care (Courtney and Dworsky 2006). Amidst resultant disruptions in social connections and resources, emancipated youth often struggle to obtain safe, affordable, and reliable housing as evident in extant studies of homelessness and precarious housing in this population (Berzin et al. 2011; Dworsky et al. 2012). Research comparing housing characteristics of transition-aged foster youth with a nationally representative sample of same-age peers from the National Longitudinal Study of Adolescent Health found that 49 % of emancipated foster youth aged 23–24 lived on their own, versus 63.2 % of their non-fostered peers (Courtney et al. 2010). Rates of support from relatives were also lower among emancipated foster youth as they were less likely to reside with one or more family members (21 %)

than their non-fostered peers (33 %). Moreover, emancipated foster youth who lived with a family member were more likely to live with a sibling or grandparent, whereas young adults from the general population were more likely to live with a biological parent.

This investigation sought to advance beyond point prevalence estimates of homelessness and specific housing features among former foster youth to join and augment the few studies that have explored longitudinal changes in housing quality among transition-aged foster youth. In a unique investigation of 265 emancipated foster youth (ages 19–23), Fowler et al. (2009) identified distinct housing trajectories across a 10-month period wherein 57.7 % of the participants resided in continuously stable and adequate housing, 11.7 % evidenced increasing stability in their housing, 10.9 % evidenced decreasing stability, and 19.6 % remained continuously unstable with oscillations between literal homelessness and precarious housing. Although the Fowler study was novel for its attention to longitudinal patterns of housing among emancipated youth, the obtained results centered on a finite distinction between “unstable” housing, such as homelessness or couch surfing, and “stable” housing, which was defined as not being homeless. Thus, this study did not provide information regarding more subtle gradations of “stable” or “non-homeless” housing, such as might be relevant when considering, for example, a youth who is living with a parent in a stable situation as a dependent versus a youth who is renting her/his own studio in a stable and independent context. The current investigation sought to extend prior research by drawing on a longitudinal study of 172 recently emancipated foster youth to a) document the level and change in a continuous measure of housing quality across youth’s first 24 months post-emancipation and b) identify both risk and protective factors that may account for individual differences in levels and changes of housing quality over time.

Identifying Housing Risk and Protective Factors Among Emancipated Foster Youth

Little is known about factors that may influence the level and change in housing quality during emerging adulthood in the general population, let alone among transition-aged foster youth. However, research efforts to identify these factors are critical to inform prevention and intervention efforts. Guided by suggestive findings from previous studies of youth with and without histories of foster care, this investigation explored three sets of variables that were expected to influence housing quality among transition-aged foster youth.

First, sociodemographic factors, such as gender, parenting status, race/ethnicity, and education level, may be associated with youth’s level and change in housing quality across the first 2 years post-emancipation. Specifically, research indicates that females are less likely to experience homelessness than males (Cheng et al. 2013; Kidd et al. 2013), and those who are parenting young children are even less likely to become homeless (Lehmann et al. 2007). Empirical evidence also points to potential differences in housing quality across racial/ethnic groups. For example, research on former foster youth indicates that African American youth are more likely to use public housing assistance (Berzin et al. 2011; Dworsky et al. 2010), are more susceptible to homelessness (Dworsky et al. 2010), and report greater declines in stable living conditions over a 10-month period (Fowler et al. 2009). Finally, across a range of studies and samples, individuals with lower levels of educational attainment evidence less residential stability (Adam and Chase-Lansdale

2002), higher rates of homelessness (Kilmer et al. 2012), and poorer housing quality (Buckner et al. 1999) than their more educated peers.

Second, a history of childhood exposure to maltreatment may exacerbate housing challenges among emancipated foster youth. Childhood maltreatment is associated with unstable relationships, elevated mental health problems, and conduct issues (Berzin et al. 2011; Perez and Romo 2011). In turn, these socioemotional vulnerabilities may undermine youth's capacities to secure and retain high quality housing. Among recently emancipated foster youth, Dworsky et al. (2013) found that a history of physical abuse was associated with increased rates of homelessness post-emancipation. Although these scholars did not offer an explanation as to why specific types of childhood maltreatment, such as physical abuse, may be linked with poor housing outcomes, some evidence suggests that individuals with a history of physical abuse may resist or avoid social relationships and supports (Finzi et al. 2001), which might otherwise facilitate positive housing outcomes. Likewise, although not yet evaluated in the housing literature, a history of domestic violence exposure may compromise the safety and stability of youth's subsequent intimate relationships (Anooshian 2005; Von Steen 1997) and, by extension, undermine their housing quality. With the exception of the aforementioned studies on homelessness, the present study was the first to our knowledge that explored relations between childhood maltreatment experiences and later housing quality among emancipated foster youth. Specifically, we evaluated relations of childhood physical abuse, sexual abuse, emotional abuse, neglect, and domestic violence exposure with the level and change in housing quality among youth across the first 24 months following their emancipation from the child welfare system.

Third, specific features of youth's out-of-home placement experiences may influence the level of housing quality or changes therein during emerging adulthood. Studies investigating the association between out-of-home placement features and post-emancipation housing have shown that youth who exited the child welfare system at a younger age and/or experienced more placement disruptions while in care were more likely to be homeless or to live in precarious housing situations post-emancipation (Dworsky et al. 2013; Fowler et al. 2009). Dworsky and Courtney (2009) also found that youth who ran away from care and/or were placed in one or more group homes were at elevated risk for experiencing homelessness upon emancipation. Given these findings, this study evaluated the associations between youth's housing quality and youth's age at emancipation, age at entry into care, number of placement disruptions, and type of last placement, such as living with a relative versus in a group or foster home.

Study Overview

The current study documented the level and change in housing quality among 172 youth across their first 2 years following emancipation from the child welfare system. Drawing on data pertaining to youth's sociodemographic characteristics, childhood maltreatment experiences, and out-of-home placement history, we identified specific risk and protective factors that accounted for individual differences in housing quality level and change among newly emancipated foster youth. There are limited data regarding the housing experiences of newly emancipated foster youth, and still fewer findings that speak to patterns of change over time. On the one hand, youth's housing quality could improve over time as they mature in educational, economic, and relational domains. On the other

hand, housing quality could decline over time as youth lose access to the temporary supports provided upon their initial exit from care. Thus, the first aim of this investigation was to explore and document the average level and change in housing quality during the crucial transition from foster care to emerging adulthood. In doing so, we sought to identify specific periods of vulnerability, which may also signal opportunities for recovery, to protect and support housing quality in this and other vulnerable populations.

The second aim of this study was to identify specific risk and protective factors that accounted for individual differences in youth's housing quality over time and could be integrated into actionable prevention and intervention efforts. First, with regard to sociodemographic characteristics, we hypothesized that female gender, parenting status, European American ethnorracial status, and higher educational attainment would be positively associated with housing quality. Second, we hypothesized that child physical abuse, child sexual abuse, child emotional abuse, child neglect, and exposure to domestic violence would be associated with lower housing quality. However, we hypothesized that child physical abuse and domestic violence would be more strongly linked to housing quality compared to other forms of maltreatment as these experiences may exact a particularly strong toll on youth's social support networks, and, by extension, on their residential quality and stability (Dworsky et al. 2013; Kilmer et al. 2012). Third, we hypothesized that youth's out-of-home placement history would be associated with housing quality such that youth who were older at the time of their emancipation would evidence higher housing quality, and youth who experienced higher levels of placement disruption would evidence lower housing quality. Although we expected that group home placement would be associated with lower housing quality, analyses regarding kin and foster home placements were exploratory, as was our evaluation of relations between youth's age of entry into the child welfare system and their later housing quality. Documenting the level and change in youth's housing quality over time can elucidate opportune periods for applied intervention efforts. Moreover, our identification of specific risk and protective factors that can account for significant variation in youth's level and change in housing quality can highlight optimal targets for these applied efforts, both with respect to who should receive services and with regard to which factors should be mollified or magnified in support of youth's housing experiences during emerging adulthood.

Methods

Participants were 172 youth (66 % female) who emancipated from foster care in Southern California and were between the ages of 18 and 21 years at the time they completed the first wave of data collection in an ongoing longitudinal study of youth's adaptation to aging out ($M_{age_w1} = 19.63$, $SD = 1.11$). The sample was 15.7 % European American/White, 23.8 % African American/Black, 27.3 % Latino American/Hispanic, .6 % Asian American, and 32.6 % multiracial.

Procedures

Youth were invited to participate in a study of *Adapting to Aging Out* between 2009 and 2011, prior to the implementation of extended foster care support in California, via flyers distributed to social service providers, independent living programs, and agencies serving emancipated foster youth (e.g., resource centers, health clinics). Youth completed a brief intake screening by phone before scheduling a face-to-face interview. Of the 199 participants who called, 190 completed the wave 1 interview. Nine participants were excluded because they were outside the target age range of 18–21 at the time of initial contact, and an additional 18 youth were excluded from all analyses and follow-up waves because they had entered foster care after age 16 ($n = 8$) or due to juvenile delinquency in the absence of maltreatment ($n = 12$).

Interviews were conducted in English in our university laboratory or at a convenient location for the participant (e.g., agency offices, libraries). Written consent was obtained from each participant after reviewing the study aims, the voluntary nature of their participation, and the confidentiality of their information, including constraints pertaining to mandated reporting. Participants were compensated with \$75 and all procedures were approved by the Institutional Review Board of the participating university.

Measures

Housing Quality

Data on each participant's housing quality were obtained across one or more waves of data collection. At each wave, participants completed a residential history timeline that probed for every living situation experienced from the date of emancipation to the time of the current interview (at wave 1), or from the time of the previous visit to the time of the current interview (at the 1 year follow-up [wave 2] and at the 2.5 year follow-up [wave 3]). For each place of residence, participants were asked about their length of occupation, the number of bedrooms and bathrooms in the home, the number of people living in the residence and their relationship to the participant, the amount of money the youth spent on rent or a mortgage, and whether or not the living arrangement was supported by public funds (e.g., "Housing Quality" section, transitional housing programs) and/or a significant other (e.g., kin, friend, partner). Two independent coders who were blind to all other information obtained in the interview evaluated each youth's housing quality based on her/his living situation during each of the first 24 months since emancipation using a 9-point scale ranging from extremely low (1) to extremely high (9; see Table 1). A mean intraclass correlation of .912 ($SD = .029$) was computed by averaging the reliabilities of the two raters' scores across the 24 months for 100 % of the cases.

Of the 172 participating youth at wave 1, 55 (32 %) had been out of the system for 2 years or longer and thus provided complete housing information at that time point. Of the remaining 117 youth, 95 (81.2 %) completed the 1-year follow-up assessment at which time 37 of the youth had been emancipated for 2 years or longer and thus completed a full housing history. Of the remaining 58 youth, 44 (75.9 %) provided their complete housing history at the 2.5-year follow-up. In addition, 8 youth returned to complete the wave 3 interview after missing wave 2. Thus, complete housing data were available for 144 (83.7 %) youth, and all youth provided some data about their housing quality. On average, participants provided 22.01 months ($SD = 5.26$) out of the 24 months of housing data

Table 1 Housing quality code criteria, monthly means, and frequencies

Code	Descriptor	Definition
1	Extremely low quality	Participant is literally homeless, has no protection from the elements, limited access to facilities, and minimal to no privacy (e.g., living in a car, park, shelters, or having no stable roof over her/his head)
2	Very low quality	Participant may have stable shelter but has no privacy and restricted freedom. Participant's safety may be in jeopardy and s/he is consistently exposed to moderate to high levels of noise and poor living standards (e.g., jail)
3	Low quality	Participant does not have a stable place to live and maintains no financial obligations. S/he experiences low levels of privacy, cleanliness, and protection from noise and/or danger (e.g., staying with someone for <2 months; sleeping in someone's garage, on the floor, or staying on a friend's couch)
4	Moderately low quality	Participant has a stable living arrangement, but provides no consistent financial contribution to rent or mortgage. These participant may "help out" with groceries or bills from time to time, but there is no consistent financial obligation (e.g., living with a friend or partner for 2 months or longer, resides in a group, foster, or other supported living situation)
5	Moderate quality	Participant has stable housing and consistently makes minimal contributions of \$150 or less to the rent or mortgage (e.g., lives in transitional housing or shares housing with someone for 2 months or longer, but contributes <\$150 to rent)
6	Moderately high quality	Participant has stable housing and consistently makes moderate contributions of \$150–\$300 to rent or mortgage. In addition, any supported living situation (e.g., transitional housing, college residence hall) would be scored at this level, even if the rent exceeds \$300 per month
7	High quality	Participant has stable housing and consistently makes a significant contribution between \$300 and \$500 to the rent or mortgage (i.e., shares housing with someone or lives alone for 2 months or longer and pays \$350 in rent)
8	Very high quality	Participant has stable housing and lives alone or contributes equally to housing costs. Participants at this level are leaseholders on a property and have resided there for more than 2 months. Note, a participant who is newly renting (i.e., <2 months) would be scored as a 7, regardless of her/his financial obligations to the housing
9	Extremely high quality	Participant owns her/his own home and contributes to all her/his housing needs (i.e., participant owns mobile home, condo, or house for 2 months or longer). Note, a participant who is a new home owner (i.e., <2 months) would receive a score of 8, regardless of her/his ownership status
Months	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	
Mean	4.62 4.75 4.70 4.68 4.84 4.86 4.91 4.93 4.98 4.90 4.88 4.98 5.01 5.01 5.11 5.17 5.14 5.21 5.16 5.08 5.09 5.20 5.27 5.26	
SD	1.48 1.47 1.49 1.51 1.50 1.50 1.50 1.52 1.49 1.51 1.48 1.43 1.48 1.53 1.55 1.55 1.56 1.55 1.67 1.69 1.77 1.74 1.80 1.84	

Table 1 continued

		Housing Quality Score frequencies (%)																							
1	4.1	4.1	4.7	5.8	4.1	4.1	3.5	3.5	1.7	2.9	2.3	1.7	2.3	2.9	2.3	2.3	1.7	1.7	1.7	2.9	4.1	4.7	4.1	4.7	5.2
2	0	0	0.6	0	0	0	0.6	0.6	2.3	1.7	1.2	1.2	1.2	1.2	1.7	1.7	1.7	1.7	1.7	2.3	1.7	2.3	2.3	2.3	2.3
3	8.1	3.5	2.9	2.9	2.3	2.3	3.5	6.4	3.5	5.8	4.1	4.1	4.1	4.1	4.7	3.5	5.8	4.7	5.8	4.7	5.8	4.7	4.1	4.1	3.5
4	48.8	48.8	49.4	47.1	43.6	43.6	40.7	41.3	38.4	35.5	35.5	36.6	33.1	33.1	29.7	27.9	27.3	26.2	23.3	26.2	23.3	26.2	25.6	21.5	18.6
5	11.0	11.0	9.9	11.0	13.4	13.4	14.0	12.8	11.6	15.7	14.5	13.4	13.4	13.4	12.2	12.2	8.7	9.9	9.3	9.3	8.1	7.0	7.0	8.1	8.1
6	16.9	19.2	17.4	18.6	18.6	18.6	19.2	18.6	19.8	20.3	21.5	23.3	23.3	23.3	25.0	26.2	26.2	25.6	24.4	23.8	23.3	25.0	23.3	23.3	23.3
7	6.4	7.0	9.9	8.7	9.3	9.3	9.3	10.5	11.0	8.7	7.6	7.0	8.1	8.1	10.5	9.9	9.9	11.6	12.8	12.2	12.2	14.5	16.3	15.7	15.7
8	4.7	4.7	2.9	2.9	4.7	4.7	5.2	5.2	5.2	4.7	4.7	5.2	5.8	5.8	5.8	6.4	6.4	5.8	5.8	5.2	6.4	5.2	6.4	5.2	7.0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

There were no youth who earned a score of 9 during the first 2 years post-emancipation. However, this scale point was retained in light of the ongoing nature of the study and the expectation that some youth will realize this level of housing stability in future years

across the three waves, which resulted in 8.3 % missing data points for monthly housing data. Beyond the fact that youth with missing months of housing data were younger at the time of the wave 1 interview and were less likely to have experienced child sexual abuse relative to youth with complete data, there were no significant differences across sociodemographic, childhood maltreatment, and out-of-home placement study variables.

Sociodemographic Variables

Participants reported their gender, race/ethnicity, parenting status, and education level during the wave 1 interview. Gender was dummy coded to represent the effect of female gender (0 = male, 1 = female). Parenting status was dummy coded to assess the effect of being a parent (0 = no children, 1 = at least one child). Just over a quarter of the sample ($n = 47$; 27.3 %) reported having a child at wave 1 and 72.3 % ($n = 34$) of those with children were females. A set of effect codes represented the effects of multiracial, African American/Black, and Latino American/Hispanic racial/ethnic group membership with European American/White serving as the reference group. Education level was dummy coded to assess the effect of graduating from high school or completing a GED (0 = did not graduate high school or earn a GED, 1 = graduated high school or earned a GED). Nearly three-quarters of the sample (72.7 %) had completed high school or a GED, the remaining youth (27.3 %) had dropped out of school ($n = 27$), were in the process of completing their GED after having dropped out of high school ($n = 12$), or were still 18 and completing their senior year of high school ($n = 8$).

Childhood Maltreatment Variables

At wave 1, participants provided information regarding their experiences of childhood maltreatment during a verbal administration of the Early Trauma Inventory (ETI; Bremner et al. 2000). Each youth was asked a series of increasingly specific questions regarding each type of maltreatment experienced in childhood (i.e., childhood physical abuse, childhood sexual abuse, childhood emotional abuse, childhood neglect, and/or childhood exposure to domestic violence prior to age 17), including ages of onset and offset, perpetrator identity, specific behaviors present during each incident, resulting injuries or interventions (e.g., legal, medical), and the frequency of maltreatment. Two independent raters who were blind to other information obtained in the interview evaluated each type of maltreatment using the criteria proposed by McGee and colleagues (McGee et al. 1995). For analytic purposes, scores were dummy coded to assess the impact of each type of childhood maltreatment (0 = no maltreatment, 1 = maltreatment).

Childhood physical abuse was assessed by items indicating whether the youth had ever experienced physical harm that was perpetrated by adult caregivers (e.g., punched or kicked; 76.2 % physically abused; $\kappa = .970$). *Childhood sexual abuse* was assessed by items indicating whether the youth had ever experienced unwelcome sexual contact with someone who was at least 5 years older than the participant (e.g., fondling under clothes; 48.8 % sexually abused; $\kappa = .982$). *Childhood emotional abuse* was assessed by items indicating whether the youth had ever experienced having her/his self-worth, feelings, and sense of security dismissed or attacked by her/his caregiver (e.g., youth was ignored or made to feel that s/he did not matter; 84.3 % emotionally abused; $\kappa = 1.000$). *Childhood neglect* was assessed by items indicating whether the youth had experienced the absence of adequate caregiving, such as being left home alone when the youth was too young to take care of her/himself (87.8 % neglected; $\kappa = .607$). *Childhood domestic violence exposure*

was assessed by items indicating whether the youth had ever seen or heard their caregivers fight physically (59.9 % exposed to domestic violence; $\kappa = .982$).

Out-of-Home Placement Variables

Participants completed a structured interview consisting of questions about the age of their initial placement in foster care and all subsequent placements until the point of emancipation. For each placement, the youth reported on her/his age at the time of placement and the type of placement. Out-of-home placement data were coded as missing for participants who were uncertain about 20 % or more of their placements ($n = 11$; 6.4 %). These participants did not differ on study variables, with the exception that they were more likely to be a parent, $\chi^2(1) = 10.09, p = .001$. The out-of-home placement data yielded mean-centered measures of the participant's age at emancipation, age of entry into foster care, placement disruption frequency, and last placement type before emancipating from care, which was effect coded to assess the effects of placement with a relative, foster placement, and group home placement, with other placements (e.g., living with friends, shelter) serving as the reference group.

Data Analysis Strategy

Multilevel models computed in *Mplus* 6.12 (Muthén and Muthén 1998–2011) assessed change in housing quality over time using full information maximum likelihood estimation to account for missing data. Monthly housing quality variables were multiplied by 10 to facilitate model fitting of variances. Prior to evaluating models, preliminary univariate models were used to test within- and between-group variability. A fully unconditional means model (Model A) examined whether there were significant within-and between-person variances in housing quality. A series of unconditional growth models were fitted to identify linear (Model B) and quadratic (Model C) changes in housing quality over time. For each growth model, time-based linear weights, ranging from 1 to 24, were applied to the 24 monthly housing quality scores. These time-based weights were centered at 6 months, rather than at baseline, to allow the intercept for housing quality to be set at 6 months post-emancipation. Centering time at 6 months post-emancipation helped to reduce the statistical correlation between growth parameters and facilitated the interpretation of lower order non-linear parameters (e.g., in the quadratic model, the linear term indexed the linear change in housing quality at 6 months). The Chi-square scaling coefficient was evaluated to determine whether a model with more parameters or less parsimony was a better fitting model than a more parsimonious model (Satorra 2000).

Three preliminary conditional models were estimated to identify significant correlates of housing quality intercept and/or change over time from the previously described categories of sociodemographic variables (i.e., gender, parenting status, race/ethnicity, and education level), childhood maltreatment variables (i.e., childhood physical abuse, childhood sexual abuse, childhood emotional abuse, childhood neglect, and childhood domestic violence exposure), and out-of-home placement variables (i.e., age of emancipation from foster care, age of entry into foster care, placement disruption, and final placement type prior to emancipation). Models were estimated separately to reduce the number of non-significant variables in the final conditional models and to mitigate the risk of increased standard errors and unexplained variance (Cohen et al. 2003). A final series of conditional models evaluated the association of each significant predictor from the preliminary models with housing quality intercept (Model D), linear change (Model E), and quadratic change

Table 2 Results of the multilevel models for change in housing quality (N = 172)

Parameter	Model A	Model B	Model C	Model C2	Model D	Model E	Model F
<i>Fixed effects</i>							
Intercept, π_{0i}							
Intercept	γ_{00}	49.692***	48.290***	48.290***	39.729***	40.056***	39.307***
Gender	γ_{01}				3.927*	1.702	2.186
Latino American/ Hispanic	γ_{02}				−.196	−1.473	−1.265
Parenting Status	γ_{03}				4.232*	4.780*	4.745*
Graduated high school	γ_{04}				4.833*	5.128*	6.043**
Domestic violence	γ_{05}				1.350	2.031	1.188
Age of emancipation	γ_{06}				1.750	1.380	2.364
Age of entry	γ_{07}				.265	.290 [†]	.198
Kin placement	γ_{08}				−1.328	−1.511	−2.717
Intercept	γ_{10}				.344***	.254	.067
Linear change, π_{1i}						.473**	.599**
Gender	γ_{11}	.274**	.346***	.346***		.267	.326
Latino American/ Hispanic	γ_{12}						
Parenting status	γ_{13}					−.112	−.116
Graduated high school	γ_{14}					−.055	.192
Domestic violence	γ_{15}					−.130	−.371 [†]
Age of emancipation	γ_{16}					.085	.334 [†]
Age of entry	γ_{17}					−.004	−.026
Kin placement	γ_{18}					.045	−.249

Table 2 continued

Parameter	Model A	Model B	Model C	Model C2	Model D	Model E	Model F
Quadratic change, π_{2i}							
Intercept	γ_{20}		-.008	-.008	-.008	-.008	.011
Gender	γ_{21}						-.014
Latino American/Hispanic	γ_{22}						-.005
Parenting status	γ_{23}						.001
Graduated high school	γ_{24}						-.025
Domestic violence	γ_{25}						.025 [†]
Age of emancipation	γ_{26}						-.027 [†]
Age of entry	γ_{27}						.002 [†]
Kin placement	γ_{28}						.030 [†]
<i>Variance components</i>							
Level-1							
Within-person	σ^2_e	70.934***	59.266***	59.266***	59.277***	59.284***	59.237***
Level-2							
In initial status (intercept)	σ^2_0	128.733***	218.874***	158.188***	143.690***	142.637***	142.003***
Linear change (slope)	σ^2_1		.930***	1.446***	1.446***	1.339***	1.267***
Quadratic change	σ^2_2			.007***	.007***	.007***	.006***
Intercept and slope covariance	σ_{01}		-8.962***	-.590	-1.253	-.925	-1.167
Intercept and quadratic covariance	σ_{02}			-.323***	-.286**	-.295**	-.272**
Slope and quadratic covariance	σ_{12}			-.068***	-.067***	-.065***	-.058***

Table 2 continued

Parameter	Model A	Model B	Model C	Model C2	Model D	Model E	Model F
Deviance	29,314.782	27,938.848	27,561.790	30,099.612	30,079.814	30,066.638	30,049.672

Goodness-of-fit

Model A = Unconditional Means; Model B = Unconditional Linear Change; Model C = Unconditional Quadratic Change; Model D = Baseline Conditional Quadratic-Predictors Fixed at Zero; Model E = Intercept as Outcome; Model F = Intercept and Slope as Outcomes; Model F = Intercept, Slope, and Quadratic as Outcomes

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

(Model F). As recommended by Singer and Willett (2003), pseudo *R*-squared values were reported for each analysis as a proxy for effect size to indicate the amount of variance explained in each parameter, including housing quality intercept, linear, and quadratic change, by the multilevel model predictors.

Results

Descriptive Data Analyses

On average, youth in this study entered foster care between the ages of 8 and 9 ($M = 8.71$, $SD = 5.52$) and experienced 7 different out-of-home placements ($M = 7.18$, $SD = 4.90$) prior to emancipating from foster care at an average age of 18.20 years ($SD = .52$). At the time of their emancipation, 50.6 % of the youth were living in a foster home, 24.7 % in a group home, 18.2 % with a relative, and 6.5 % with friends or in a shelter. On average, youth experienced moderate housing quality during the first month following their emancipation from care ($M = 4.62$, $SD = 1.48$; see Table 1), with nearly half the sample (48.8 %) reporting that they were entirely dependent on the support of another person for their housing. A sizable minority of youth (12.2 %) reported extremely low quality housing immediately after emancipations as characterized by frequent episodes of homelessness or couch surfing with friends or acquaintances for short periods of time. The remaining 39 % of youth reported higher housing quality as indicated by their ability to secure safe and stable accommodations for at least 2 months duration with or without the support of outside services. Two years following their departure from foster care, 40.7 % of the sample reported modest gains in housing quality ($M_{24 \text{ months}} = 5.36$, $SD = 1.84$). Despite these gains, however, no participant reported owning a home during the course of the study, and several youth were incarcerated (2.3 %) or experienced extremely low housing quality (8.7 %) at the 24-month data point.

Multilevel Data Analyses: Unconditional Models

An unconditional means model (Model A) documented the amount of variation in housing quality that could be explained within- and between-participants. Results from Model A revealed a significant intercept ($\gamma_{00} = 49.692$, $SE = .888$, $p < .001$), as well as significant within-person variance ($\sigma_{\epsilon}^2 = 117.144$, $SE = 2.756$, $p < .001$) and significant between-person variance ($\sigma_0^2 = 128.733$, $SE = 14.593$, $p < .001$; see Table 2) in the level of housing quality 6-months following emancipation. These findings indicated that youth's housing quality varied over time within participants, such that there was significant change in housing quality across the first 2-years out of the system for an individual youth, and the form of these changes also varied significantly between participants with some youth evidencing increased housing quality, but others showing stable or declining quality over time. The intra-class correlation coefficient indicated that 52 % of the total variability in housing quality was explained by between-person factors among transition-aged foster youth.

An unconditional growth model (Model B) evaluated the presence of linear change in housing quality. A significant Chi-square difference test, $\chi^2(3) = 1375.934$, $p < .001$, indicated that Model B fit the data better than Model A with 39 % of the variability in housing quality explained by a linear pattern. Importantly, the covariance between

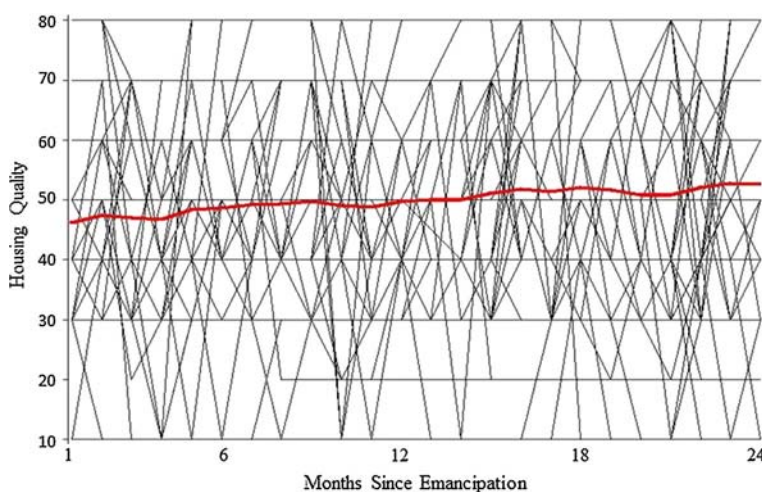


Fig. 1 Raw individual trajectories and the average trajectory of housing quality across the first 24 months following emancipation from foster care. Categorical codes for housing quality were multiplied by 10. The figure does not include the full range of housing quality from 10 to 90, because there were no youth who earned a score of 9 during the first 2 years post-emancipation. $Housing\ Quality_{ij} = 48.290 + .346(TIME_{ij} - 6\ months) + -.008(TIME_{ij} - 6\ months)^2 + \epsilon_{ij}$

intercept and slope, $\sigma_{01} = -8.962$, $SE = 1.394$, $p < .001$, indicated that youth who had higher housing quality 6 months post-emancipation showed smaller decreases in housing quality over time.

Given that significant within-person variance, $\sigma_e^2 = 70.934$, $SE = 1.709$, $p < .001$, intercept variance, $\sigma_0^2 = 218.874$, $SE = 24.910$, $p < .001$, and slope variance, $\sigma_1^2 = .930$, $SE = .112$, $p < .001$, remained in Model B, we estimated an unconditional quadratic model (Model C) to test for the presence of quadratic change in housing quality. A significant Chi-square difference test, $\chi^2(4) = 377.058$, $p < .001$, showed that Model C fit the data better than Model B with an additional 16 % of the variability in housing quality over time attributed to a non-linear pattern. The intercept, $\gamma_{00} = 48.290$, $SE = .980$, $p < .001$, and linear slope, $\sigma_{10} = .346$, $SE = .102$, $p = .001$, were significant, but the non-linear quadratic estimate was not, $\sigma_{20} = -.008$, $SE = .007$, *ns*, which indicated that a quadratic change in housing quality was not evident on average. However, significant variance estimates for the intercept, $\sigma_0^2 = 158.188$, $SE = 17.725$, $p < .001$, linear slope, $\sigma_1^2 = 1.446$, $SE = .193$, $p < .001$, and quadratic term, $\sigma_2^2 = .007$, $SE = .001$, $p < .001$, supported the adoption of a quadratic model to examine youth's trajectories of gains and losses in housing quality over time (see Fig. 1). Moreover, the intercept, $\sigma_{02} = -.323$, $SE = .096$, $p = .001$, and slope, $\sigma_{12} = -.068$, $SE = .012$, $p < .001$, were associated with quadratic change in housing quality, such that higher housing quality at 6 months post-emancipation and more positive linear change in housing quality at 6 months were associated with lower declines in housing quality over time. A follow-up quadratic model (Model C2) that fixed all predictors to have zero effect on the intercept and change in housing quality was estimated to establish a baseline for preliminary conditional models that evaluated the influence of sociodemographic, childhood maltreatment, and out-of-home placement predictor sets on level and change in housing quality.

In sum, the results from the unconditional models showed that, on average, foster youth experienced moderate housing quality across the first 2 years following their emancipation

Table 3 Preliminary analyses for the three conditional models with intercept, linear change, and quadratic change as outcomes

Parameter	Sociodemographic model	Childhood maltreatment model	Out-of-home placement model
<i>Fixed effects</i>			
Intercept π_{0i}	Intercept	Intercept	Intercept
γ_{00}	Gender	Child physical abuse	Age of emancipation
γ_{01}	Parenting Status	Child sexual abuse	Age of entry
γ_{02}	African American/Black	Child emotional abuse	Placement disruption
γ_{03}	Latino American/Hispanic	Child neglect	Relative placement
γ_{04}	Multiracial	Domestic violence	Foster home placement
γ_{05}	Educational status		Group home placement
γ_{06}	Intercept	Intercept	Intercept
Linear change π_{1i}	Gender	Child physical abuse	Age of emancipation
γ_{10}	Parenting status	Child sexual abuse	Age of entry
γ_{11}	African American/Black	Child emotional abuse	Placement disruption
γ_{12}	Latino American/Hispanic	Child Neglect	Relative placement
γ_{13}	Multiracial	Domestic violence	Foster home Placement
γ_{14}	Educational status		Group home placement
γ_{15}	Intercept	Intercept	Intercept
γ_{16}	Gender	Child physical abuse	Age of emancipation
Quadratic change π_{2i}	Parenting status	Child sexual abuse	Age of entry
γ_{20}	African American/Black	Child emotional abuse	Placement disruption
γ_{21}	Latino American/Hispanic	Child neglect	Relative placement
γ_{22}	Multiracial	Domestic violence	Foster home placement
γ_{23}	Educational status		Group home placement
γ_{24}	Intercept	Intercept	Intercept
γ_{25}	Gender	Child physical abuse	Age of emancipation
γ_{26}	Parenting status	Child sexual abuse	Age of entry
	African American/Black	Child emotional abuse	Placement disruption
	Latino American/Hispanic	Child neglect	Relative placement
	Multiracial	Domestic violence	Foster home placement
	Educational status		Group home placement

Gender coded 0 = male, 1 = female. African American/Black coded -0.5 = non-African American/Black, $.5$ = African American/Black. Latino American/Hispanic coded -0.5 = non-Latino American/Hispanic, $.5$ = Latino American/Hispanic. Multiracial coded -0.5 = non-Multiracial, $.5$ = Multiracial. Parenting status coded 0 = has no children, 1 = has at least one children. Educational status coded 0 = did not graduate high school, 1 = graduated high school

† $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

from the child welfare system. However, the presence of significant within person variation in both the intercept (i.e., the level of housing quality at 6 months post-emancipation) and patterns of change (i.e., linear and quadratic terms) indicated that youth exhibited significant differences in their level of housing quality 6 months following their emancipation from care and experienced linear and quadratic changes in housing quality across their first 2 years out of the system. Furthermore, the presence of significant between-person variation in housing quality supported the evaluation of the hypothesized conditional models.

Multilevel Data Analyses: Conditional Models

Three preliminary conditional models examined the influence of sociodemographic, childhood maltreatment, and out-of-home placement variables on level and change in housing quality (see Table 3). These findings informed a series of final conditional models that evaluated all significant predictors from the preliminary models simultaneously with housing quality intercept (Model D), linear change (Model E), and quadratic change (Model F).

In the sociodemographic model, parenting status was associated with higher housing quality at 6 months (i.e., intercept), female gender and identifying as a Latino American/Hispanic were associated with positive linear change in housing quality (i.e., slope), and graduating from high school was related positively to housing quality intercept and negatively to quadratic change in housing quality (i.e., lower declines in housing quality across the 2-year period). Based on these findings, youth gender, Latino American/Hispanic race/ethnicity, parenting status, and education level were included as sociodemographic predictors in the final conditional models.

With regard to childhood maltreatment, domestic violence exposure was negatively associated with linear change in housing quality (i.e., less increase at 6 months post-emancipation) and positively with quadratic change in housing quality (i.e., more decline over the 2-year period). In other words, youth who were exposed to domestic violence in childhood were less likely to show the expected increase in housing quality at 6 months post-emancipation and were more likely to show a decline in housing quality across the first 24 months following emancipation. Childhood physical abuse, childhood sexual abuse, childhood emotional abuse, and childhood neglect were not significantly related to housing quality intercept, nor to linear or quadratic change. Thus, only childhood domestic violence exposure was retained in the final conditional models.

Finally, in the out-of-home placement model, age at emancipation correlated positively with the intercept (i.e., higher housing quality 6 months post-emancipation) and negatively with quadratic change in housing quality (i.e., lower declines in housing quality over time). Older age of entry into foster care and living with relatives prior to emancipation were associated positively with quadratic change in housing quality. In other words, youth who were older when they first entered foster care and/or who lived with a relative at the time of their emancipation evidenced greater declines in housing quality over time. Placement disruption, and living in a foster or group home prior to emancipation were not significantly associated with the intercept of housing quality, nor with its linear or quadratic change. Therefore, only age of emancipation, age of entry into foster care, and living with relatives prior to emancipation were included in the final conditional models.

The intercept as outcome model (Model D) simultaneously evaluated the associations of the significant predictors selected from the preliminary models, which included youth gender, Latino American/Hispanic race/ethnicity, parenting status, education level, childhood domestic violence exposure, age of emancipation, age of entry into foster care,

and living with relatives at last placement with youth's housing quality at 6 months post-emancipation (i.e., the intercept). The Chi-square difference test comparing Model D to the baseline conditional quadratic model (Model C2) was significant, $\chi^2(8) = 19.798$, $p = .011$. The Pseudo R^2 for this model indicated that 9.2 % of the between-person variability in housing quality at 6 months post-emancipation could be explained by Model D. Female gender, being a parent, and having a high school diploma or GED were associated with better housing quality at 6 months post-emancipation.

The intercept and linear change as outcomes model (Model E) was tested against Model D to examine the association between the significant predictors and linear change in housing quality. The Chi-square difference test between Model E and Model D was not statistically significant, $\chi^2(8) = 13.176$, *ns*, suggesting that these models were not significantly different from each other. The pseudo R^2 value revealed that Model E explained 7.4 % of the linear change in housing quality. Gender predicted linear change in housing quality at 6 months post-emancipation with females evidencing a higher linear increase in housing quality than males.

Given preliminary univariate tests suggesting between group variability in quadratic change in housing quality, we estimated a final intercept, linear, and quadratic change as outcomes model (Model F) to determine which variables were associated with quadratic change in housing quality. This model was compared to the baseline conditional quadratic model (Model C2). A significant Chi-square test, $\chi^2(24) = 49.94$, $p < .01$, indicated that Model F was a better fitting model than Model C2. The pseudo R^2 values indicated that the current model explained 10.2 % of the intercept variance, 12.4 % of the variance in linear change, and 14.3 % of the variance in the quadratic change term. Thus, Model F was selected as the best fitting model.

Model F suggested that, after controlling for gender, childhood maltreatment, and out-of-home placement history, parenting status, $\gamma_{03} = 4.745$, $SE = 2.184$, $p = .03$, and education level, $\gamma_{04} = 6.043$, $SE = 2.195$, $p = .006$, were associated with better housing quality 6 months post-emancipation (i.e., the intercept). Controlling for the other predictors, gender and age of emancipation were positively associated, and childhood domestic violence exposure was negatively associated with linear change in housing quality. Females, $\gamma_{11} = .599$, $SE = .211$, $p = .005$, and youth who emancipated from the foster care system at an older age, $\gamma_{16} = .334$, $SE = .195$, $p = .086$, evidenced a linear increase in housing quality at 6 months. In contrast, youth who had been exposed to domestic violence in childhood exhibited a linear decrease in housing quality at 6 months, $\gamma_{15} = -.371$, $SE = .204$, $p = .069$. Regarding quadratic change in housing quality, a history of domestic violence exposure, $\gamma_{25} = .025$, $SE = .015$, $p = .085$, older age of entry into foster care, $\gamma_{27} = .002$, $SE = .001$, $p = .081$, and living with relatives prior to emancipation, $\gamma_{28} = .030$, $SE = .018$, $p = .091$, were associated with significant declines in housing quality over time, whereas older age of emancipation, $\gamma_{26} = -.027$, $SE = .014$, $p = .057$, was associated with less decline in housing quality over time.

Discussion

This study provides a rare look at changes in housing quality during emerging adulthood generally, and particularly among transition-aged foster youth. Interpreted within the broad frame of risk and resilience research, the obtained findings highlight periods of relative stability and vulnerability in foster youth's housing quality, and illustrate the salience of

youth's sociodemographic characteristics, childhood maltreatment experiences, and out-of-home placement history for understanding the nature of their housing quality across their first 2 years post-emancipation.

On average, youth emancipated from care with supported living accommodations (i.e., significant others provided all or most of the youth's housing needs) and experienced an increase in housing quality over time. However, there was significant variability in youth's housing quality at 6-months post-emancipation, as well as over time, with some youth showing gains in housing quality, whereas others experienced stable or declining housing quality. Consistent with prior research (e.g., Courtney et al. 2010), this sample of newly emancipated foster youth evidenced greater housing vulnerability than their peers who have not experienced out-of-home placement. For example, whereas two-thirds of non-fostered young adults live on their own (Courtney et al. 2010), the average trajectory of housing quality in this study indicated that transition-aged youth struggle to obtain safe and reliable housing independently. Even 2 years following emancipation, only 22.7 % of the youth in this sample were living independently as defined by living alone or with a roommate/partner and contributing equally to housing costs.

As in prior studies (Adam and Chase-Lansdale 2002; Buckner et al. 1999; Lehmann et al. 2007), parenting a young child and having a high school diploma or GED were associated with improved housing outcomes. These findings highlight the value of supportive resources for parenting youth (e.g., subsidized housing, food supplements, Temporary Assistance for Needy Families), and also illustrate the potential value of such support for non-parenting youth. Importantly, these findings suggest that efforts to promote educational competence among emancipated youth is one way policy makers and child welfare providers can enhance the resource base from which youth may access safe and reliable housing in the wake of foster care.

Relative to young men leaving foster care, female foster youth experienced higher quality housing over time, which is consistent with prior research (Kidd et al. 2013). Clarifying the mechanisms underlying these gendered patterns may guide future practice and policy efforts to promote youth's resilience in the face of post-emancipation housing challenges. Gender socialization may contribute to more favorable housing outcomes among female emancipated foster youth for many reasons. Females are socialized to seek out support and help in times of need (Ashton and Fuehrer 1993), and it is generally perceived as more socially acceptable for females to seek support as compared to their male counterparts. In addition, females generally develop more numerous and more intimate social relationships than males (Allen and Stoltenberg 1995), which may provide a stronger resource base for them to draw upon when seeking support. Finally, others may perceive females as more vulnerable than males and thus may offer females more resources and support. Although some females may attain higher housing quality because they are more likely to be parenting a child, the obtained effects suggest that there is a robust effect of female gender beyond that associated with parenting. Interventions that encourage male foster youth to seek out support, teach males positive relationship skills, and educate the public about the unique vulnerabilities of *all* emancipated youth may contribute to more positive housing outcomes among male foster youth.

Relative to sociodemographic factors, youth's childhood maltreatment and out-of-home placement experiences were less strongly related to their post-emancipation housing quality. A history of childhood domestic violence exposure predicted greater declines in housing quality over time in the initial childhood maltreatment model. Although these effects dropped to marginal significance in the full model, they are consistent with prior suggestions that youth who have been exposed to domestic violence during childhood

experience greater housing instability in later development (Anooshian 2005; Kilmer et al. 2012). According to Anooshian (2005), children who are exposed to domestic violence may be more likely to display aggressive behaviors toward other individuals because they learn to rely on violence to settle conflicts. In turn, these violent acts against others lead to peer rejection, social isolation, and diminished support. In addition, domestic violence exposure may engender a sense of mistrust and apprehension toward others (Anooshian 2005), which may further undermine youth's housing attainment and stability. These findings suggest that former foster youth with a history of domestic violence exposure warrant extra care and consideration to support their relational and housing security at the time of emancipation. Moreover, approaches that target youth's social skills and social information processing may be particularly effective in these efforts.

Youth who were older at the time of their emancipation from care evidenced better housing quality 6 months following emancipation and experienced less decline in housing quality over time. However, additional research is needed to ascertain the mechanism(s) underlying these age effects since it is not clear if it is the age of emancipation that is operating in this process, or if age of emancipation is a proxy for transition-aged youth who are more connected to services, happier in care, and thus more likely to age out of care at a later age. Given that this sample did not come of age in the context of current extended care supports (e.g., Assembly Bill 12 in the state of California; California Fostering Connections to Success Act 2010), it may also be that individuals who remained in care for longer durations were actually at higher risk for negative adjustment outcomes as these youth often remained in care because they were delayed in finishing high school. Indeed, this would further highlight the importance of extended foster care supports beyond age 18 as it suggests that even youth who were at elevated risk for negative adjustment outcomes evidenced improved housing quality when they emancipated later. Further research is needed to disentangle these issues, especially as increasing numbers of transition-aged youth have the option to emancipate from the system at later ages. Although of marginal significance in the full model, these data also suggest that youth who entered foster care at a later age and/or lived with relatives prior to emancipation may be at increased risk for declines in housing quality during their first 2 years out of the system. Here, too, understanding the explanatory processes that account for these relations is important. For example, youth entering the system at later ages may have been exposed to adverse family environments for a longer duration relative to those who entered foster care earlier in development. Relatedly, youth residing with relatives at the time of emancipation may have encountered greater levels of family adversity than youth in other placements because relatives may be more closely connected to the caregiver(s) and/or context(s) from which the youth was originally removed.

Although this study points to promising avenues for future practice and policy efforts to support this uniquely vulnerable population of young adults, these impacts will be strengthened by interpreting the current findings within an explanatory and testable theoretical framework. In addition to risk and resilience studies, which encourage the elucidation of specific processes that exacerbate or mitigate vulnerability in challenging contexts (Luthar 2006; Masten 2001), social capital theory may help to situate the obtained findings within an actionable policy frame. Social capital theory holds that individuals with more material resources, knowledge, and information obtained via social relationships and networks, are more likely to experience positive developmental outcomes than their peers with less social capital (Laser and Leibowitz 2009; Perez and Romo 2011). In this view, females and youth who emancipated from care at a later age may have attained higher housing quality because they had more opportunities to acquire social supports and

resources needed to procure and maintain safe and reliable housing during emerging adulthood. Similarly, youth who were exposed to domestic violence during childhood may have been prone to negative or unstable relationships (Von Steen 1997), which, in turn, hindered their ability to develop the social capital needed to acquire reliable and safe housing. The finding that living with relatives prior to emancipation was associated with poor housing quality highlights the importance of relationship quality, in addition to quantity, when evaluating youths' social capital (Laser and Leibowitz 2009). In many instances, youth were residing with relatives who were closely connected to the caregiver(s) from whom the youth had been removed previously for abuse or neglect. Moreover, these families were often characterized by social and economic disadvantage such that they were not connected to stable social networks that could provide accurate information and adequate material resources. Thus, this finding demonstrates that social relationships are a necessary, but not sufficient, indicator of social capital. This study represents an important first step toward identifying meaningful correlates of housing quality among emancipated foster youth. However, future studies will benefit from more explicit consideration of social capital theory and its tenets to clarify, for example, how youth's relationships with specific adults or significant others such as romantic partners may influence their level and/or change in housing quality.

Strengths and Limitations

This study identified the average trajectory of housing quality in a large and diverse sample of transition-aged foster youth across the first 2 years following their emancipation from the child welfare system. In contrast to prior studies that limited their analytic focus to episodes of homelessness among former foster youth (Dworsky et al. 2013; Fowler et al. 2009), this investigation examined a continuum of housing quality over time to elucidate risk and protective factors that influenced the level and/or change in youth's housing quality. Despite these contributions, the interpretations and implications of the obtained findings are qualified by several limitations.

First, a nonrandom subset of transition-aged foster youth in Southern California comprised the current sample. Therefore, these findings may not reflect those of the larger population of youth who emancipate from the foster care system. In addition, the current sample size may not have been sufficient to detect small effects in light of the complexity of our analyses. Although the inclusion of numerous data points across the 24-month investigative period likely mitigated this concern, future research using larger, nationally representative samples of foster youth are needed to examine longitudinal changes in housing quality fully.

Second, as the first study of housing quality to advance beyond discrete distinctions between homeless and housed youth (e.g., Fowler et al. 2009), the current coding system was necessarily novel. Importantly, the intervals between values along the 9-point housing quality scale may have varied, such that the distinction between a score of 1 (i.e., homeless) and 2 (i.e., incarceration) may not have been equal to that between a score of 4 (i.e., fully supported housing) and 5 (i.e., partially supported housing). In an effort to further explore this possibility, we provided a randomized list of the housing category descriptors to expert raters and asked them to evaluate each housing category on a 100-point continuum. When these expert ratings were averaged and divided by 10, we obtained an identical set of housing codes suggesting that our housing descriptors captured conceptually meaningful and relatively equidistant distinctions in quality. Nevertheless, the novel housing quality coding scheme used in this study is of uncertain validity and

likely omitted important housing features, such as physical characteristics of the home with regard to heat or pest infestation, and safety features in the home and surrounding neighborhood. Future measurement approaches would be improved by the integration of observational assessments of youth's housing quality along multiple dimensions.

Third, issues with the measurement of childhood maltreatment in this study highlight the complexities of assessing these constructs. For instance, the reliability coefficient for child neglect was relatively low in comparison to the other maltreatment subtypes, and likely reflects the known difficulty of detecting and assessing child neglect (Berzenski and Yates 2011; Stowman and Donohue 2005). Although our consideration of specific childhood maltreatment effects on housing quality constitutes a strength of this study, we were not able to examine potentially meaningful patterns of comorbidity among maltreatment types (Berzenski and Yates 2011). Future research should evaluate the interactive or synergistic effects of childhood maltreatment subtypes on housing quality during emerging adulthood. This is particularly important in studies of emancipated foster youth where rates of maltreatment comorbidity are apt to be especially high. For example, the vast majority (92.4 %) of youth in this study reported experiencing two or more types of childhood maltreatment.

Finally, the current findings may have been biased by the shared method and retrospective nature of the data regarding youth's childhood maltreatment, out-of-home placement history, and housing experiences. Although retrospective reports are fallible (Hardt and Rutter 2004; Shaffer et al. 2008), empirical studies support their convergent validity with child welfare experiences in studies using both administrative data and prospective indices of adjustment (Dube et al. 2004; Shaffer et al. 2008). For example, extant studies of emancipated foster youth support the validity of narrative placement assessments with regard to later experiences of homelessness (Dworsky and Courtney 2009), earnings (Hook and Courtney 2011), and arrest records (Lee et al. 2012). Indeed, some scholars suggest self-report data may be more valuable than administrative data given their robust predictive validity and clinical utility/accessibility (e.g., McAdams and de St Aubin 1992). This may be especially true for retrospective reports of childhood maltreatment, which may capture the totality of youth's lived experiences, rather than just those associated with reported and reportable events (Hardt and Rutter 2004; Shaffer et al. 2008), and are less likely to be biased by gender, race/ethnicity, or socioeconomic status (Drake et al. 2009). Nevertheless, administrative documentation of children's maltreatment and out-of-home placement experiences, which were not available in this study, would offer complementary information to youth's retrospective reports.

Future Directions and Implications

The current study advances an important step in a longer journey toward clarifying factors that engender or compromise youth's capacities to secure safe and reliable housing during emerging adulthood. These findings fill an important gap in the literature on high-risk youth by documenting changes in housing quality across the first 2 years following youth's emancipation from foster care. In particular, these data highlight significant and interpretable variation in housing quality over time with youth differentially experiencing gains and losses in housing quality in the wake of emancipation. Declines in housing quality were especially pronounced for youth who were male, were not parenting, had not yet obtained a high school diploma or GED, were exposed to domestic violence during childhood, emancipated from care at a relatively younger age, entered care at an older age, and/or lived with relatives prior to emancipation.

Further research is needed to elucidate mechanisms that may explain the associations observed here, and improve upon the current findings. Theories of risk and resilience emphasize understanding both risk and protective factors that may undermine or support youth's housing experiences, respectively. Likewise, social capital theory offers a promising framework to understand these effects, such that future studies should include relevant measures, such as social support and mentorship, to evaluate the utility of this framework for explaining observed relations of sociodemographic, childhood maltreatment, and out-of-home placement experiences with youth's housing quality.

Research using larger samples would also support the identification of different subtypes and pathways of housing quality using person-centered techniques, such as growth mixture modeling (Nagin 1999), to clarify factors related to sociodemographic, childhood maltreatment, out-of-home placement, or other characteristics that may be associated with specific housing patterns. Future studies with larger samples and more assessment points should also consider the time-varying nature of select housing correlates, such as parenting status and education attainment, which was not possible in the current study design. Finally, studies should investigate if and how housing quality is associated with age-salient adjustment outcomes among transition-aged foster youth, such as employment, education, and parenting quality.

The current effort to document changes in housing quality among newly emancipated foster youth and identify their correlates can justify and inform policy, prevention, and intervention efforts aimed at improving housing resources for transition-aged foster youth and other vulnerable populations, such as youth exiting juvenile justice or psychiatric systems. First and foremost, these findings highlight the continued need for efforts to increase housing resources for former foster youth even 2 years beyond their emancipation from the child welfare system. In particular, these data suggest that the 6 month mark following emancipation may be a period of unique vulnerability and potential opportunity for intervention as youth experience a shift in their housing quality trajectory for better or for worse. As noted earlier, supporting pathways to higher education and providing resources to all transition-aged youth will contribute to improved housing outcomes among former foster youth. Importantly, although these data were collected in advance of extended foster care resources in California, the obtained findings remain of pressing relevance to the anticipated 30 % of youth who will opt out of extended care in California as has been found in other states with extended care policies, including New York and Illinois (Courtney et al. 2007), as well as for youth who continue to age out in the absence of extended foster care support around the country.

Safe and reliable housing is a core domain of adaptation for all young adults (Arnett 2000; Berzin et al. 2011) and is a central need that must be met in order for youth to pursue additional avenues of health and advancement (Maslow 1943). For youth who are transitioning from childhood dependence on foster care to adult interdependence, efforts to understand and promote housing quality are of paramount importance. The present findings should encourage and guide practice and policy efforts to support housing quality among vulnerable youth, and, in turn, broader indices and domains of youth adaptation.

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Compliance with Ethical Standards

Conflict of interest The authors declare no conflict of interest and both authors take responsibility for the integrity of the data and the accuracy of the data analysis.

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References

- Adam, E. K., & Chase-Lansdale, P. L. (2002). Home sweet home(s): Parental separations, residential moves, and adjustment problems in low-income adolescent girls. *Developmental Psychology, 38*(5), 792–805. doi:10.1037//0012-1649.38.5.792.
- Allen, S. F., & Stoltenberg, C. D. (1995). Psychological separation of older adolescents and young adults from their parents: An investigation of gender differences. *Journal of Counseling & Development, 73*(5), 542–546. doi:10.1002/j.1556-6676.1995.tb01791.x.
- Anooshian, L. J. (2005). Violence and aggression in the lives of homeless children: A review. *Aggression and Violent Behavior, 10*(2), 129–152. doi:10.1016/j.avb.2003.10.004.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469–480. doi:10.1037/0003-066X.55.5.469.
- Ashton, W. A., & Fuehrer, A. (1993). Effects of gender and gender role identification of participant and type of social support resource on support seeking. *Sex roles, 28*(7–8), 461–476. doi:10.1007/BF00289608.
- Berzanski, S. R., & Yates, T. M. (2011). Classes and consequences of multiple maltreatment: A person-centered analysis. *Child Maltreatment, 16*(4), 250–261. doi:10.1177/1077559511428353.
- Berzin, S. C., Rhodes, A. M., & Curtis, M. A. (2011). Housing experiences of former foster youth: How do they fare in comparison to other youth? *Children and Youth Services Review, 33*(11), 2119–2126. doi:10.1016/j.childyouth.2011.06.018.
- Bremner, J. D., Vermetten, E., & Mazure, C. M. (2000). Development and preliminary psychometric properties of an instrument for the measurement of childhood trauma: the early trauma inventory. *Depression and Anxiety, 12*(1), 1–12. doi:10.1002/1520-6394(2000)12:1<1:aid-da1>3.0.co;2-w.
- Brown, D., Benzeval, M., Gayle, V., Macintyre, S., O'Reilly, D., & Leyland, A. H. (2012). Childhood residential mobility and health in late adolescence and adulthood: findings from the West of Scotland Twenty-07 Study. *Journal of Epidemiology and Community Health, 66*(10), 942–950. doi:10.1136/jech-2011-200316.
- Buckner, J. C., Bassuk, E. L., Weinreb, L. F., & Brooks, M. G. (1999). Homelessness and its relation to the mental health and behavior of low-income school-age children. *Developmental Psychology, 35*(1), 246–257. doi:10.1037/0012-1649.35.1.246.
- Burgard, S. A., Seefeldt, K. S., & Zelner, S. (2012). Housing instability and health: Findings from the Michigan Recession and Recovery Study. *Social Science and Medicine, 75*(12), 2215–2224. doi:10.1016/j.socscimed.2012.08.020.
- Cairney, J. (2005). Housing tenure and psychological well-being during adolescence. *Environment and Behavior, 37*(4), 552–564. doi:10.1177/0013916504270697.
- California Fostering Connections to Success Act. (2010). Cal. Legs. Serv. c. 559 (A. B. 12) Stat.
- Cheng, T., Wood, E., Feng, C., Mathias, S., Montaner, J., Kerr, T., et al. (2013). Transitions into and out of homelessness among street-involved youth in a Canadian setting. *Health Place, 23*, 122–127. doi:10.1016/j.healthplace.2013.06.003.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Mahwah, NJ: L. Erlbaum Associates.
- 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*(9), 1775–1789. doi:10.1037/a0031033.
- Courtney, M. E., & Dworsky, A. (2006). Early outcomes for young adults transitioning from out-of-home care in the USA. *Child & Family Social Work, 11*(3), 209–219. doi:10.1111/j.1365-2206.2006.00433.x.
- Courtney, M. E., Dworsky, A., Lee, J. S., & Raap, M. (2010). *Midwest evaluation of the adult functioning of former foster youth: Outcomes at ages 23 and 24 (1097–3125)*. Chicago: University of Chicago.

- Courtney, M. E., Dworsky, A., & Peters, C. M. (2009). *California's Fostering Connections to Success Act and the costs and benefits of extending foster care to 21*. Seattle, WA: Partners for Our Children.
- Courtney, M. E., Dworsky, A., & Pollack, H. (2007). *When should the state cease parenting? Evidence from the Midwest Study*. Chicago: Chapin Hall at the University of Chicago.
- Drake, B., Lee, S. M., & Jonson-Reid, M. (2009). Race and child maltreatment reporting: Are Blacks overrepresented? *Children and Youth Services Review, 31*(3), 309–316. doi:10.1016/j.chilyouth.2008.08.004.
- Dube, S. R., Williamson, D. F., Thompson, T., Felitti, V. J., & Anda, R. F. (2004). Assessing the reliability of retrospective reports of adverse childhood experiences among adult HMO members attending a primary care clinic. *Child Abuse and Neglect, 28*(7), 729–737. doi:10.1016/j.chiabu.2003.08.009.
- Dworsky, A., & Courtney, M. E. (2009). Homelessness and the transition from foster care to adulthood. *Child Welfare: Journal of Policy, Practice, and Program, 88*(4), 23–56.
- Dworsky, A., Dillman, K.-N., Dion, R. M., Coffee-Borden, B., & Rosenau, M. (2012). *Housing for youth aging out of foster care: A review of the literature and program typology*. U.S. Department of Housing and Urban Development Office of Policy Development & Research. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2112278.
- Dworsky, A., Napolitano, L., & Courtney, M. (2013). Homelessness during the transition from foster care to adulthood. *American Journal of Public Health, 103*(Suppl 2), S318–S323. doi:10.2105/AJPH.2013.301455.
- Dworsky, A., White, C. R., O'Brien, K., Pecora, P., Courtney, M., Kessler, R., et al. (2010). Racial and ethnic differences in the outcomes of former foster youth. *Children and Youth Services Review, 32*(6), 902–912. doi:10.1016/j.chilyouth.2010.03.001.
- Finzi, R., Ram, A., Har-Even, D., Shnit, D., & Weizman, A. (2001). Attachment styles and aggression in physically abused and neglected children. *Journal of Youth and Adolescence, 30*(6), 769–786. doi:10.1023/a:1012237813771.
- Fowler, P. J., Toro, P. A., & Miles, B. W. (2009). Pathways to and from homelessness and associated psychosocial outcomes among adolescents leaving the foster care system. *American Journal of Public Health, 99*(8), 1453–1458. doi:10.2105/AJPH.2008.142547.
- Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: Review of the evidence. *Journal of Child Psychology and Psychiatry, 45*(2), 260–273. doi:10.1111/j.1469-7610.2004.00218.x.
- Hook, J. L., & Courtney, M. E. (2011). Employment outcomes of former foster youth as young adults: The importance of human, personal, and social capital. *Children and Youth Services Review, 33*(10), 1855–1865.
- Kidd, S. A., Karabanow, J., Hughes, J., & Frederick, T. (2013). Brief report: Youth pathways out of homelessness—Preliminary findings. *Journal of Adolescence, 36*(6), 1035–1037. doi:10.1016/j.adolescence.2013.08.009.
- Kilmer, R. P., Cook, J. R., Crusto, C., Strater, K. P., & Haber, M. G. (2012). Understanding the ecology and development of children and families experiencing homelessness: Implications for practice, supportive services, and policy. *American Journal of Orthopsychiatry, 82*(3), 389–401. doi:10.1111/j.1939-0025.2012.01160.x.
- Laser, J. A., & Leibowitz, G. S. (2009). Promoting positive outcomes for healthy youth development: Utilizing social capital theory. *Journal of Sociology and Social Welfare, 36*(1), 87–102.
- Lee, J. S., Courtney, M. E., & Hook, J. L. (2012). Formal bonds during the transition to adulthood: Extended foster care support and criminal/legal involvement. *Journal of Public Child Welfare, 6*(3), 255–279.
- Lehmann, E. R., Kass, P. H., Drake, C. M., & Nichols, S. B. (2007). Risk factors for first-time homelessness in low-income women. *American Journal of Orthopsychiatry, 77*(1), 20–28. doi:10.1037/0002-9432.77.1.20.
- Leventhal, T., & Newman, S. (2010). Housing and child development. *Children and Youth Services Review, 32*(9), 1165–1174. doi:10.1016/j.chilyouth.2010.03.008.
- Luthar, S. S. (2006). Resilience in development: A synthesis of research across five decades. In D. C. D. J. Cohen (Ed.), *Developmental psychopathology: Risk, disorder, and adaptation* (2nd ed., Vol. 3, pp. 739–795). Hoboken, NJ: Wiley.
- Maslow, A. H. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370–396. doi:10.1037/h0054346.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*(3), 227–238. doi:10.1037/0003-066X.56.3.227.
- McAdams, D. P., & de St Aubin, E. (1992). A theory of generativity and its assessment through self-report, behavioral acts, and narrative themes in autobiography. *Journal of Personality and Social Psychology, 62*(6), 1003. doi:10.1037/0022-3514.62.6.1003.

- McGee, R. A., Wolfe, D. A., Yuen, S. A., & Wilson, S. K. (1995). The measurement of maltreatment: A comparison of approaches. *Child Abuse and Neglect*, *19*(2), 233–249. doi:[10.1016/0145-2134\(94\)00119-F](https://doi.org/10.1016/0145-2134(94)00119-F).
- Muthén, L. K., & Muthén, B. O. (1998–2011). *Mplus user's guide*. 6th ed. Los Angeles, CA: Muthén & Muthén.
- Nagin, D. S. (1999). Analyzing developmental trajectories: A semiparametric, group-based approach. *Psychological Methods*, *4*(2), 139–157. doi:[10.1037/1082-989X.4.2.139](https://doi.org/10.1037/1082-989X.4.2.139).
- National Alliance to End Homelessness. (2006). *Fundamental issues to prevent and end youth homelessness*. Youth Homelessness Series Brief No. 1.
- Oishi, S., & Schimmack, U. (2010). Residential mobility, well-being, and mortality. *Journal of Personality and Social Psychology*, *98*(6), 980–994. doi:[10.1037/a0019389](https://doi.org/10.1037/a0019389).
- Perez, B. F., & Romo, H. D. (2011). “Couch surfing” of Latino foster care alumni: Reliance on peers as social capital. *Journal of Adolescence*, *34*(2), 239–248. doi:[10.1016/j.adolescence.2010.05.007](https://doi.org/10.1016/j.adolescence.2010.05.007).
- Ryan, T. N., & Thompson, S. J. (2013). Perspectives on housing among homeless emerging adults. *Evaluation and Program Planning*, *36*(1), 107–114. doi:[10.1016/j.evalprogplan.2012.09.001](https://doi.org/10.1016/j.evalprogplan.2012.09.001).
- Satorra, A. (2000). Scaled and Adjusted Restricted Tests in multi-sample analysis of moment structures. In R. D. H. Heijmans, D. S. G. Pollock, & A. Satorra (Eds.), *Innovations in multivariate statistical analysis: A Festschrift for Heinz Neudecker* (pp. 233–247). Boston, MA: Springer.
- Shaffer, A., Huston, L., & Egeland, B. (2008). Identification of child maltreatment using prospective and self-report methodologies: A comparison of maltreatment incidence and relation to later psychopathology. *Child Abuse and Neglect*, *32*(7), 682–692. doi:[10.1016/j.chiabu.2007.09.010](https://doi.org/10.1016/j.chiabu.2007.09.010).
- Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. New York, NY: Oxford University Press.
- Stowman, S. A., & Donohue, B. (2005). Assessing child neglect: A review of standardized measures. *Aggression and Violent Behavior*, *10*(4), 491–512. doi:[10.1016/j.avb.2004.08.001](https://doi.org/10.1016/j.avb.2004.08.001).
- Von Steen, P. G. (1997). Adults with witnessing histories: The overlooked victims of domestic violence. *Psychotherapy: Theory, Research, Practice, Training*, *34*(4), 478–484. doi:[10.1037/h0087765](https://doi.org/10.1037/h0087765).
- Ward, R. A., & Spitze, G. D. (2007). Nestleaving and coresidence by young adult children: The role of family relations. *Research on Aging*, *29*(3), 257–277. doi:[10.1177/0164027506298225](https://doi.org/10.1177/0164027506298225).
- Yates, T. M., & Grey, I. K. (2012). Adapting to aging out: Profiles of risk and resilience among emancipated foster youth. *Development and Psychopathology*, *24*(02), 475–492. doi:[10.1017/S0954579412000107](https://doi.org/10.1017/S0954579412000107).
- Ziol-Guest, K. M., & McKenna, C. C. (2014). Early childhood housing instability and school readiness. *Child Development*, *85*(1), 103–113. doi:[10.1111/cdev.12105](https://doi.org/10.1111/cdev.12105).