



Defining Homelessness in the Transition to Adulthood for Policy and Prevention

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Abstract

Objectives The present study investigates the nature of homelessness among at-risk youth transitioning into adulthood. Current policies use multiple definitions to determine eligibility for homeless services among adolescents and emerging adults. Conflicting criteria demarcate different thresholds along an assumed continuum ranging from frequent mobility to living on the streets. Multiple eligibility criteria impede cohesive service provision and prevention efforts. Little research tests this continuum conceptualization, while developmental research suggests subgroups better capture homelessness in emerging adulthood. The present study leveraged prospective data on a national sample of child welfare-involved adolescents—a population vulnerable to homelessness in emerging adulthood.

Methods Youth report experiences of housing instability and homelessness 18–36 months after child welfare investigation, as well as adaptive functioning in multiple behavioral domains. Latent variable analyses test for a continuum of housing insecurity with reliable thresholds versus a typology capturing subgroups of co-occurring patterns of housing instability.

Results Results show little support for a continuum of risk; instead, three subgroups of housing instability emerge. The largest group, ‘Stably Dependent’ (83%) youth, live with family without attaining education and employment experiences necessary for independence. A smaller group labeled ‘Transients’ (12%) exhibit multiple housing and behavior problems typical of runaway youth. The smallest group, ‘Unstably Independent’ (5%), youth struggled to maintain housing in the absence of supportive adults.

Conclusions Findings affirm a developmental conceptualization of homelessness and identify opportunities for screening and prevention.

Keywords Homelessness · Emerging adulthood · Definitions · Prevention · Measurement

The transition to adulthood is a developmentally vulnerable time for at-risk youth as they experiment with new identities and independence. Emerging adults experience a range of housing problems with enduring consequences for well-being, but the nature and scope of youth homelessness are poorly understood (Braciszewski et al. 2016; Curry et al. 2017; Dworsky et al. 2013). Prevention is hindered by lack of

knowledge of risk, and misalignment of services with need (Fowler et al. 2019). Current federal definitions conceptualize homelessness along a continuum with thresholds for service eligibility, but thresholds vary and lack empirical support. Former foster youth, a high-risk group of emerging adults, face additional barriers to stable housing that require better understanding of homelessness risk. Recent research suggests an alternate conceptualization that defines subgroups of youth who experience patterns of housing problems over time (Braciszewski et al. 2016; Fowler et al. 2009). It is necessary to test whether current definitions adequately capture homelessness risk. To design and deliver effective preventative services, assumptions underlying current definitions must be tested for vulnerable emerging adults.

Housing insecurity in the transition to adulthood represents a growing concern for policy and programmatic initiatives aimed at preventing and ending homelessness. Emerging adulthood represents a highly transient time with

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moves corresponding to burgeoning adult responsibilities such as school or work (Arnett 2004). However, this transition can contribute to a range of housing problems if youth face additional barriers or lack supports as they experiment with adult roles and responsibilities. An annual count estimated 41,662 youth aged 18–24 years were in shelters or on the streets on a single night in January 2016. In 2014, over 20,000 youth received services from street outreach workers, over 30,000 received emergency shelter services, and nearly 3000 received transitional living services through the Runaway and Youth Homeless Program (U.S. Department of Health and Human Services 2016a, 2016b, 2017). Other estimates use additional indicators of housing insecurity; a survey of American households with youth aged 18–25 years found 21% included an emerging adult who had couch-surfed in the past 12 months (Curry et al. 2017). Balancing new responsibilities and life transitions make this a developmentally vulnerable period for youth.

Multiple federal definitions of homelessness exist. The U.S. Department of Housing and Urban Development defines homeless service eligibility for unaccompanied youth aged 18–24, including emergency shelter and short-term housing assistance, based on whether they experience literal homelessness—lacking a regular place to sleep, residing in shelters, facing imminent eviction, or are fleeing dangerous environments such as domestic violence (Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act 2009). The Runaway and Homeless Youth Act (RHYA 2008) that outlines eligibility for services through the U.S. Department of Health and Human Services defines youth homelessness as the inability of unaccompanied adolescents under age 21 to live safely with a relative. The U.S. Department of Education definition, established in the Every Student Succeeds Act of 2015 (P.L. 114–95), counts youth and families who reside with others because they cannot afford to live elsewhere; this includes “doubling up” and “couch surfing.” Definitions of homelessness determine access to resources but lack of empirically sound assessments hinder progress toward promoting stable housing among vulnerable emerging adults.

The intersection of policies has meaningful impacts on systems that aim to protect adolescents. One service system that has received research and policy attention is child welfare, which is responsible for the safety, permanency, and well-being of children and adolescents. An estimated one-fifth to one-half of former foster youth experience homelessness by age 26, while one-third experience three or more living arrangements by age 21 (Children’s Bureau 2014; Dworsky et al. 2013; Fowler et al. 2009). A lack of stable families upon which to fall back for housing supports represents a significant risk for homelessness in the

transition to adulthood (Fowler et al. 2017). However, the range of housing problems and definitions for eligibility leads to improper alignment of housing services with need among these vulnerable emerging adults (Chor et al. 2018).

Federal eligibility criteria all share the assumption that housing problems fall on a continuum of severity. Under this assumption, youth only receive housing services after an experience of literal homelessness. While policies range in restrictiveness across federal agencies, all conceptualizations of homelessness risk fall along a continuum; a housing experience that meets a designated threshold of severity warrants intervention, while youth with less severe housing problems remain ineligible. However, no studies empirically evaluate whether these thresholds adequately assess need for housing services. Poor conceptualization and lack of validated assessments challenge the ability to assess the scope of housing need among at-risk youth and monitor the success of broad initiatives aiming to reduce youth homelessness. If risk fails to fall along a continuum, then current services may be misappropriated.

Evidence suggests an alternative conceptualization of housing insecurity that emphasizes developmental variation in housing trajectories may be most appropriate for high-risk youth (Braciszewski et al. 2016; Fowler et al. 2009, 2011). Instead of defining risk along a continuum, the developmental framework emphasizes patterns of housing experiences over time. Risk for homelessness is defined not as a single shelter stay or episode of living on the streets, but rather prolonged or repeated exposures to precarious housing situations experienced by vulnerable youth with limited supports. The approach captures greater diversity of housing problems by shifting focus from living arrangements to the pathways by which youth become homelessness. Furthermore, a developmental conceptualization of homelessness allows opportunities to address a wider range of less severe housing problems before youth experiencing high risk across multiple domains end up on the streets or in shelters.

Emerging research supports the developmental conceptualization. One longitudinal study conducted in Detroit recruited 250 adolescents from homeless service agencies and street settings; youth were interviewed at baseline and six follow-ups over 6.5 years throughout emerging adulthood about living arrangements as well as physical and mental well-being, social supports, and achievement (Braciszewski et al. 2016). Analyses identified multiple groups distinguished by housing stability and connections to supports. Chronically homeless and unstably housed youth reported significantly worse emotional and behavioral well-being in emerging adulthood compared to stable youth.

Rigorous research has examined housing trajectories among child welfare-involved youth in the transition to adulthood. In a study focused on youth aging out of foster

care, a particularly high-risk group for housing insecurity, quantitative analyses identified multiple groups with unique housing trajectories that distinguished risk across behavioral domains for two years after exiting foster care (Fowler et al. 2009). While the largest (40%) group experienced little or no housing instability, three additional groups displayed differing patterns of housing insecurity across the study period. A later study distinguished stably housed youth from less stable youth based on education, employment, and living arrangements after leaving foster care (Fowler et al. 2011). The largest class maintained stable housing and displayed high rates of high school completion. In contrast, living situations for less stable youth ranged from doubling up to staying on the streets; unstably housed youth displayed significantly lower rates of high school completion and employment (Fowler et al. 2011). Continuous conceptualizations of risk that emphasize literal homelessness impede prevention, missing opportunities to serve the majority of vulnerable youth who experience a variety of housing problems that fail to meet federal definitions required for service eligibility.

The present study uses national data with an at-risk population to investigate the conceptualization and measurement of housing insecurity in the transition to adulthood. The study uses data from a nationally representative sample of adolescents involved with the child welfare system—a vulnerable group for homelessness in emerging adulthood. Follow-up surveys conducted up to 36 months after child welfare investigation assessed housing problems as youth transition to independence, including doubling up, mobility, and homelessness. Latent variable analyses investigated whether housing problems fell along a continuum or co-occurred among empirically identified subgroups of emerging adults. Evidence for a continuum of housing problems would inform thresholds used for service eligibility, whereas the presence of subgroups would suggest a different assessment based on multiple dimensions of housing problems. To inform screening and evaluation, analyses incorporated previously identified baseline predictors and outcomes associated with housing problems in emerging adulthood, including youth and community demographic characteristics, foster care experiences, emotional and behavioral problems, victimization, and education and employment attainment (Berzin et al. 2011; Fowler et al. 2009; 2011).

The study iteratively tested two hypotheses: (1) Housing insecurity in the transition to adulthood falls along a continuum of severity that ranges from living with family to homelessness, and thresholds reliably demarcate significant vulnerability. (2) Alternatively, housing insecurity occurs among subgroups of emerging adults with different predictors and outcomes. Evidence of a continuum of housing

insecurity plus a lack of empirically identified subgroups would serve to reject the subgroup conceptualization of homelessness in emerging adulthood. The present study is a first step toward untangling the complexity of housing risk among vulnerable youth in order to promote efficient service delivery.

Methods

Participants

Data for the present study came from the second cohort of the National Survey of Child and Adolescent Well-Being (NSCAW II), a nationally representative longitudinal survey of child welfare-involved families (Dowd et al. 2012). A multistage stratified sampling design randomly selected children age birth to 17.5 years who were subjects of child abuse and neglect investigations closed between February 2008 and April 2009 ($N = 5873$). The analytic sample included adolescents who were at least 18 years old and interviewed at Wave 2 or Wave 3 ($n = 306$).

Procedures

NSCAW II utilized a stratified sampling design that divided the United States into nine strata and then selected cases from 81 primary sampling units (PSUs) in 83 counties throughout the country. Each PSU represented the geographical area served by one child protection services agency (Dowd et al. 2012). Families investigated for child abuse or neglect were then randomly selected from monthly lists generated by each PSU. One focal child was randomly selected from each family to be the study target.

Baseline data were collected between March 2008 and September 2009 from youth, caregivers, and child protective caseworkers. Data from follow-up interviews were collected from children and caregivers 18 and 36 months after closure of the initial CPS investigation. Interviews were conducted by trained field staff in person or by telephone if necessary. Adult caregivers and children age 11 and older were interviewed using computer-assisted personal interviewing (CAPI) and audio computer-assisted interviewing (ACASI) technology (Dowd et al. 2012).

Measures

Housing insecurity

Housing insecurity was assessed through a series of self-reported questions about living arrangements in the past year. Items included whether youth were supposed to pay

rent, could not pay rent on time, were evicted, stayed with relatives, stayed with friends, or experienced literal homelessness (e.g., on the streets or in shelters). Youth also reported the number of times moved; a dichotomous variable was created such that more than two moves in the past 12 months indicated hypermobility. Items were aggregated to indicate whether youth experienced housing insecurity at either the 18- or 36-month follow-up to maximize available data. Items were developed from the National Longitudinal Survey of Youth (NLSY97), Current Population Survey (CPS), and other population-based surveys (Dowd et al. 2012).

Predictors

Internalizing and externalizing problems in adolescence assessed the extent to which youth struggled with difficult emotions, as well as engaged in harmful, disruptive, or distressing behaviors using the Youth Self Report (Achenbach 1991) at baseline. The commonly used instrument provided subscale *T*-scores ($M = 50$; $SD = 10$) derived from a normative population of adolescents aged 11–18 years. Reliability was high in the present sample (internalizing $\alpha = 0.90$; externalizing $\alpha = 0.90$).

Other behavior problems were also assessed with well-validated instruments previously used with child welfare populations. Protective factors captured youth report of relationships with supportive adults and connections to a religious or spiritual community (Runyan et al. 1998). Youth indicated support across 5-items, and a higher total raw scores corresponded with greater perceived connectedness. Total delinquent acts assessed engagement in property damage, theft, robbery, assault, fraud, public disorder, and illegal services. The 36-item Self-Report of Delinquency counted behaviors in the past 6 months that were summed (Elliott and Ageton 1980). Deviant peer affiliation was measured using a 6-item Likert-type scale that had youth indicate the extent of friend networks (1 = none; 5 = all of them) engaged in deviant behavior in the past 12 months, such as “How many of your friends have suggested that you do something against the law?” (Capaldi and Patterson 1989). Substance abuse was assessed through youth self-report using the 6-item CRAFFT questionnaire, which indicated whether youth engaged in risky alcohol and drug use (Knight et al. 2002).

Additional predictors assessed baseline characteristics, including youth and county demographics, child welfare experiences, and well-being. Age at initial interview was calculated in years, and gender was dichotomized to compare females (1) to males (0). Race/ethnicity was indicated through dummy codes that compared African American and

Hispanic to all youth. Child welfare experiences captured the main reason for investigation according to caseworkers, including physical abuse, sexual abuse, emotional abuse, neglect, or another type of maltreatment. Placement out-of-home also used caseworker report to determine whether youth had a formal placement in the child welfare system after investigation in adolescence until case closure (1 = ever placed, 0 = never placed). County characteristics used population-level data to describe the location of child welfare investigation. Data from the U.S. Census captured total county population, child poverty rate (percentage of children living in poverty), and urbanicity (whether more than 50% of the total population lived in an urban area), while county unemployment rates were obtained from the Bureau of Labor Statistics.

Emerging Adult Outcomes

Follow-up assessments of protective factors, delinquency, and substance use were conducted at 18- or 36-months, along with several other outcomes. Youth reported at follow-up whether they had earned a high school diploma or GED and whether they were currently employed for pay. Items were project-developed or came from population-based surveys including the National Longitudinal Survey of Youth or Current Population Survey (Dowd et al. 2012). Physical and mental health were assessed using the Short-Form Health Survey, which covered multiple domains of functional well-being including daily activities, energy, pain, and emotional distress (SF-12; Ware et al. 1996). Level of trauma among youth was determined using the Intrusive Experiences scale from the Trauma Symptom Inventory. Youth reported the extent to which they dealt with painful or difficult memories of past traumatic experiences (Briere 1995).

Data Analyses

Analyses occurred in three phases. The first phase examined the frequency and dimensions of housing risk. Exploratory factor analyses with binary indicators used maximum likelihood estimation with oblique rotation for up to three factors. Adequate model fit was assessed with comparative fit index (*CFI* above .95) and root mean square error of approximation (*RMSEA* below .05), and chi-square comparisons tested whether additional dimensions significantly improved fit to the data. The EFA tested an assumption of unidimensionality, such that items capture a single latent variable of housing risk.

The second phase used item response theory to test whether a reliable threshold demarcated risk for inadequate

housing (Lord 1980). Two-parameter logistic models allowed dichotomous indicators to load freely onto a continuous latent factor of housing risk (theta) with a variance fixed at one and mean of zero (Asparouhov and Muthén 2016). Model fit was assessed using the Bayesian Information Criteria (BIC), as well as examination of binary item fit statistics that tested item pair contingencies. Item characteristics estimated the difficulty (the severity of the indicator for housing risk) and discrimination (the ability of indicators to demarcate risk) for each indicator. Item distributions were plotted as S-shaped logistic curves. Given analyses evaluated thresholds for housing risk, it was assumed that curves would fall 1–3 standard deviations above the latent mean for housing insecurity with sharp slopes. Evidence that showed items sharply discriminated risk along a range of difficulty (i.e., severity) levels would support a continuum conceptualization, as well as inform how to screen for housing risk.

The third phase of analyses examined whether experiences of housing problems co-occurred as subgroups using latent class analyses (LCA, Collins and Lanza 2010; Muthén and Asparouhov 2011). A series of mixture models regressed dichotomous housing risk indicators onto an unobserved categorical variable. Solutions were derived for one to five latent classes. Fit was compared across nested models using the BIC that assesses fit while correcting for additional parameters; lower values indicated better fitting models. In addition, entropy used posterior probabilities of class membership to understand delineation of latent class with values closer to one indicating better fit. The optimal solution provided the best fit across indicators, as well as provided interpretable classes. Analyses also incorporated predictors and outcomes to enhance model validity (Asparouhov and Muthén 2015). Initially, a series of regressions predicted latent class membership on youth and community demographic characteristics, foster care experiences, and emotional and behavioral problems in adolescence. Final models incorporated significant predictors as covariates on class membership, as well as tested class differences on outcomes assessed in emerging adulthood, including educational and employment attainment, as well as physical and mental health.

Analyses were conducted in the MPLUS Version 8.0 software package (Muthén & Muthén, Los Angeles, CA). All analyses accounted for the complex survey design of NSCAW, and sampling weights adjusted probability of selection and non-response. All models replicated across different start values to avoid local solutions. Full information maximum likelihood with robust standard errors accounted for missing data for housing.

Results

Sample Characteristics and Housing Insecurity

Youth were on average almost 16 years old at baseline assessment and 18.5 years at follow-up. As characteristic of the population of adolescents involved with child welfare, youth were disproportionately female (66.1%) and identified as racial or ethnic minorities; this included 19.5% African American, 23.8% Hispanic, and 11.6% youth who identified as other. Nearly one-quarter (24.4%) of sampled youth had been formally placed by child welfare into an out-of-home setting, such as a foster home, kin placement, group home, or residential treatment center. The mean county unemployment rate was 6.3% ($SD = 3.3$) and the mean child poverty rate was 20.8% ($SD = 13.6$). The majority of youth (71.6%) were investigated in urban counties.

Inadequate housing and homelessness were relatively common among youth formerly involved with the child welfare system. Table 1 presents frequencies of housing problems within a 12-month period in emerging adulthood (Wave 2 or 3). Nearly two-thirds of youth (64.2%) reported living with relatives with no difference between youth placed out of home versus those never removed from home ($\chi^2(1) = 0.01, p = 0.93$). Approximately two out of five youth stayed with friends, and the same proportion lived in a place where they were responsible for rent. Overall, nearly one in six youth missed rent payments, while more than one-third of youth responsible for rent missed a payment. Eviction occurred for less than 1 in 10 youth, but this included one-fifth of youth who lived in a place where they paid rent. More than one in five youth moved at least three times in the past 12 months. Literal homelessness was reported by 15% of youth within a 12-month period. Most commonly, youth experiences of homelessness included living in hotels, motels, and single room occupancy residences recognized by homeless services as temporary and instable. Staying in abandoned buildings and cars was uncommon among youth, while very few used homeless or domestic violence shelters. Given low base rates, subsequent analyses collapsed all of these indicators of literal homelessness into a single category.

Initial exploratory factor analyses examined the dimensions of housing risk. A 1-factor model fit the data well ($\chi^2(9) = 8.88, p = .44; CFI = 1.00; RMSEA < .01$), and significantly better than a 2-factor EFA ($\chi^2(5) = 6.25, p = .28$). Evidence suggested a single dimension of housing risk.

Table 1 Prevalence of housing insecurity within the Past 12-months and item characteristics

Housing risk items	%	SE	Difficulty (intercept)	Discrimination (slope)	Reliability
Couldn't pay rent on time	14.1	4.12	1.07	5.71	0.89
Evicted	7.9	2.56	1.34	6.22	0.79
Stayed with relative	64.2	4.59	-2.26	0.34	0.02
Stayed with friends	38.8	4.21	0.65	0.66	0.01
Move 3+ times	20.9	4.40	0.89	2.20	0.54
Literal homelessness	14.9	3.78	2.79	1.22	0.12
Hotel/motel/single room occupancy	12.1	3.12	-	-	-
Vehicle	2.4	1.03	-	-	-
Abandoned building or on the streets	2.6	1.28	-	-	-
Battered women's shelter	0.64	0.59	-	-	-
Homeless shelter	0.61	0.51	-	-	-

Literal homelessness captured any of the listed experiences. Reliability represented the item information at the 50% probability threshold; the calculation divided total information by 1+ total information

Continuum of Housing Insecurity: Item Response Theory

A 2-parameter IRT model provided adequate fit to the data. The sample size adjusted BIC was 1569.50 with 12 free parameters and improved fit compared with a 1-parameter model that assumed items equally discriminated risk ($\Delta\chi^2(5) = 32.30, p < .01$). Binary item fit statistics showed no significant chi-square differences across item pair contingencies, which suggested observed responses were similar to expected patterns after controlling for latent housing risk.

Table 1 presents estimated item characteristics. Difficulties represented item location on latent housing risk when the probability of housing problems equaled .50; higher values suggested greater severity. Discrimination indicated the slope of logistic S-shaped curves when probability of housing problems equaled .50, with greater slopes indicating better differentiation of risk given the severity of the indicator. Figure 1 visually illustrates item characteristic curves across latent housing insecurity.

Results suggested considerable variation in item difficulty and differentiation across housing risk. Living with family had a negative difficulty and flat slope, which suggested poor performance in determining housing risk. (Removing living with family did not significantly improve model fit or change parameter estimates, and so was retained as a housing risk indicator). Living with friends also showed non-significant discrimination close to mean latent housing problems. As expected, literal homelessness represented the most severe form of housing risk with significant discrimination in risk for housing problems; however, the extreme difficulty (nearly three standard deviations above mean latent housing risk at .50 probability) suggested that using homelessness as a cutoff for services would miss

most youth at risk for housing problems. Thus, reports of living with family and friends and homelessness provided little information for assessing housing risk (Fig. 2).

Items that performed better as threshold indicators of housing risk included missed rent, eviction, and mobility. All differentiated risk around one standard deviation above mean housing problems. Sharp slopes suggested good discrimination; however, missed rent and eviction reported large standard errors that made parameters not significant, indicating items did not reliably distinguish high probability for housing problems. Mobility that captured youth who moved three or more times was the only item that significantly discriminated housing risk at the expected threshold. The three items showed high internal consistency at one standard deviation above mean housing problems ($\alpha = .93$). Taken together, IRT results showed poor performance as cutoffs for housing risk. Moreover, the spread of items suggested the potential presence of subgroups that better captured risk.

Subgroups of Housing Insecurity: Latent Class Analyses

Unconditional latent class analyses tested the presence of unobserved subgroups by examining response patterns across housing indicators. A three-class solution provided optimal fit to the data. The Pearson chi-square was not significant ($\chi^2(20) = 52.91, p = .13$), and three classes showed the lowest $BIC = 1610.30$ compared to solutions with 1- ($BIC = 1762.84$), 2- ($BIC = 1619.83$), 4- ($BIC = 1624.83$), and 5-classes ($BIC = 1644.98$). Entropy of the 3-class solution was high at $h = .95$, indicating clear classification of categories. As presented in Appendix I, a series of initial multinomial regressions tested whether baseline

characteristics predicted class membership without influencing probabilities of class membership. Youth who reported internalizing and externalizing problems significantly differed by class after correcting for multiple tests. Conditional LCA included these as covariates predicting class membership, which lowered *BIC* to 1597.12 and increased entropy to $h = .96$.

The conditional 3-class solution included a large class comprising 83.1% of youth, as well as two smaller groups that represented 12.1 and 4.8% of youth. The largest class, labeled “Stably Dependent,” experienced few housing problems within a 12-month period. These youth had low probabilities of difficulty paying rent, eviction, mobility, and literal homelessness, whereas they had high likelihoods

of living with parents and friends. The second largest group, labeled “Transient,” exhibited high probabilities for all indicators of housing insecurity within the 12-month period. They had the highest likelihoods of missing rent, eviction, and literal homelessness, as well as living with parents and friends. Transient youth experienced high probability of mobility that was only exceeded by the third small class labeled “Unstably Independent”. This third class of youth had difficulty paying rent and moved frequently; however, they were unlikely to be evicted, live with parents or friends, and experience homelessness. Moreover, covariates predicted the probability of latent class membership. Compared with youth labeled Stably Dependent, the Transient subgroup reported significantly greater rates of externalizing problems at baseline ($OR = 1.09, 95\% CI = 1.03$ to $7.94, p < .01$). Unstably Independent youth reported significantly lower rates of internalizing problems compared with youth in the Stably Dependent subgroup ($OR = 0.87, 95\% CI = .81$ to $6.36, p < .01$).

Table 2 presents tests of subgroup differences on outcomes in the transition to adulthood. Most youth in the Unstably Dependent and Transient subgroups graduated high school and were currently employed, whereas less than half of youth in the Stably Dependent group attained a high school diploma or were employed by follow-up. The Unstably Independent group reported lower protective connections with other adults than youth in the Stably Dependent group. In addition, youth in the Unstably Independent group reported significantly better perceived physical health but poorer mental health than the Stably Dependent group; in particular, reported trauma symptoms were greater. No differences emerged among subgroups for delinquent behaviors or substance abuse.

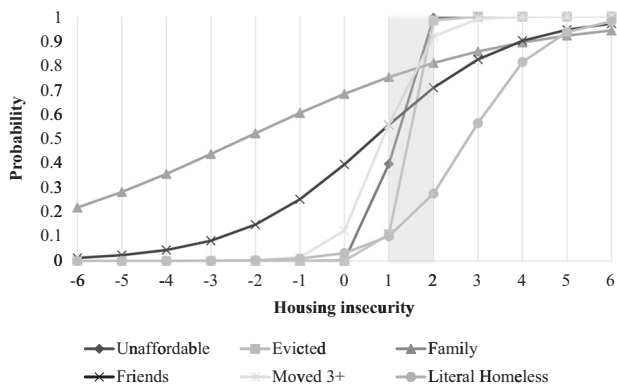


Fig. 1 Item characteristic curves for housing insecurity indicators. The horizontal axis represents latent housing insecurity as z-scores from extremely low to extremely high risk. The S-shaped logistic curves represent ability to differentiate housing risk given the severity that each item captures; sharp curves suggest better discrimination. The gray shaded box show the expected location for items used as cutoffs for housing risk

Fig. 2 Estimated probabilities of housing insecurity in the transition to adulthood by subgroup

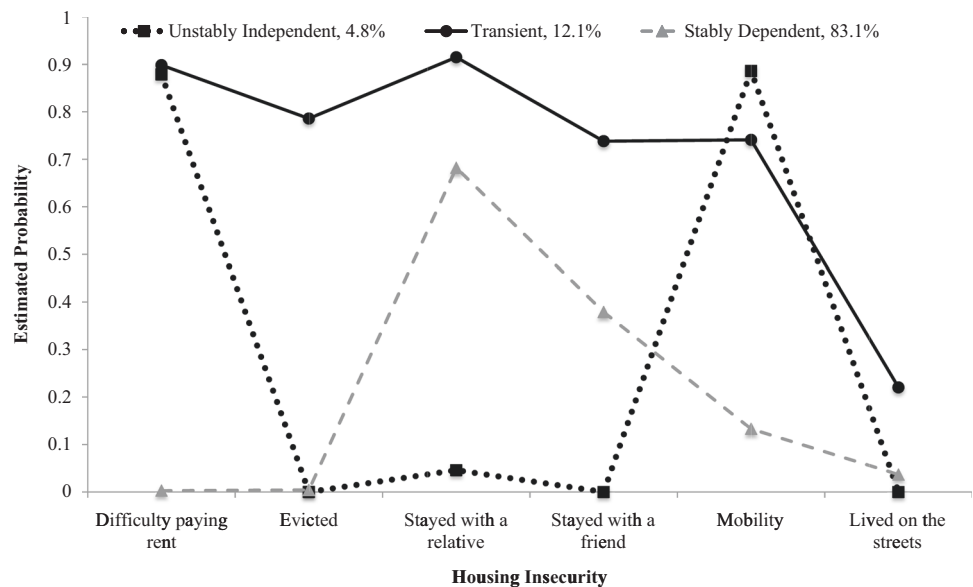


Table 2 Outcomes in emerging adulthood by housing latent class membership

	Unstably independent	Transient	Stably dependent	Overall χ^2	<i>p</i>	Pairwise comparisons
% graduated high school	90.0	89.0	42.0	33.57	0.001	Unstable = Transient > Dependent
% currently employed	98.0	68.0	35.0	53.66	0.001	Unstable > Dependent
Protective factors	3.95	4.35	4.41	9.19	0.01	Unstable < Dependent
Physical health	58.24	51.53	49.28	14.77	0.001	Unstable > Transient = Dependent
Mental health	37.15	49.01	50.14	11.10	0.004	Unstable < Transient = Dependent
Trauma symptoms	54.16	52.28	48.15	26.00	0.001	Unstable > Dependent
Delinquency	0.79	2.16	1.76	1.63	0.42	NS
Substance abuse	1.23	1.44	1.26	0.14	0.14	NS

Notes. Overall Wald Chi-squares tested mean differences between latent class membership, while pairwise comparisons report the pattern of significant differences between groups

NS not significant

Discussion

The present study tests whether indicators of housing insecurity in the transition to adulthood fall along a continuum with meaningful thresholds to demarcate need for services. Evidence shows little support for this conceptualization among a nationally representative sample of child welfare-involved youth at risk for homelessness. Alternatively, results suggest housing insecurity occurs in meaningful patterns among subgroups of emerging adults. The presence of subgroups of housing insecurity has important implications for service delivery and initiatives to prevent homelessness.

The study leverages longitudinal data from a nationally representative sample of youth involved in the child welfare system—an at-risk population for housing insecurity in the transition to adulthood. Compared with other emerging adults, these youth experience relatively higher rates of housing insecurity, including literal homelessness, hypermobility, late rent and eviction, as well as co-residence with family and friends (Berzin et al. 2011; Fowler et al. 2017). However, indicators fail to demarcate need for services accurately. Living with family and friends provides very little useful information for screening, while literal homelessness represents such an extreme aspect of housing insecurity that it is an unreliable threshold and misses other significant housing problems. Difficulty paying rent, eviction, and three or more moves within a 12-month period provide more reliable and useful information for screening purposes; yet, subgroup analyses that examine patterns across indicators provide additional insights into the nature of housing insecurity in the transition to adulthood.

Housing subgroups reflect different patterns of stability and autonomy in the transition to adulthood. Transient youth (12%) experience extreme instability; these

hypermobile youth lose their own accommodations, reside with family as well as friends, and experience high risk for literal homelessness—all within a 12-month period. Behavior problems in adolescence predict membership in the Transient group, yet youth are able to finish high school and secure employment as emerging adults. Likewise, a small subgroup of Unstably Independent youth (5%) graduate and find work but struggle to maintain their own housing. The strain appears to impact well-being; despite reporting emotional health in adolescence, Unstably Independent youth have fewer connections with adults and report more trauma symptoms as well as poorer mental health in young adulthood. In contrast, the largest group of Stably Dependent youth (83%) avoids housing insecurity and associated strain by staying with family and friends. Yet, less than half of these youth finish high school or currently work, which raises concerns for success in adulthood. Although indiscernible from the data, delays could be due to enabling families that encourage dependence, or conversely, struggling families may over rely on youth for intangible support, such as caretaking. Regardless, housing insecurity in emerging adulthood represents a normative process toward autonomy; yet, youth from vulnerable families experience unique risks (Fowler et al. 2011; Braciszewski et al. 2016).

The presence of housing subgroups has implications for service delivery. As seen in earlier studies, youth behavior problems upon contact with the child welfare system signal risk for poorer child welfare outcomes including placement instability, as well as housing insecurity in the transition to adulthood seen in the current study (Courtney and Prophet 2011; Aarons et al. 2010). The present study builds on prior research showing these youth appear to maintain connections with family and friends, upon whom they rely for housing; however, patterns of acting out and striving for

autonomy may strain these resources. Prevention initiatives that facilitate communication and emotional regulation within families may promote stability and avoid hypermobility in emerging adulthood. Ensuring safe and stable connections with adults promotes natural supports for this eventual transition. Youth coming into contact with child welfare who report higher emotional well-being are also at risk for future housing insecurity. These youth strive for independence—either self-driven or out of necessity due to lack of connections with adults. Timely housing assistance could help relieve financial strain and promote well-being in emerging adulthood. Importantly, it should be noted that youth living with family without securing education and training will likely experience housing problems later.

A number of limitations must be considered in the interpretation of study findings. Most importantly, limitations exist in the sample and measures used in the present study. Although representative of youth at risk for homelessness in emerging adulthood, the child welfare sample fails to capture diversity in housing insecurity across the general population. Samples that include less vulnerable youth likely would result in different subgroups that could yield more information for intervention. Likewise, measures of housing insecurity incompletely assess the full range of insecurity and, most notably, fail to capture changes in experiences over time. Enhanced measurement would also influence latent class membership. A need exists for replication of the methodology using better measurement with a broader population to inform empirically derived definitions of homelessness in the transition to adulthood (Fowler et al. 2009, 2011, 2017).

Implications also exist for policies that define youth homelessness and eligibility for housing assistance. Evidence fails to support the conceptualization of youth homelessness as a continuum, and thus, questions the utility and accuracy of threshold-based criteria for services. Definitions of homelessness focused on single experiences of housing events in emerging adulthood appear unreliable, failing to differentiate risk, while patterns of housing problems provide greater information for targeting services. For example, indication of literal homelessness in the present sample inconsistently corresponds with housing insecurity, as do indications of doubling up with family and friends. Eligibility based on these events risks serving youth with lower needs (false positives) and denying the highly vulnerable (false negatives). Emphasizing combinations of housing problems to define homelessness provides more consistent and meaningful information for service delivery. As discussed, subgroups allow targeting of resources based on needs, as well as facilitating early assessment and intervention. The empirically derived definitions promise greater efficiencies in service delivery.

The present study provides initial directions for more empirically informed responses to housing insecurity among at-risk youth in the transition to adulthood. Screening for homelessness and delivery of housing assistance based on risk thresholds appear imprecise, while monitoring patterns of housing instability offers more accurate information. Moreover, the nature of housing patterns may better inform tailored interventions that promote stability and prevent homelessness. Future research must develop and test screening protocols to be implemented within child welfare and other adolescent-serving systems that promote housing stability in the transition to adulthood.

Author Contributions PJF conceptualized and designed the study, conducted data analyses, and contributed writing to the introduction, methods, results, and discussion. KEM assisted with designing the study and contributed writing the introduction, methods, and discussion. JZ and OD assisted with study design, analysis, and provided feedback on the manuscript draft. JL contributed to conceptualizing the study and provided feedback on the written draft.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest. The paper has been submitted only to *Prevention Science* and has not been published previously.

Ethical Approval Research Involving Human Participants and/or Animals: The present study used secondary data from a parent study, NSCAW II. Study procedures were approved by the RTI, International Institutional Review Board. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. For this type of study formal consent is not required.

Informed Consent Caregivers of youth younger than age 18 provided consent for participation. Young adults (over age 18) provided consent for their own interviews. The project team developed consent and data linkage forms appropriate for youth adults over age 18.

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Appendix I

Exploratory Multinomial Regressions Predicting Latent Class Membership

	Unstably independent				Transient			
	OR	95% CI		<i>p</i>	OR	95% CI		<i>p</i>
Youth demographics								
Age	1.05	0.64	1.73	1.00	1.83	1.08	3.11	0.10
Female	2.78	0.89	8.62	0.31	5.13	0.49	54.27	0.70
Minority race	2.24	0.76	6.61	0.58	0.88	0.31	2.52	1.00
Youth behavior								
Internalizing	0.89	0.84	0.95	0.00	0.93	0.87	0.99	0.13
Externalizing	1.06	1.00	1.11	0.14	1.11	1.04	1.18	0.01
Protective factors	0.60	0.37	0.96	0.14	2.91	0.91	9.28	0.28
Total delinquent acts	0.97	0.90	1.04	1.00	0.95	0.87	1.03	0.84
Deviant peer affiliation	1.02	0.88	1.18	1.00	1.08	0.98	1.20	0.41
Substance abuse	1.10	0.81	1.51	1.00	1.28	0.93	1.77	0.51
Child welfare characteristics								
Ever placed in foster care	0.90	0.36	2.27	1.00	1.14	0.30	4.37	1.00
Reason for investigation								
Physical abuse	0.84	0.30	2.34	1.00	1.66	0.34	8.06	1.00
Sexual abuse	0.22	0.02	2.85	1.00	1.81	0.34	9.79	1.00
Neglect	0.87	0.29	2.56	1.00	2.37	0.57	9.96	0.95
County characteristics								
Urban county	0.36	0.09	1.44	0.60	1.07	0.18	6.50	1.00
Total population	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Child poverty rate	1.03	0.93	1.14	1.00	0.90	0.77	1.06	0.80
Unemployment rate	0.66	0.36	1.23	1.00	1.08	0.46	2.51	1.00

Reference group is Stably Dependent subgroup. Separate regressions tested each set of predictors

OR odds ratio, CI confidence interval, *p* probability of differences corrected for multiple comparisons

Bold values indicates statistically significant values at $p < 0.05$

Appendix II

Estimated probabilities of housing insecurity with standard errors and significance tests in the transition to adulthood by subgroup

	Unstably independent, 4.8%			Transient, 12.1%			Stably dependent, 83.1%		
	OR	SE	<i>p</i>	OR	SE	<i>p</i>	OR	SE	<i>p</i>
Difficulty paying rent	0.88	0.20	0.00	0.90	0.10	0.00	0.00	0.01	0.60
Evicted	0.00	0.00	1.00	0.79	0.15	0.01	0.00	0.00	0.29
Stayed with a relative	0.05	0.06	0.43	0.91	0.08	0.00	0.68	0.04	0.00
Stayed with a friend	0.00	0.00	1.00	0.74	0.17	0.00	0.38	0.05	0.00
Mobility	0.89	0.16	0.00	0.74	0.17	0.00	0.13	0.04	0.00
Lived on the streets	0.00	0.00	1.00	0.22	0.16	0.00	0.04	0.02	0.02

References

- Aarons, G. A., James, S., Monn, A. R., Raghavan, R., Wells, R. S., & Leslie, L. K. (2010). Behavior problems and placement change in a national child welfare sample: a prospective study. *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*, 70–80. <https://doi.org/10.1016/j.jaac.2009.09.005>.
- Achenbach, T. M. (1991). *Manual for Child Behavior Checklist and 1991 Profile*. Burlington: University of Vermont, Department of Psychiatry.
- Amett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*. New York, NY: Oxford University Press.
- Asparouhov, T., & Muthén, B. (2015). Auxiliary Variables in Mixture Modeling: Using the BCH Method in Mplus to Estimate a Distal Outcome Model and an Arbitrary Secondary Mode. Mplus Web Notes: Number 21, Version 2. <https://www.statmodel.com/examples/webnotes/webnote21.pdf>.
- Asparouhov, T., & Muthén, B. (2016). IRT in Mplus. Version 2. Technical report. www.statmodel.com.
- 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*, 2119–2126. <https://doi.org/10.1016/j.childyouth.2011.06.018>.
- Braciszewski, J. M., Toro, P. A., & Stout, R. L. (2016). Understanding the attainment of stable housing: a seven-year longitudinal analysis of homeless adolescents. *Journal of Community Psychology*, *44*, 358–366. <https://doi.org/10.1002/jcop.21773>.
- Briere, J. (1995). *Trauma Symptom Inventory Professional Manual*. Odessa: Psychological Assessment Resources.
- Capaldi, D. M., & Patterson, G. R. (1989). *Psychometric Properties of Fourteen Latent Constructs from the Oregon Youth Study*. New York: Springer-Verlag.
- Children's Bureau. (2014). *Comparing outcomes reported by young people at ages 17 and 19 in NYTD Cohort 1*. Data Brief #4. https://www.acf.hhs.gov/sites/default/files/cb/nytd_data_brief_4.pdf.
- Chor, K. H., Petras, H., & Perez, A. G. (2018). Youth subgroups who receive John F. Chafee Foster Care Independence Program services. *Journal of Child and Family Studies*, *27*, 1402–1414. <https://doi.org/10.1007/s10826-017-1004-1>.
- Collins, L. M., & Lanza, S. T. (2010). *Latent class and latent transition analysis for the social, behavioral, and health sciences*. New York: Wiley.
- Courtney, J. R., & Prophet, R. (2011). Predictors of placement stability at the state level: the use of logistic regression to inform practice. *Child Welfare*, *90*(2), 127–142.
- Curry, S. R., Morton, M., Matjasko, J. L., Dworsky, A., Samuels, G. M., & Schlueter, D. (2017). Youth homelessness and vulnerability: how does couch surfing fit? *American Journal of Community Psychology*, *60*, 17–24.
- Dowd, K., Dolan, M., Wallin, J., Miller, K., Biemer, P., Aragon-Logan, E., & Smith, K. (2012). *National Survey of Child and Adolescent Well-being II: Combined waves 1-2 data file user's manual*. Ithaca: Cornell University.
- Dworsky, A., Napolitano, L., & Courtney, M. (2013). Homelessness and the transition from foster care to adulthood. *American Journal of Public Health*, *103*, 318–323.
- Elliott, D. S., & Ageton, S. S. (1980). Reconciling race and class differences in self-reported and official estimates of delinquency. *American Sociological Review*, *45*, 95–110.
- Fowler, P. J., Hovmand, P. S., Marcal, K. E., & Das, S. (2019). Solving homelessness from a complex systems perspective: insights for prevention responses. *Annual Review of Public Health*, *40*, 465–486. <https://doi.org/10.1146/annurev-publhealth-040617-013553>.
- Fowler, P. J., Marcal, K. E., Zhang, J. J., Landsverk, J., & Day, O. (2017). Homelessness and aging out of foster care: a national comparison of child welfare-involved adolescents. *Children Youth Services Review*, *77*, 27–33.
- 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*, 1453–1458.
- Fowler, P. J., Toro, P. A., & Miles, B. W. (2011). Emerging adulthood and leaving foster care: Settings associated with mental health. *American Journal of Community Psychology*, *47*, 335–348. <https://doi.org/10.1007/s10464-010-9401-2>.
- Knight, J. R., Sherritt, L., Shrier, L. A., Harris, S. K., & Chang, G. (2002). Validity of the CRAFFT substance abuse screening test among adolescent clinic patients. *Archives of Pediatrics & Adolescent Medicine*, *156*, 607–614. <https://doi.org/10.1001/archpedi.156.6.607>.
- Lord, F. M. (1980). *Applications of item response theory to practical testing problems*. New York, NY: Routledge.
- Homeless Emergency and Rapid Transition to Housing Act (HEARTH). (2009). 42 USC 11302 §896.
- Muthén, B., & Asparouhov, T. (2011). Beyond multilevel regression modeling: Multilevel analysis in a general latent variable framework. In J. Hox & J. K. Roberts (eds), *Handbook of Advanced Multilevel Analysis* (pp. 15–40). New York: Taylor and Francis.
- Runaway and Homeless Youth Act (RHYA). (2008). 42 U.S.C. §5701 et seq.
- Runyan, D. K., Curtis, P., Hunter, W. M., Black, M. M., Kotch, J. B., Bangdiwala, S., Dubowitz, H., English, D., Everson, M., & Landsverk, J. (1998). LONGSCAN: a Consortium for Longitudinal Studies of Maltreatment and the Life Course of Children. *Aggression and Violent Behavior: A Review Journal*, *3*(3), 275–285.
- U.S. Department of Health and Human Services. (2016a). *Basic Center Program*. https://www.acf.hhs.gov/sites/default/files/fysb/bcp_facts_20160509.pdf.
- U.S. Department of Health and Human Services. (2016b). *Transitional Living Program*. https://www.acf.hhs.gov/sites/default/files/fysb/tlp_facts_20160509.pdf.
- U.S. Department of Health and Human Services. (2017). *Street Outreach Program*. https://www.acf.hhs.gov/sites/default/files/fysb/sop_facts_20170207.pdf.
- Ware, J., Kosinski, M., & Keller, S. D. (1996). A 12-item Short-Form Health Survey Construction of scales and preliminary tests of reliability and validity. *Medical Care*, *34*(3), 220–233.