Community Mental Health Journal (2019) 55:784–797
https://doi.org/10.1007/s10597-019-00385-w

ORIGINAL PAPER

Residential Transience Among Adults: Prevalence, Characteristics, and Association with Mental Illness and Mental Health Service Use

Cristie Glasheen[1] · Valerie L. Forman-Hoffman[1] · Sarra Hedden[2] · Ty A. Ridenour[1] · Jiantong Wang[3] · Jeremy D. Porter[3]

Received: 20 December 2016 / Accepted: 27 February 2019 / Published online: 11 March 2019

Abstract
This study examined the association between frequent residential mobility (i.e., residential transience) and mental illness, mental health service use, and unmet need for services. Data are from the 2010 to 2014 National Surveys on Drug Use and Health (n = ~229,600). Logistic regression models examined the relationship between proximal (past year) and distal (past 2–5 years) residential transience and past year any mental illness (AMI), serious mental illness (SMI), mental health service use among adults with mental illness, and unmet need for services. Adults with transience had greater odds of AMI and SMI than those without transience. Proximal and distal transience were unrelated to past year mental health service use among adults with mental illness, but the odds of unmet need for services were greater among adults with transience compared with those without, suggesting a level of unmet service need among those with transience.

Keywords Housing instability · Mental illness · Psychiatric disorders · Residential transience · Mental health services

Introduction

Research indicates that housing instability is consistently associated with mental illness, which affects more than 40% of adults in the United States in their lifetime (Breakey and Fischer 1995; Davey-Rothwell et al. 2008; Glasheen and Forman-Hoffman 2019; Kessler et al. 2005; Substance Abuse and Mental Health Services Administration 2014). Moreover, residential instability has been linked to severe outcomes of mental illness, such as suicide, which is the 10th leading cause of death in the United States (Glasheen and Forman-Hoffman 2015a). Housing instability is a complex construct generally conceptualized as a spectrum of nonmutually exclusive characteristics ranging from financial stress in maintaining housing through its most severe form, homelessness (Breakey and Fischer 1995; Clark 2010). Residential transience, also referred to as frequent residential mobility, is one of the interrelated constructs that comprise housing (or residential) stability.

Despite the consistency of evidence that housing instability is associated with mental illness, the current literature has a number of limitations. First, the majority of housing instability research has focused on homelessness. Few studies have examined associations between mental illness and residential transience. Although conceptually, residential transience is a less severe form of housing instability than homelessness, the higher prevalence of transience makes it important to understand whether it is associated with mental illness. Second, most of the existing studies of residential transience research have used nongeneralizable samples (e.g., Davey-Rothwell et al. 2008), with some exceptions. A recent population cohort study of more than 1,400,000 people born in Denmark between 1971 and 1997 through middle age found that cross-municipality moves before age 14 were associated with the development of a host of mental illnesses by middle age, including substance misuse disorders, personality disorders, schizophrenia and related disorders, mood disorders, and anxiety and somatoform

✉ Cristie Glasheen
cglasheen@rti.org

[1] Behavioral Health and Criminal Justice Division, RTI International, 3040 E. Cornwallis Rd., Research Triangle Park, NC 27709, USA

[2] Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, 5600 Fishers Ln., Rockville, MD 20857, USA

[3] Division for Statistical & Data Sciences, RTI International, 3040 E. Cornwallis Rd., Research Triangle Park, NC 27709, USA

disorders (Mok et al. 2016). Although it provides the most definitive evidence to date about the link between residential transience and mental illness, this study had several caveats. For example, moves were counted only before age 14. While clearly establishing temporality, this method does not provide information on the effects of recent moves, or the effects of moves on adults. Additionally, only cross-municipality moves were counted, despite the possibility of other moves within municipality, which could be disruptive and a significant cause of life stress. Moreover, moves were analyzed cumulatively and at specific ages across childhood, but a high number of moves in a restricted time period (i.e., transience), were not specifically examined; thus, it is a study of mobility but not transience specifically. Finally, it is unclear if the results can be generalized to the United States, given the substantial social and cultural differences between the two countries.

In the United States, there have only been a few nationally representative studies of residential transience and mental illness among adults. One study using data from the National Survey on Drug Use and Health (NSDUH) examined the prevalence of past year major depressive episode (MDE) among older adolescents and young adults and found that moving three or more times in the past year was correlated with higher prevalence of MDE (Substance Abuse and Mental Health Services Administration 2014). However, these analyses did not control for potential confounding factors. In a 2015 report, Glasheen and Forman-Hoffman used data from NSDUH to examine the association between past year transience (defined as having moved three or more times in the past year) and any mental illness (AMI) (Glasheen and Forman-Hoffman 2015b). Results indicated that the prevalence of transience was almost three times greater among adults with AMI than among those without (5.7% vs. 1.9%), and transience remained associated with AMI, even after controlling for socioeconomic conditions. This study had several limitations, including concurrent measurement of AMI and residential transience with no evaluation of whether more temporally distant transience was associated with AMI. Additionally, no analyses have examined whether residential transience was associated with the severity of mental illness. In addition to being a risk factor for mental illness, transience may be associated with increased severity of symptoms and impairment among those with mental illness.

Additionally, residential transience may act as a barrier to mental health service use. Evidence suggests that frequent mobility may impair health care service utilization. In a systematic review, Jelleyman and Spencer noted several studies reporting residential transience in childhood being associated with reduced continuity of care, lack of primary care, fewer primary care visits, and increased use of emergency departments for primary and sick care services (Jelleyman and Spencer 2008). To date, no research examining residential transience and mental health service use or barriers to mental health care in adults has been identified.

This study builds on prior work by using data from the nationally representative NSDUH to characterize the relationship between residential transience (defined continuously and categorically) and (1) AMI, (2) serious mental illness (SMI), (3) mental health service use and unmet need, and (4) barriers to mental health service use among adults with an unmet need for services. Estimates suggest that more than 40% of the U.S. population meets criteria for a mental illness in their lifetime (Kessler et al. 2005). Evaluating potential risk markers and barriers to care contributes to improving public health by helping policymakers, mental health treatment and service providers, and housing stability program designers to identify and target individuals who are most in need of additional services.

Methods

Sample

Data are from the 2010–2014 NSDUHs. NSDUH, sponsored by the Substance Abuse and Mental Health Services Administration, is an annual cross-sectional survey of the civilian, noninstitutionalized population. NSDUH surveys approximately 68,500 household residents (excluding institutional populations and active duty military personnel) aged 12 or older in the United States annually, collecting data on mental health and substance use indicators. Analyses for this study include about 229,600 adults aged 18 or older. Data were restricted to adults because of differences in mental health measures for youths and adults in NSDUH. Exclusion of respondents sampled from shelters was done to better examine residential transience in the absence of homelessness. College students living in dormitories were excluded to obtain a clearer picture of the housing instability construct. Although many college students have chosen to live in dormitories and can return to their parents' homes in between semesters, adults facing transience rarely have a choice and do not often have alternate housing options.

Measures

Residential transience in the past 5 years was assessed with two questions. First, respondents were asked about the number of times they moved in the past 5 years (0, 1, 2, 3, 4, 5, or ≥ 6), then those reporting one or more moves were asked for the number of moves in the past year (0, 1, 2, or ≥ 3). No consistent definition for residential transience has been established in the literature; therefore, the criteria used in this study were based on data distributions. A continuous

indicator of the number of moves was not used because of the grouped end points for these items (i.e., ≥ 6 and ≥ 3 for past 5 year and past year moves, respectively) and because we planned to examine whether proximal vs. distal transience (i.e., transience in the past year vs. transience 2–5 years prior) affected the strength of the association with mental illness or mental health treatment. Additionally, we considered that residential transience is generally conceived as an unusually high level of instability. This prompted an exploratory data analysis examining the distribution of the number of past 5 year and past year moves in the population (presented in the "Results" section) and led us to define residential transience as follows: no or low transience (< 4 moves in the past 5 years and < 2 moves in the past year), distal transience (≥ 4 moves in the past 5 years but < 2 moves in the past year), and proximal transience (≥ 2 moves in the past year).

Past year mental illness in NSDUH is measured using a model-based approach, created from a prediction model fit on data from respondents to a clinical study, the Mental Health Surveillance Study (MHSS). The MHSS was conducted from 2008 to 2012. A subset of NSDUH respondents were selected for a clinical follow-up and assessed with a—version of the Structured Clinical Interview for DSM-IV-TR Axis I Disorders (First et al. 2002) for past year MDE, dysthymic disorder, bipolar I disorder (manic episode), specific phobia, social phobia, generalized anxiety disorder, panic disorder with and without agoraphobia, agoraphobia without history of panic disorder, obsessive compulsive disorder, posttraumatic stress disorder, anorexia nervosa, bulimia nervosa, adjustment disorder, intermittent explosive disorder, and psychotic symptoms (e.g., delusions, hallucinations). Respondents who met clinical criteria for any of these disorders or psychotic symptoms were classified as having mental illness, and those with serious functional impairment measured using a Global Assessment of Functioning (score less than 50) were classified as having SMI. Based on these data, a predictive model was developed and cutpoints were established for the estimation of AMI and SMI in the NSDUH. The predictive model uses NSDUH data from the short scales of psychological distress [the Kessler—6 scale (Kessler et al. 2003)] and functional impairment (a modified version of the World Health Organization Disability Assessment Schedule (Novak 2007)), in combination with items on suicidal thoughts, age, and NSDUH-measured past year MDE to predict AMI and SMI status per the MHSS diagnostic classification. The statistical model was then applied to the full NSDUH adult sample to classify each of the NSDUH adult respondents as having SMI or AMI. From 2010 to 2014, an annual average of 18.2% of adults had AMI, and 4.1% of adults had SMI. For more details on the development of these measures in NSDUH, see *Revised estimates of mental illness from the national survey on drug use and health, past year mental disorders among adults in the united states: results from the 2008–2012 mental health surveillance study*, the MHSS design and estimation report, and the MHSS operations report (Center for Behavioral Health Statistics and Quality 2013, 2014a, b; Karg et al. 2014).

Past year mental health service use was assessed by asking respondents about inpatient, outpatient, and prescription medication treatment for problems with emotions, nerves, or mental health, excluding alcohol or drug use treatment. Past year unmet need for mental health service use was assessed among adults, regardless of mental health and mental health service use status. Between 2010 and 2014, an annual average of 14.3% of adults reported past year mental health service use. Respondents were asked, "During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn't get it?" Barriers to mental health service use were assessed among adults who reported an unmet need for services. Respondents could select multiple reasons, including not being able to afford the cost, not having any of the cost covered by health insurance, not having enough of the cost covered by health insurance, concern that treatment might cause neighbors or the community to have a negative opinion of them, fear that it might have a negative effect on their job, concern about confidentiality, not wanting others to find out, fear that they may be committed or medicated, thinking that treatment was not needed, thinking that they could handle the problem without help, thinking that service use would not help, not being sure where to go, not having time, not having transportation or it being too inconvenient, or some other reason.

Other covariates were selected a priori based on theoretical considerations and prior literature suggesting an association with housing stability or mental illness. These variables were included primarily to control for potential confounding in the relationship between residential transience and the outcomes. Covariates included gender, age, race/ethnicity, education, employment, marital status, veteran status, metropolitan area, federal poverty level, health insurance status, past month cigarette dependence, and past year alcohol or drug use disorder.

Analysis

Analyses were conducted using SUDAAN® to account for the complex sample design (RTI International 2012). All statistical tests were two-tailed and tested at alpha = 0.05. First, descriptive analyses were conducted to examine the annual average weighted prevalence of past 5 year and past year moves and residential transience among all adults. The annual average provides the prevalence estimate averaged for all 5 years of data (2010–2014). Next, prevalence estimates of selected covariates by residential transience status were calculated. When comparing population subgroups defined by three or more levels of a categorical

variable, log-linear χ^2 tests of independence of the subgroup and the prevalence variables were conducted first to control the error level for multiple comparisons. If Shah's Wald F test (transformed from the standard Wald χ^2) indicated overall significant differences, the significance of each pairwise comparison of interest was tested using SUDAAN analytic procedures to properly account for the sample design. Post hoc comparisons of proportions across each group were conducted using *t* tests. The t-distribution was used (rather than χ^2) because it better reflects the test statistic in complex survey data (Substance Abuse and Mental Health Services Administration 2012).

Multivariable logistic regression models were generated to examine the adjusted association between residential transience and several outcomes. The association between residential transience and past year AMI and SMI among all adults was examined, as well as the association between residential transience and past year SMI among adults with AMI. Also examined were associations between residential transience and past year mental health service use among adults with AMI but not SMI (henceforth referred to as low/moderate mental illness [LMMI] for clarity) and adults with SMI. The association between residential transience and past year unmet need for mental health services were examined among all adults, adults with LMMI, and adults with SMI.

All covariates were chosen for adjusted models to control for socio-demographic characteristics and/or based on literature to control for potential confounding in the association between residential transience and the outcomes of interest. Tests for collinearity and multicollinearity were completed for each model by reviewing the adjusted variance inflation factors (VIFs), which account for complex survey design (all VIFs < 3) and it was determined that multicollinearitty was not an issue for these models (Liao and Valliant 2012).

A sensitivity analysis was conducted examining discrepancies in moves reported in the past 5 years vs. in the past year. In the NSDUH data, a few respondents reported more moves in the past year than in the past 5 years. In the primary models, respondents who had incomplete or inconsistent responses were removed from analyses using listwise deletion. As part of the sensitivity analysis, two sets of models were evaluated; the first fixed the value of past 5 year moves equal to past year moves when responses were missing or inconsistent, and the second fixed the value of past year moves equal to past 5 year moves. The results were not substantively different; therefore, only results using listwise deletion are presented (results from other analyses are available upon request from the corresponding author). The unweighted number of those lost to listwise deletion ranged from about 200 to 5000 (2.2% of the sample), depending on the model, with most loss due to missing data on the number of moves.

Verbal consent was obtained from all respondents. This research was approved by the RTI International Institutional Review Board and was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki and its later amendments.

The authors have no potential conflicts of interest to report.

Results

Prevalence and Correlates of Residential Transience

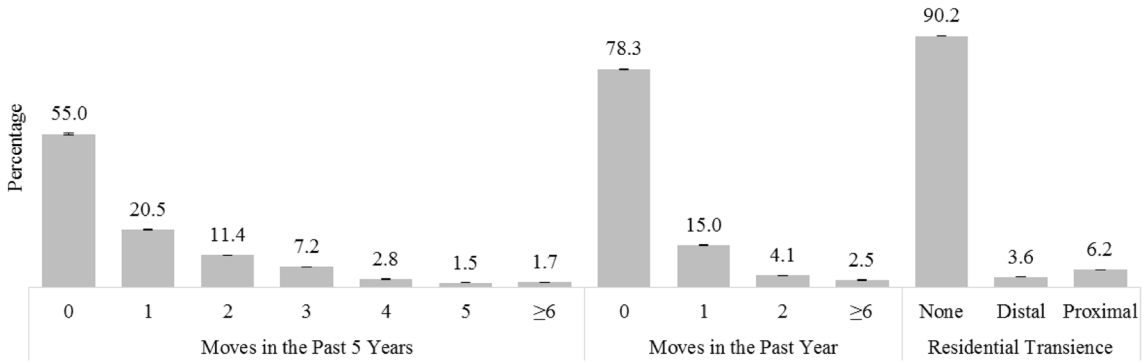
The distribution of moves in the population is provided in Fig. 1. Approximately 45% of adults aged 18 or older had moved at least once in the past 5 years, and about 22% of adults moved at least once in the past year. Based on the definition of residential transience (moving at least four times in the past 5 years or two times in the past year), almost 10% of adults experienced residential transience in the past 5 years, with 3.6% of adults having experienced distal transience (moved in the past 5 years but not in the past year), and 6.2% having experienced proximal transience (moved at least two times in the past year).

Residential transience in the past 5 years was associated with almost all of the covariates examined, except gender (Table 1). Overall, adults reporting transience were more likely to be younger, have lower levels of education, be unemployed, have never married or be separated or divorced, have a family income below the federal poverty level, be uninsured, and have a substance use disorder (cigarette dependence, alcohol abuse or dependence, or illicit drug abuse or dependence) than those without transience. Adults with distal and proximal transience were less likely to be non-Hispanic white, be a veteran, or live in a large metropolitan area than adults without transience.

Residential Transience and Mental Illness

The prevalence of past year mental illness was almost twice as high among adults with distal and proximal residential transience in the past 5 years compared with those without transience. An estimated 31.2% of adults with distal transience and 30.1% of adults with proximal transience had AMI, compared with 16.8% of adults without transience in the past 5 years (Table 1). Similarly, 8.2% of adults with distal transience and 9.0% of adults with proximal transience had SMI in the past year, compared with 3.5% of adults with no transience. There was no significant difference between distal and proximal transience for the prevalence of AMI or SMI.

Logistic regression analyses indicated that adults with distal transience had a 67% greater odds of AMI, compared with those with no transience in the past 5 years, and



Notes: Unweighted Sample Sizes for Moves in the Past 5 Years, Moves in the Past Year, and Residential Transience are about 227,700, 228,600 and 225,200, respectively.

Fig. 1 Prevalence of moves and residential transience among adults aged 18 or older, weighted annual average percentages and standard errors. *Notes* Unweighted sample sizes for moves in the past 5 years, moves in the past year, and residential transience are about 227,700, 228,600 and 225,200, respectively. *Source* SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010–2014

adults with proximal transience had a 54% greater odds of AMI (aOR 1.67, 95% confidence interval [CI] 1.54–1.81; aOR 1.54, 95% CI 1.46–1.64, respectively; Table 2). Similarly, adults with distal transience had 51% increased odds of SMI, and those with proximal transience had 63% greater odds of past year SMI compared to those without transience (aOR 1.51, 95% CI 1.32–1.74; aOR 1.63, 95% CI 1.46–1.82, respectively). Among adults with AMI, the odds of having SMI were higher among those with distal and proximal transience compared with those with no transience (aOR 1.17, 95% CI 1.02–1.34; aOR 1.32, 95% CI 1.18–1.48, respectively).

Residential Transience and Mental Health Service Use

Examining the association between residential transience and mental health service use, while controlling for level of mental illness indicated that the prevalence of past year mental health service use among adults with LMMI was similar for those with distal residential transience and those without transience (35.6% vs. 36.4%, p = .590; Table 1). Mental health service use was less prevalent among adults with LMMI who had proximal transience compared with those with no transience (32.1% vs. 36.4%, p < .001). Similarly, residential transience was associated with past year service use among adults with SMI. Among adults with SMI, 67.6% of adults with no residential transience used mental health services in the past year, whereas 62.9% of those with distal transience and 61.5% of those with proximal transience had used mental health services (p = .005). However, after adjusting for potential confounders in regression analyses, distal and proximal residential transience were not associated with past year mental health service use among adults with LMMI and among adults with SMI (Table 3).

Residential Transience and Unmet Need for Mental Health Services

The prevalence of unmet need among all adults was higher among those with distal and proximal residential transience compared with those without transience (11.9% and 10.8% vs. 4%, p < .001). A similar pattern was observed among adults with LMMI (23.3% and 20.5% vs. 13.1%, p < .001) and adults with SMI (53.2% and 51.7% vs. 38.6%, p < .001). The odds of unmet need for mental health services among all adults were 86% greater among all adults who reported distal transience and 57% greater among those with proximal transience than among those with no transience (aOR 1.86, 95% CI 1.67–2.06; aOR 1.57, 95% CI 1.45–1.70, respectively). Among adults with LMMI, the results were attenuated but similar. The odds of having an unmet need for mental health services were 39% greater among adults with distal transience and 21% greater among adults with proximal transience compared with those without transience (aOR 1.39, 95% CI 1.19–1.63; aOR 1.21, 95% CI 1.06–1.38, respectively). Among adults with SMI, distal transience (aOR 1.30, 95% CI 1.04–1.63) was associated with having an unmet need for services, but proximal transience (aOR 1.19, 95% CI 0.99–1.43) was not.

Residential Transience and Reasons for Not Using Mental Health Services

Adults who reported a past year unmet need for mental health services were asked why they did not use mental

Table 1 Characteristics of adults aged 18 or older, by residential transience status, weighted annual averages: percentages and standard errors

Characteristic	No residential transience (weighted N ~ 185,200)	Distal transience (past 5 years but not past year) (weighted N ~ 14,200)	Proximal transience (past year) (weighted N ~ 25,800)
Gender			
Male	48.1 (0.17)	48.1 (0.73)	49.2 (0.55)
Female	51.9 (0.17)	51.9 (0.73)	50.8 (0.55)
Age			
18–21	6.1 (0.06)	9.2 (0.29)*	19.3 (0.35)*·**
22–25	5.4 (0.05)	25.2 (0.50)*	21.8 (0.34)*·**
26–29	6.1 (0.08)	22.5 (0.64)*	14.9 (0.42)*·**
30–34	8.1 (0.09)	14.6 (0.54)*	11.2 (0.36)*·**
35–49	26.9 (0.17)	17.0 (0.62)*	20.0 (0.50)*·**
≥ 50	47.4 (0.23)	11.5 (0.75)*	12.8 (0.54)*
Race/ethnicity			
NH white	67.4 (0.26)	65.4 (0.75)*	58.2 (0.58)*·**
NH black	11.3 (0.17)	10.3 (0.50)	15.6 (0.47)*·**
NH American Indian/Alaska native	0.5 (0.03)	0.4 (0.06)	0.9 (0.08)*·**
NH native Hawaiian/other Pacific Islander	0.3 (0.02)	0.3 (0.07)	0.6 (0.10)*·**
NH Asian	4.9 (0.13)	5.5 (0.43)	4.8 (0.28)
NH multiple races	1.3 (0.04)	2.2 (0.21)*	2.0 (0.12)*
Hispanic	14.4 (0.18)	15.9 (0.65)*	18.0 (0.45)*·**
Education			
< High school	13.6 (0.15)	13.4 (0.58)	19.7 (0.45)*·**
High school or GED	29.6 (0.18)	24.0 (0.67)*	31.0 (0.50)*·**
Some college	26.4 (0.17)	27.9 (0.63)*	29.1 (0.51)*
College graduate	30.5 (0.24)	34.7 (0.80)*	20.2 (0.47)*·**
Employment			
Full time	50.5 (0.20)	54.5 (0.75)*	49.0 (0.55)*·**
Part time	13.7 (0.12)	16.9 (0.52)*	16.4 (0.38)*
Unemployed	4.9 (0.07)	7.3 (0.37)*	11.2 (0.32)*·**
Other (including not in the labor force)	30.9 (0.20)	21.4 (0.72)*	23.4 (0.48)*·**
Marital status			
Married	55.7 (0.22)	32.2 (0.76)*	24.9 (0.53)*·**
Widowed	6.5 (0.11)	2.3 (0.34)*	2.1 (0.21)
Separated/divorced	14.0 (0.14)	15.7 (0.63)*	18.4 (0.50)*·**
Never married	23.7 (0.16)	49.8 (0.77)*	54.7 (0.60)*·**
Poverty status			
< 100% FPL	12.6 (0.15)	22.2 (0.64)*	32.9 (0.55)*·**
100–199% FPL	19.3 (0.17)	24.8 (0.63)*	26.4 (0.48)*·**
≥ 200% FPL	68.1 (0.23)	53.0 (0.76)*	40.6 (0.58)*·**
Veteran status			
Yes	10.5 (0.13)	6.5 (0.45)*	5.9 (0.32)*
No	89.5 (0.13)	93.5 (0.45)*	94.1 (0.32)*
Metropolitan area			
Large	55.3 (0.30)	55.8 (0.80)	51.9 (0.64)*·**
Small	30.1 (0.31)	32.2 (0.74)*	33.0 (0.62)*
Nonmetropolitan	14.6 (0.23)	11.9 (0.47)*	15.1 (0.45)**
Health insurance			
Yes	86.2 (0.15)	75.0 (0.67)*	69.6 (0.54)*·**
No	13.8 (0.15)	25.0 (0.67)*	30.4 (0.54)*·**

Table 1 (continued)

Characteristic	No residential transience (weighted N ~ 185,200)	Distal transience (past 5 years but not past year) (weighted N ~ 14,200)	Proximal transience (past year) (weighted N ~ 25,800)
Cigarette dependence			
No PM use	73.9 (0.17)	59.4 (0.75)*	53.1 (0.54)*·**
PM use but no PM dependence	13.9 (0.12)	22.5 (0.61)*	22.3 (0.41),
PM dependence	12.3 (0.12)	18.1 (0.56)*	24.7 (0.48)*·**
Alcohol abuse or dependence			
No PY use	30.0 (0.20)	19.0 (0.65)*	23.4 (0.50)*·**
PY use but No PY AUD	64.0 (0.20)	66.5 (0.73)*	61.9 (0.52)*·**
PY AUD	6.1 (0.08)	14.5 (0.52)*	14.7 (0.35)*
Illicit drug abuse or dependence			
No PY use	86.6 (0.12)	68.0 (0.65)*	67.8 (0.50)*
PY use but no PY DUD	11.4 (0.11)	26.0 (0.60)*	24.4 (0.45)*
PY DUD	2.0 (0.04)	5.9 (0.33)*	7.8 (0.27)*·**
Past year mental illness			
None	83.2 (0.14)	68.8 (0.68)*	69.9 (0.47)*
AMI	16.8 (0.14)	31.2 (0.68)*	30.1 (0.47)*
LMMI	13.2 (0.12)	23.0 (0.62)*	21.2 (0.40)*·**
SMI	3.5 (0.07)	8.2 (0.40)*	9.0 (0.32)*
Past year mental health service use among adults with past year LMMI			
None	63.6 (0.50)	64.5 (1.47)	67.9 (1.13)
Any service use	36.4 (0.50)	35.6 (1.47)	32.1 (1.13)
Past year mental health service use among adults with past year SMI			
None	32.4 (0.86)	37.1 (2.39)*	38.5 (1.87)*
Any service use	67.6 (0.86)	62.9 (2.39)*	61.5 (1.87)*

The sample size was reduced for the mean rows because of missing information for "number of days." In situations where the number of days was 365, the missingness was ignored

Source SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010–2014

AMI any mental illness, *AUD* alcohol use disorder, *DUD* drug use disorder, *FPL* federal poverty level, *GED* general educational development, *LMMI* low/moderate mental illness, *NH* non-Hispanic, *PM* past month, PY past year, *SMI* serious mental illness

*Difference between this value and the value for no residential transience is statistically significant at $p < .05$

**Difference between this value and the value for distal transience is statistically significant at $p < .05$

health services at that time. Figure 2 presents the reasons for not using mental health services among those with and without transience. Adults with distal or proximal residential transience were more likely to report not being able to afford the cost of mental health services compared with those without transience (53.1% and 58.9% vs. 44.1%). Additionally, adults with distal or proximal transience were more likely to report that they had no transportation or it was otherwise too inconvenient as reasons for not using services, compared with those without transience (7.1% and 6.4% vs. 3.6%, respectively). Adults who had distal residential transience were more likely to report not knowing where to go for services compared with those with no residential transience (20.8% vs. 14.8%). No other significant differences between residential transience categories were identified.

Discussion

Prevalence of Transience

Residential mobility is not uncommon among adults. Almost half of all adults aged 18 or older had moved at least once in the past 5 years, and about a quarter had moved in the past year. Moreover, these estimates excluded those living in group quarters (e.g., shelters, college dormitories), making them a conservative estimate of the true population mobility, but provides a clearer picture of mobility outside of the context of homelessness. In defining residential transience for these analyses, we selected fairly high thresholds—four moves in 5 years or two moves in the past year. About 10% of the adult population

Table 2 Past year AMI and SMI among adults aged 18 or older, adjusted odds ratios and 95% confidence intervals

Characteristic	AMI[a] aOR (95% CI)	SMI[b] aOR (95% CI)	SMI among those with AMI[c] aOR (95% CI)
Residential transience			
None	1.00	1.00	1.00
Distal (past 5 years but not past year)	1.67 (1.54–1.81)**	1.51 (1.32–1.74)**	1.17 (1.02–1.34)*
Proximal (past year)	1.54 (1.46–1.64)**	1.63 (1.46–1.82)**	1.32 (1.18–1.48)**
Gender			
Male	0.68 (0.65–0.71)**	0.78 (0.72–0.85)**	0.99 (0.91–1.08)
Female	1.00	1.00	1.00
Age			
18–21	0.84 (0.78–0.90)**	0.94 (0.82–1.08)	1.11 (0.95–1.29)
22–25	0.97 (0.90–1.04)	0.97 (0.85–1.11)	1.01 (0.88–1.16)
26–29	1.36 (1.26–1.47)**	1.37 (1.17–1.60)**	1.20 (1.02–1.41)*
30–34	1.56 (1.45–1.67)**	1.67 (1.45–1.91)**	1.33 (1.15–1.54)**
35–49	1.44 (1.36–1.52)**	1.66 (1.50–1.83)**	1.39 (1.24–1.55)**
≥50	1.00	1.00	1.00
Race/ethnicity			
NH white	1.00	1.00	1.00
NH black	0.86 (0.81–0.92)**	0.78 (0.69–0.88)**	0.83 (0.73–0.94)**
NH American Indian/Alaska Native	1.02 (0.85–1.22)	1.24 (0.90–1.70)	1.21 (0.86–1.71)
NH Native Hawaiian/Other Pacific Islander	1.61 (1.05–2.48)*	0.77 (0.40–1.47)	0.59 (0.30–1.16)
NH Asian	0.96 (0.85–1.07)	1.07 (0.83–1.38)	1.11 (0.84–1.46)
NH multiple races	1.23 (1.07–1.40)**	1.23 (0.94–1.59)	1.11 (0.85–1.45)
Hispanic	0.89 (0.83–0.94)**	1.10 (0.97–1.24)	1.17 (1.03–1.33)*
Education			
<High school	1.02 (0.95–1.10)	0.93 (0.82–1.06)	0.95 (0.83–1.10)
High school or GED	0.98 (0.93–1.04)	1.12 (1.00–1.25)*	1.17 (1.04–1.31)**
Some college	1.07 (1.02–1.13)**	1.13 (1.02–1.25)*	1.10 (0.99–1.23)
College graduate	1.00	1.00	1.00
Employment			
Full time	1.00	1.00	1.00
Part time	1.18 (1.12–1.25)**	1.24 (1.11–1.37)**	1.12 (1.00–1.25)
Unemployed	1.28 (1.19–1.38)**	1.52 (1.34–1.73)**	1.32 (1.16–1.51)**
Other (including not in the labor force)	1.40 (1.33–1.48)**	1.68 (1.53–1.84)**	1.37 (1.24–1.52)**
Marital status			
Married	1.00	1.00	1.00
Widowed	1.29 (1.16–1.43)**	0.89 (0.71–1.11)	0.76 (0.60–0.97)*
Separated/divorced	1.48 (1.39–1.58)**	1.60 (1.45–1.77)**	1.29 (1.16–1.43)**
Never married	1.36 (1.29–1.43)**	1.33 (1.20–1.48)**	1.12 (1.00–1.25)*
Poverty status			
< 100% FPL	1.30 (1.23–1.38)**	1.44 (1.30–1.59)**	1.27 (1.15–1.41)**
100–199% FPL	1.20 (1.14–1.26)**	1.22 (1.11–1.33)**	1.10 (1.00–1.21)*
≥ 200% FPL	1.00	1.00	1.00
Veteran status			
Yes	1.03 (0.95–1.12)	1.30 (1.11–1.52)**	1.32 (1.12–1.55)**
No	1.00	1.00	1.00
Metropolitan area			
Large	0.97 (0.92–1.03)	0.91 (0.82–1.01)	0.93 (0.83–1.04)
Small	0.99 (0.94–1.05)	0.94 (0.85–1.05)	0.94 (0.84–1.05)
Nonmetropolitan	1.00	1.00	1.00

Table 2 (continued)

Characteristic	AMI[a] aOR (95% CI)	SMI[b] aOR (95% CI)	SMI among those with AMI[c] aOR (95% CI)
Health insurance			
Yes	0.92 (0.87–0.96)**	0.74 (0.68–0.82)**	0.78 (0.71–0.86)**
No	1.00	1.00	1.00
Cigarette dependence			
No PM use	1.00	1.00	1.00
PM use but no PM dependence	1.04 (0.98–1.09)	0.95 (0.87–1.05)	0.91 (0.82–1.01)
PM dependence	1.44 (1.36–1.53)**	1.53 (1.39–1.67)**	1.29 (1.17–1.42)**
Alcohol abuse or dependence			
No PY use	1.00	1.00	1.00
PY use but no AUD	0.84 (0.80–0.88)**	0.88 (0.80–0.96)**	1.01 (0.91–1.11)
PY AUD	1.81 (1.67–1.95)**	1.71 (1.50–1.95)**	1.33 (1.17–1.52)**
Illicit drug abuse or dependence			
No PY use	1.00	1.00	1.00
PY use but no DUD	1.46 (1.38–1.54)**	1.44 (1.30–1.59)**	1.18 (1.06–1.30)**
PY DUD	3.06 (2.80–3.34)**	2.62 (2.28–3.02)**	1.58 (1.38–1.81)**
Past year mental health service use			
Yes	7.58 (7.24–7.93)**	11.76 (10.87–12.71)**	3.56 (3.28–3.86)**
No	1.00	1.00	1.00

Source SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010–2014

AMI any mental illness, *AUD* alcohol use disorder, *DUD* drug use disorder, *aOR* adjusted odds ratio, *CI* confidence interval, *FPL* federal poverty level, *GED* general educational development, *NH* non-Hispanic, *PM* past month, *PY* past year, *SMI* serious mental illness

*Difference between this value and the value for the reference level is statistically significant at $p < .05$

**Difference between this value and the value for the reference level is statistically significant at $p < .01$

[a]Unweighted sample size ~ 224,600

[b]Unweighted sample size ~ 224,600

[c]Unweighted sample size ~ 44,400

reported this level of mobility, and residential transience was correlated with several adverse life circumstances (e.g., poverty status) and outcomes (e.g., substance use disorders).

Transience and Mental Illness

Analyses indicated that distal and proximal residential transience were associated with past year mental illness and each level of mental illness. These findings are consistent with the existing literature that suggests an association between frequent mobility and adverse mental health outcomes, despite the variation in definitions of transience and the specific mental health outcomes studied (Glasheen and Forman-Hoffman 2015a, b; Jelleyman and Spencer 2008; Mok et al. 2016; Mundy et al. 1989; Qin et al. 2009). Contrary to expectations, proximal transience was not more strongly associated with mental illness than distal transience. Prior literature has not examined the impact of recent transience vs. transience that occurred further in the past; therefore, we are unable to compare these results with others. It may be that the effects of residential transience are persistent, leading to a similarly increased risk of mental illness across a longer period. However, NSDUH is a cross-sectional survey that does not collect onset of mental illness data; therefore, it may be that mental illness contributes to residential transience. For example, mental illness may impair the financial gain, cognitive skills, or effort required to maintain stable residence. The odds of SMI among adults with mental illness were greater for adults with transience in the past 5 years compared with those without transience, which suggests that transience is correlated with more severe symptoms, but this result does not address temporality. Future longitudinal research is needed to address the sequence of transience and mental illness onset to better characterize this relationship. In lieu of such information, mental health treatment providers should be aware that patients, particularly those with SMI, may be at increased risk of residential transience in the absence of homelessness, and these patients may benefit from services linking them to programs that could increase housing stability.

Table 3 Past year mental health service use and past year unmet need for mental health services among adults aged 18 or older, adjusted odds ratios and 95% confidence intervals

Characteristic	Mental health service use, adults with LMMI[a]	Mental health service use, adults with SMI[b]	Unmet need for mental health services, all adults[c]	Unmet need for mental health services, adults with LMMI[d]	Unmet need for mental health services, adults with SMI[e]
Residential transience					
None	1.00	1.00	1.00	1.00	1.00
Distal (past 5 years but not past year)	1.13 (0.98–1.31)	1.08 (0.84–1.39)	1.86 (1.67–2.06)**	1.39 (1.19–1.63)**	1.30 (1.04–1.63)*
Proximal (past year)	1.01 (0.90–1.14)	1.05 (0.87–1.28)	1.57 (1.45–1.70)**	1.21 (1.06–1.38)**	1.19 (0.99–1.43)
Gender					
Male	0.57 (0.52–0.62)**	0.64 (0.55–0.74)**	0.43 (0.40–0.46)**	0.61 (0.54–0.68)**	0.70 (0.60–0.81)**
Female	1.00	1.00	1.00	1.00	1.00
Age					
18–21	0.60 (0.52–0.70)**	0.59 (0.44–0.78)**	1.59 (1.39–1.83)**	1.87 (1.51–2.30)**	2.14 (1.66–2.75)**
22–25	0.62 (0.55–0.71)**	0.71 (0.54–0.93)*	1.57 (1.39–1.79)**	1.68 (1.38–2.06)**	2.00 (1.57–2.55)**
26–29	0.68 (0.59–0.78)**	0.77 (0.57–1.04)	1.83 (1.60–2.11)**	1.61 (1.30–1.98)**	1.70 (1.30–2.23)**
30–34	0.81 (0.71–0.93)**	0.86 (0.66–1.13)	2.11 (1.87–2.38)**	1.48 (1.21–1.80)**	1.71 (1.34–2.17)**
35–49	0.99 (0.89–1.11)	1.12 (0.91–1.38)	1.96 (1.77–2.18)**	1.43 (1.21–1.69)**	1.42 (1.18–1.71)**
≥50	1.00	1.00	1.00	1.00	1.00
Race/ethnicity					
NH white	1.00	1.00	1.00	1.00	1.00
NH black	0.49 (0.42–0.57)**	0.56 (0.44–0.71)**	0.66 (0.59–0.73)**	0.73 (0.61–0.86)**	1.05 (0.83–1.34)
NH American Indian/Alaska Native	0.57 (0.38–0.87)**	0.85 (0.48–1.50)	0.99 (0.73–1.33)	0.74 (0.48–1.13)	1.23 (0.63–2.41)
NH Native Hawaiian/Other Pacific Islander	0.17 (0.07–0.39)**	0.21 (0.08–0.55)**	0.31 (0.19–0.50)**	0.21 (0.10–0.43)**	0.27 (0.10–0.71)**
NH Asian	0.31 (0.23–0.41)**	0.47 (0.29–0.76)**	0.42 (0.35–0.52)**	0.36 (0.26–0.50)**	0.63 (0.39–1.02)
NH multiple races	0.87 (0.67–1.14)	0.86 (0.56–1.34)	1.34 (1.08–1.66)**	1.34 (0.96–1.89)	1.05 (0.74–1.49)
Hispanic	0.53 (0.46–0.61)**	0.61 (0.49–0.76)**	0.70 (0.63–0.77)**	0.83 (0.70–0.99)*	0.68 (0.55–0.84)**
Education					
<High school	0.58 (0.49–0.67)**	0.44 (0.34–0.58)**	0.66 (0.60–0.74)**	0.69 (0.57–0.83)**	0.97 (0.77–1.21)
High school or GED	0.61 (0.55–0.68)**	0.54 (0.44–0.67)**	0.61 (0.56–0.67)**	0.60 (0.52–0.70)**	0.78 (0.64–0.94)**
Some college	0.81 (0.73–0.89)**	0.69 (0.57–0.85)**	0.86 (0.80–0.93)**	0.84 (0.74–0.96)*	0.95 (0.80–1.14)
College graduate	1.00	1.00	1.00	1.00	1.00
Employment					
Full time	1.00	1.00	1.00	1.00	1.00
Part time	1.20 (1.07–1.34)**	1.25 (1.01–1.54)*	1.30 (1.19–1.41)**	1.13 (0.99–1.29)	0.99 (0.83–1.19)
Unemployed	1.36 (1.16–1.59)**	1.50 (1.21–1.87)**	1.37 (1.23–1.52)**	0.99 (0.84–1.18)	0.93 (0.74–1.16)
Other (including not in the labor force)	1.54 (1.39–1.71)**	2.23 (1.86–2.68)**	1.58 (1.46–1.71)**	1.01 (0.88–1.15)	1.13 (0.95–1.34)
Marital status					
Married	1.00	1.00	1.00	1.00	1.00
Widowed	0.57 (0.47–0.71)**	0.98 (0.60–1.60)	0.85 (0.69–1.05)	0.69 (0.48–0.99)*	0.80 (0.54–1.20)
Separated/divorced	1.28 (1.15–1.43)**	1.10 (0.89–1.37)	1.67 (1.52–1.83)**	1.08 (0.93–1.25)	1.18 (0.98–1.42)
Never married	1.11 (1.00–1.23)*	0.85 (0.69–1.03)	1.35 (1.24–1.46)**	1.15 (1.01–1.31)*	0.98 (0.82–1.17)
Poverty status					
<100% FPL	1.12 (1.01–1.26)*	0.91 (0.75–1.11)	1.46 (1.34–1.59)**	1.32 (1.15–1.50)**	1.27 (1.07–1.51)**
100–199% FPL	0.97 (0.88–1.07)	0.97 (0.81–1.16)	1.19 (1.11–1.28)**	1.14 (1.01–1.29)*	1.09 (0.94–1.28)
≥200% FPL	1.00	1.00	1.00	1.00	1.00

Table 3 (continued)

Characteristic	Mental health service use, adults with LMMI[a]	Mental health service use, adults with SMI[b]	Unmet need for mental health services, all adults[c]	Unmet need for mental health services, adults with LMMI[d]	Unmet need for mental health services, adults with SMI[e]
Veteran status					
Yes	1.12 (0.95–1.32)	1.19 (0.86–1.65)	1.02 (0.88–1.19)	1.13 (0.89–1.43)	0.81 (0.61–1.06)
No	1.00	1.00	1.00	1.00	1.00
Metropolitan area					
Large	0.98 (0.88–1.10)	0.92 (0.76–1.11)	1.02 (0.93–1.12)	1.09 (0.95–1.25)	1.02 (0.85–1.22)
Small	1.01 (0.90–1.13)	0.94 (0.77–1.13)	1.01 (0.93–1.11)	0.94 (0.83–1.08)	1.06 (0.89–1.28)
Nonmetropolitan	1.00	1.00	1.00	1.00	1.00
Health insurance					
Yes	1.88 (1.68–2.11)**	2.38 (2.03–2.80)**	0.82 (0.76–0.89)**	0.79 (0.70–0.89)**	0.66 (0.57–0.77)**
No	1.00	1.00	1.00	1.00	1.00
Cigarette dependence					
No PM use	1.00	1.00	1.00	1.00	1.00
PM use but no PM dependence	1.05 (0.95–1.17)	1.06 (0.87–1.28)	1.03 (0.95–1.12)	0.98 (0.86–1.11)	1.03 (0.86–1.22)
PM dependence	1.19 (1.07–1.32)**	0.99 (0.83–1.17)	1.47 (1.36–1.60)**	1.08 (0.95–1.24)	1.09 (0.93–1.28)
Alcohol abuse or dependence					
No PY use	1.00	1.00	1.00	1.00	1.00
PY use but no PY AUD	0.94 (0.85–1.04)	0.93 (0.78–1.12)	1.06 (0.98–1.14)	1.15 (1.01–1.31)*	1.19 (1.01–1.41)*
PY AUD	0.95 (0.83–1.08)	0.96 (0.76–1.22)	2.35 (2.11–2.62)**	1.56 (1.33–1.84)**	1.44 (1.16–1.79)**
Illicit drug abuse or dependence					
No PY use	1.00	1.00	1.00	1.00	1.00
PY use but no PY DUD	1.22 (1.10–1.35)**	1.12 (0.94–1.34)	1.79 (1.65–1.94)**	1.37 (1.21–1.55)**	1.22 (1.04–1.43)*
PY DUD	1.47 (1.27–1.71)**	1.39 (1.13–1.72)**	3.92 (3.52–4.35)**	1.81 (1.54–2.12)**	1.71 (1.39–2.09)**

Source SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010–2014

AUD alcohol use disorder, *DUD* drug use disorder, *FPL* federal poverty level, *GED* general educational development, *LMMI* low/moderate mental illness, *NH* non-Hispanic, *PM* past month, *PY* past year, *SMI* serious mental illness

*Difference between this value and the value for the reference level is statistically significant at $p < .05$

**Difference between this value and the value for the reference level is statistically significant at $p < .01$

[a]Unweighted sample size = 34,200

[b]Unweighted sample size = 10,200

[c]Unweighted sample size = 224,700

[d]Unweighted sample size = 34,200

[e]Unweighted sample size = 10,200

Residential instability is a continuum with street dwelling homelessness as the most extreme state associated with the worst outcomes and stable housing having the best health outcomes. Residential transience, although less severe than homelessness, was still associated with negative mental health (MDE), in this study. However, as NSDUH is a cross-sectional survey that only asks a few questions on residential instability, it is not clear if residential transience among respondents is a step towards homelessness, a continuation of transience, or a step towards stability. For some individuals, residential transience may be an improvement in their housing condition. For others, it may be part of a descent into homelessness. With about 10% of the adult, noninstitutionalized population reporting transience level mobility, there are far more people experiencing transience than experiencing homelessness (the U.S. Department of Housing and Urban Development (HUD) estimates < 1% of people in the U.S. are homeless at any given time (The U.S. Department of Housing and Urban Development. Office of Community Planning and Development 2017). Residential transience may be a vital intervention point for improving mental health care, as well as preventing homelessness or a return to homelessness. Mental health care providers may be in a unique position to help clients experiencing residential

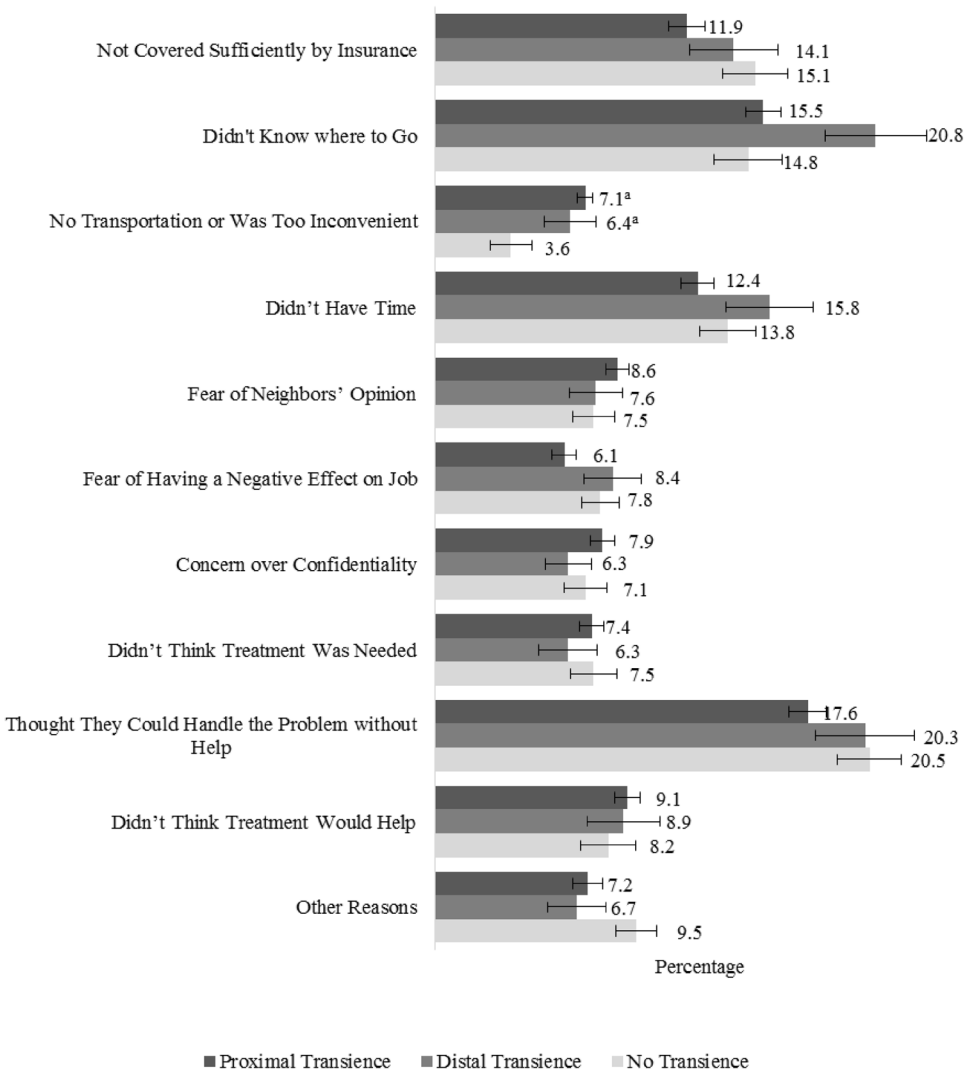


Fig. 2 Reasons for not using mental health services among adults aged 18 or older who reported an unmet need for mental health services in the past year, by residential transience in the past 5 years, weighted annual average percentages and standard errors. [a]Difference between this value and the value for no transience in the past 5 years is statistically significant at $p < .05$. Unweighted sample sizes are about 7,000. *Source* SAMHSA, Center for Behavioral Health Statistics and Quality, National Surveys on Drug Use and Health, 2010–2014

instability connect with resources and programs that could help stabilize their residential status. Moreover, those working with clients with residential instability should be aware of potentially a higher need for nonstandard services than other clients, given the higher unmet need reported by those with transience, compared to those without. People who provide residential stability services are aware of the burden that mental illness plays in people's ability to maintain stable housing, particularly its role in the development of chronic homelessness (Fazel et al. 2014). However, this study highlights the importance of continuing awareness that, even as residential stability is being established, the mental health problems do not disappear, and each contact may be an opportunity to get clients into mental health treatment.

Transience and Mental Health Service Use

In contrast to literature suggesting that residential transience may impair access to and delivery of health services (Jelleyman and Spencer 2008), we found no association between residential transience and mental health service use among adults with mental illness. Given the correlation between transience and other factors strongly associated with mental health service use (e.g., poverty, health insurance, education, marital status), past study results may have been confounded by factors that our analyses controlled for. Prior studies of residential transience and health service use also were based on community or clinical samples, which may have produced different results. Moreover, few studies looked specifically at mental health service use (most looked at general medical care), and none of the studies operationalized transience in the same manner. As noted, our conservative definition of transience involved a large number of moves in a relatively short period, which may have obscured an association by counting people who had moved frequently—but not enough to meet our threshold—in the nontransient comparison group. Future studies may be needed that evaluate the

consistency of results using a less stringent definition of transience.

In addition to the consideration of use of mental health services, there is a question of quality of the services provided. These analyses examined perceived unmet need of care as a way of examining this question by proxy. Despite no association between residential transience and past year mental health service use, adults with residential transience in the past 5 years, including when restricted to those with LMMI or SMI, were more likely to report an unmet need for mental health services in the past year. It may be that those with residential transience have need of more or better-quality services than they are receiving, or they may require a different type of service than is currently available to them. Future studies are needed to directly assess the quality of care and types of care needed by adults experiencing transience.

Some differences were noted in reported reasons for not having used mental health services in the past year among adults with an unmet need (e.g., cost, transportation problems/inconvenience), but most analyses were not significant and had wide confidence intervals, suggesting low statistical power. Future research is needed to provide a more targeted examination of the reasons why those with residential transience are more likely to report an unmet need for services, without a difference in rates of mental health service use.

In addition to the limitations noted above (cross-sectional data that cannot establish temporality, no assessment of the quality of mental health services, and low statistical power for some analyses), there are a few additional limitations to consider when interpreting these results. First, although individuals who were street dwelling were excluded from the NSDUH and those using homeless shelters were excluded from this study, NSDUH does not ask whether someone meets the HUD definition of homelessness, which is someone who lacks a fixed, regular, and adequate nighttime residence (The U.S. Department of Housing and Urban Development. Office of Community Planning and Development 2017). Individuals who do not have a fixed residence could be included in NSDUH if they were temporarily staying with friends when the NSDUH survey was administered, the only requirement is that they were residing at the residence or planned to reside at the residence for most of the quarter during which they were selected ("most" is not unspecified and left to respondent interpretation). Moreover, NSDUH does not assess past episodes of homelessness, therefore a person could have experienced homelessness in the years prior to the survey but have established stable residence and be eligible. for the NSDUH. In this case, the improvement in living situation could make the association between residential transience and mental illness appear stronger than it is because homelessness is a well-documented risk factor for mental illness (and vice versa) (Fazel et al. 2014).

Public Health Implications

These findings suggest that residential transience is associated with mental illness among adults and with an unmet need for mental health services, although not with having used mental health services in the past year. Mental health service providers should remain alert to patients who may need information about, or connection with, housing support services. Moreover, service providers may benefit from an awareness that patients reporting residential transience may have additional mental health service needs that are not being met. Residential instability (homelessness and transience) may make it difficult to successfully engage with mental health services, therefore those experiencing transience may benefit from connecting with housing support programs both with regards to housing stability and obtaining sufficient mental health care to meet their needs. For example, Housing First programs that work to ensure safe, stable housing, before addressing mental health needs have shown substantial promise in preventing and alleviating chronic homelessness among those with SMI (Aubry et al. 2015). Consideration of ways to prevent homelessness among those who are experiencing residential transience, particularly those with a mental illness, may also be a vital avenue for preventing more severe outcomes and a vital step toward facilitating engagement in treatment.

Acknowledgements The authors would like to acknowledge the contribution of Jonaki Bose for her review and feedback on the manuscript and Margaret Smith for her assistance in preparing the manuscript.

Funding This study was funded by the Substance Abuse and Mental Health Services Administration (Contract Number HHSS283201300001C).

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval 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. This article does not contain any studies with animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

Aubry, T., Nelson, G., & Tsemberis, S. (2015). Housing first for people with severe mental illness who are homeless: A review of the research and findings from the at home-Chez Soi demonstration project. *Canadian Journal of Psychiatry. Revue Canadienne*

de Psychiatrie, 60(11), 467–474. https://doi.org/10.1177/070674371506001102.

Breakey, W. R., & Fischer, P. J. (1995). Mental illness and the continuum of residential stability. *Social Psychiatry and Psychiatric Epidemiology, 30*(4), 147–151.

Center for Behavioral Health Statistics and Quality. (2013). *The NSDUH report: Revised estimates of mental illness from the National Survey on Drug Use and Health*. Rockville: Substance Abuse and Mental Health Services Administration.

Center for Behavioral Health Statistics and Quality. (2014a). *2012 national survey on drug use and health: Methodological resource book (Section 16a, 2012 Mental Health Surveillance Study: Design and estimation report)*. Rockville: Substance Abuse and Mental Health Services Administration.

Center for Behavioral Health Statistics and Quality. (2014b). *2012 national survey on drug use and health: Methodological resource book (Section 16a, 2012 Mental Health Surveillance Study: Operations report)*. Rockville: Substance Abuse and Mental Health Services Administration.

Clark, S. L. (2010). Housing instability: Toward a better understanding of frequent residential mobility among America's urban poor. Report submitted to the Center for Housing Policy. Retrieved 17 February, 2014, from http://www.nhc.org/media/files/LawsonClark_analysis_for_child_.pdf.

Davey-Rothwell, M. A., German, D., & Latkin, C. A. (2008). Residential transience and depression: Does the relationship exist for men and women? *Journal of Urban Health, 85*(5), 707–716. https://doi.org/10.1007/s11524-008-9294-7.

Fazel, S., Geddes, J. R., & Kushel, M. (2014). The health of homeless people in high-income countries: Descriptive epidemiology, health consequences, and clinical and policy recommendations. *Lancet, 384*(9953), 1529–1540. https://doi.org/10.1016/S0140-6736(14)61132-6.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (2002). *Structured clinical interview for DSM-IV-TR axis I disorders, research version, non-patient edition (SCID-I/NP)*. New York: New York State Psychiatric Institute, Biometrics Research.

Glasheen, C., & Forman-Hoffman, V. (2019). Mental illness and residential transience: Differences by race/ethnicity. *Psychiatric Services*.

Glasheen, C., & Forman-Hoffman, V. L. (2015a). Residential transience, major depressive episodes, and the risk of suicidal thoughts, plans, and attempts. *Suicide and Life-Threatening Behavior, 45*(6), 690–699. https://doi.org/10.1111/sltb.12160.

Glasheen, C., & Forman-Hoffman, V. L. (2015b). Variation in the relationship between mental illness and residential transience by race-ethnicity. *Psychiatric Services, 66*(12), 1357–1360. https://doi.org/10.1176/appi.ps.201400399.

Jelleyman, T., & Spencer, N. (2008). Residential mobility in childhood and health outcomes: A systematic review. *Journal of Epidemiology and Community Health, 62*(7), 584–592. https://doi.org/10.1136/jech.2007.060103.

Karg, R. S., Bose, J., Batts, K. R., Forman-Hoffman, V. L., Liao, D., Hirsch, E., et al. (2014). *CBHSQ data review: Past year mental disorders among adults in the United States: Results from the 2008–2012 Mental Health Surveillance Study*. Rockville, MD.

Kessler, R. C., Barker, P. R., Colpe, L. J., Epstein, J. F., Gfroerer, J. C., Hiripi, E., et al. (2003). Screening for serious mental illness in the general population. *Archives of General Psychiatry, 60*(2), 184–189.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6), 593–602. https://doi.org/10.1001/archpsyc.62.6.593.

Liao, D., & Valliant, R. (2012). Variance inflation factors in the analysis of complex survey data. *Survey Methodology, 38*(1), 53–62.

Mok, P. L., Webb, R. T., Appleby, L., & Pedersen, C. B. (2016). Full spectrum of mental disorders linked with childhood residential mobility. *Journal of Psychiatric Research, 78*, 57–64. https://doi.org/10.1016/j.jpsychires.2016.03.011.

Mundy, P., Robertson, J., Greenblatt, M., & Robertson, M. (1989). Residential instability in adolescent inpatients. *Journal of the American Academy of Child and Adolescent Psychiatry, 28*(2), 176–181. https://doi.org/10.1097/00004583-198903000-00005.

Novak, S. (2007). (prepared for the Substance Abuse and Mental Health Services Administration under Contract No. 283-03-9028, RTI/8726). In *An item response analysis of the world health organization disability assessment schedule (WHODAS) items in the 2002–2004 NSDUH*. Research Triangle Park: RTI International.

Qin, P., Mortensen, P. B., & Pedersen, C. B. (2009). Frequent change of residence and risk of attempted and completed suicide among children and adolescents. *Archives of General Psychiatry, 66*(6), 628–632.

RTI International. (2012). *SUDAAN® (Version Release 11.0)*. Research Triangle Park: RTI International.

Substance Abuse and Mental Health Services Administration. (2012). *2012 national survey on drug use and health: Statistical inference report* (Updated October 2013). Rockville, MD: Substance Abuse and Mental Health Services Administration. Retrieved from http://www.samhsa.gov/data/2k12/NSDUH2011MRB/NSDUHmrbStatInference2011.pdf.

Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality. (2014). *The CBHSQ report: Serious mental health challenges among older adolescents and young adults*. Rockville: Substance Abuse and Mental Health Services Administration.

The U. S. Department of Housing and Urban Development. Office of Community Planning and Development. (2017). *The 2017 annual homeless assessment report (AHAR) to congress*. Washington, DC: The U.S. Department of Housing and Urban Development. Retrieved from https://www.hudexchange.info/resources/documents/2017-AHAR-Part-1.pdf.