Original Research

Homelessness among immigrants in the United States: rates, correlates, and differences compared with native-born adults

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ABSTRACT

Objectives: This study examines rates of lifetime adult homelessness among foreign-born adults in the United States and how they differ from native-born adults.
Study design: Cross-sectional data from a nationally representative US sample were analyzed.
Methods: A sample of 29,896 native-born (weighted 84.1%) and 6404 foreign-born (weighted 16.0%) US adults participating in the National Epidemiologic Survey on Alcohol and Related Conditions-III were compared on rates of homelessness, controlling for sociodemographic characteristics, mental and substance-use disorders, health insurance, and use of welfare.
Results: There was no significant difference in rates of lifetime adult homelessness between foreign-born adults and native-born adults (1.0% vs 1.7%). Foreign-born participants were less likely to have various mental and substance-use disorders, less likely to receive welfare, and less likely to have any lifetime incarceration. The number of years foreign-born adults lived in the United States was significantly associated with risk for homelessness.
Conclusions: These findings suggest the 'healthy immigrant effect' applies to the mental health and social functioning of US immigrants but may not necessarily apply to homelessness. Long-standing immigration procedures requiring mental health and psychosocial evaluations may contribute to selection effects.

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Introduction

Immigration in the United States has experienced tremendous growth in the past four decades, and the immigrant population is currently over 43 million, the largest it has ever been in history, accounting for approximately 13% of the US population.[1] In many developed countries, immigrants have been found to have lower socio-economic status but better physical health, longer life spans, and lower death rates across age groups as compared with native-born residents.[2,3]

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This 'immigrant paradox' or 'healthy immigrant' effect has been found in the United States despite immigrants being less likely to have health insurance coverage.[4,5] There have been several theories proposed to explain this effect, including selection effects whereby healthier and more ambitious people immigrate or are granted access to immigration; differences in culture-driven health behaviors and social networks; and/or immigrants maintaining their original healthier habits in their host country.[6,7] Some studies have found that as immigrants live in the United States over time and acculturate, they lose their healthy immigrant effect and their health converges with those who are native-born.[8,9]

The immigrant effect may not be applicable to all health and psychosocial conditions or across all immigrant groups.[9,10] For example, studies on rates of mental illness among US immigrants vs native-born residents have been inconclusive. Some studies have found that foreign nativity protects against psychiatric disorders[10,11] and that immigrants have lower risk for substance-use disorders,[12] but other studies have found the reverse. One meta-analysis found that immigrants are at increased risk for schizophrenia and other psychotic disorders,[13] and other studies have highlighted high rates of post-traumatic stress disorder and psychological distress among immigrants, particularly those who have immigrated from countries experiencing war and political unrest.[10,14]

Homelessness is a major public health problem that is often related to mental illness and may differentially affect immigrants. To our knowledge, there has been no national study of homelessness among US immigrants. Birth country and family origins are rarely assessed in studies of homeless populations, and the characteristics of homeless immigrants are largely unknown. There are reasons to hypothesize that US immigrants are less likely to be homeless than native-born individuals because of selective migration effects and other factors driving the healthy immigrant effect. However, homelessness affects individuals across demographic and socio-economic groups,[15] and it is not well understood the extent to which homelessness affects US immigrants broadly. While there are annual point-in-time counts of homeless individuals every year in communities across the country,[16] no data are collected on immigrant status. In addition, it is unknown if identified risk factors for homelessness such as mental illness, substance abuse, history of incarceration, and lack of social support are also associated with homelessness among immigrants. Contemporary national data on rates and correlates of homelessness among foreign-born adults in the United States as compared with native-born adults would be important to guide national and regional efforts to address homelessness. The National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III) is one of the largest national psychiatric surveys and provides a unique opportunity to examine mental health, social functioning, and homelessness among US immigrants.

In the current study, we used data from the NESARC-III to examine background characteristics, mental health and substance-use disorders, and rates of lifetime adult homelessness and incarceration among foreign-born and native-born adults in the United States. Based on the 'healthy immigrant effect',[6,7] we hypothesized that foreign-born adults would have better mental health and social functioning and lower rates of lifetime adult homelessness and incarceration than native-born adults. We further hypothesized that the length of time that foreign-born adults had lived in the United States would be positively associated with homelessness. The study results provide information that may be relevant for program and policy planning around US immigration and the provision of health care and social services.

Methods

The NESARC-III is a cross-sectional survey of a nationally representative sample of the non-institutionalized US population aged 18 years or older. Data for NESARC-III were collected from April 2012 to June 2013. Multistage probability sampling was employed to select participants randomly at the county, Census, and household levels. Interviewers conducted in-person structured interviews with participants to collect information about their personal history, social activities, mental health and substance-use disorders, and other health conditions. Participants were interviewed either in English, Spanish, Mandarin, Cantonese, Korean, or Vietnamese. All interviewers received extensive training on field methods, received ongoing supervision, and conducted random respondent callbacks to verify data. Other details about the methodology of NESARC-III have been detailed elsewhere.[17]

Informed consent was obtained, and participants received $90 for participation. Data were weighted through post-stratification analyses to represent the US civilian population based on the 2012 American Community Survey. Protocols were approved by the institutional review boards at the National Institutes of Health and Westat; use of the data was approved by the institutional review board at Yale University School of Medicine.

With an overall response rate of 60.1%, the total sample consisted of 36,309 US adults. For this study, we focused on the 36,300 participants who reported their birth country, which included 29,896 (weighted 84.1%) native-born and 6404 (weighted 15.95%) foreign-born participants. Native-born was defined as being born in the 50 states and the District of Columbia, whereas foreign-born was defined as being born outside these areas. Among foreign-born participants, 1285 (weighted 25.7%) were from the continent of Asia (76, weighted 1.6% from Russia; and 135, weighted 2.54% from the Middle East), 541 (weighted 11.3%) were from Europe, 280 (weighted 3.72%) from Africa, 3597 (weighted 47.59%) from North America, 439 (weighted 6.76%) from South America, and 40 (weighted .66%) from Australia. Foreign-born participants reported spending 21.67 years (SD = 3.46) living in the United States. Notably, we used the terms 'foreign-born' and 'immigrants' synonymously in this article because the NESARC-III only included people living in the United States so presumably all foreign-born participants were immigrants. But importantly the NESARC-III did not assess the legality of participants' immigration, or whether any participants had special immigration status such as refugees, so the term 'immigrants' in this study was used broadly.

Measures

Background information about participants' demographic characteristics, income, geographic region, military history, health insurance, and use of any welfare programs were collected through structured interviews. Immigration status was assessed by asking participants: 'Were you born in the United States?' Participants who responded in the negative were further asked 'In what country were you born?' which was coded with a country code and 'How many years have you lived in the United States?'

The physical health of participants was assessed by asking participants whether they had any of 30 medical conditions in the past 12 months, including HIV/AIDS, cirrhosis, heart disease, cancer, stroke, arthritis, diabetes, and tuberculosis. The number of medical conditions for each respondent was summed for a total score.

The Alcohol-Use Disorder and Associated Disabilities Interview Schedule (AUDADIS-5)[18] is a structured diagnostic interview that was used to assess mood, anxiety, trauma-related, and personality disorders in addition to alcohol-use disorder, specific drug-use disorders, and nicotine-use disorder, according to criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. The AUDADIS-5 has been extensively tested and shown to have good validity and reliability. In this study, we examined lifetime mental and substance-use disorder diagnoses.

Social support was also assessed with a 12-item version of the Interpersonal Support Evaluation List.[19]

Lifetime adult homelessness was assessed with one question that asked participants: 'Since you were 15, did you have a time that lasted at least 1 month when you had no regular place to live-like living on the street or in a car?' Lifetime incarceration was assessed with another question that asked: 'Since you were 18, were you ever in jail, prison, or a correctional facility?'

Data analysis

Statistical analyses proceeded in several phases. First, foreign-born and native-born participants were compared on background, health, and psychosocial characteristics using bivariate analyses. Given the large sample sizes, we focused on effect sizes instead of statistical testing. Cohen's d was calculated for continuous variables, and odds ratios (ORs) with 95% confidence intervals were calculated for categorical variables. Second, multivariable analyses were used to compare foreign-born and native-born participants including only variables found to have substantial group differences ($d > .3$ or OR<.5 or OR>1.5) in bivariate analyses in addition to the lifetime homelessness variable. A series of hierarchical logistic regression analyses were conducted with blocks of variables entered sequentially to determine group differences in sociodemographic characteristics, psychosocial characteristics, mental and substance-use disorders, and lifetime homelessness and incarceration, with every block being controlled for in analyses of subsequent blocks. Adjusted ORs and 95% confidence intervals were calculated. For each block, McFadden's pseudo R^2 values[20] were calculated as an estimate of the amount of variance explained by the variables. Third,

homeless foreign-born and homeless native-born participants were compared using bivariate analyses. These analyses were then followed by a logistic regression only including variables found to be substantially different between groups in bivariate analyses. Fourth, supplementary analyses were conducted on only foreign-born participants to identify correlates associated with lifetime homelessness in this subsample. A stepwise logistic regression was conducted including all sociodemographic, health, and psychosocial variables in addition to the variable assessing number of years participants had lived in the United States. A backward stepwise method was used which only retained variables found to be significant at the $P < .05$ level in every step. For all multivariable analyses, listwise exclusion was used, and the rate of missing data was less than 3%. Because of the large sample sizes in most analyses, effect sizes in terms of Cohen's d or ORs were focused on rather than statistical significance alone. To account for the NESARC-III complex sampling design, all analyses were conducted with poststratification weights that included the strata and cluster using SAS, version 9.4. Standard deviation estimates were calculated from standard errors.[21]

Results

Table 1 shows bivariate comparisons between foreign-born and native-born participants on background characteristics. Among foreign-born US adults, the weighted rate of lifetime adult homelessness was 1.0%, and among native-born US adults, the weighted rate of lifetime adult homelessness was not substantially different at 1.7%. Among substantial differences found ($d > .3$ or OR<.5 or OR>1.5), foreign-born participants were less likely to be white and to have served in the US military and more likely to be married/with live-in partner, heterosexual, and living in an urban area than native-born participants. In terms of health and psychosocial characteristics, foreign-born participants were less likely to have various mental disorders than native-born participants, including major depressive disorder, post-traumatic stress disorder, generalized anxiety disorder, borderline personality disorder, and antisocial personality disorder. Foreign-born participants were also less likely to have various substance-use disorders, including the most prevalent disorders—tobacco, alcohol, cannabis, and opioid-use disorders. Notably, foreign-born participants were less likely to have any health insurance and less likely to have ever been incarcerated compared with native-born participants.

Table 2 shows the results of hierarchical logistic regression analyses comparing foreign-born and native-born participants including only variables found to be substantially different ($d > .3$ or OR<.5 or OR>1.5) in bivariate analyses in addition to the lifetime homelessness variable. In the first block of variables (sociodemographic characteristics), analyses revealed that foreign-born participants were still significantly less likely to be white, to have served in the military, and to have any health insurance than native-born participants but were more likely to be heterosexual, married/with live-in partner, and living in urban area. In the second block (mental and substance-use disorders), foreign-born

Table 1 – Sociodemographic characteristics, psychiatric diagnoses, and lifetime homelessness of native-born and foreign-born US adults.

Characteristics	Foreign-born (N = 6404) [Mean/raw n (SD/weighted%)]	Native-born (N = 29,896) [Mean/raw n (SD/weighted%)]	Test of difference [Cohen's d/odds ratio (95% CI)]
Age in years	45.0 (26.0)	46.84 (35.1)	-.06
Sex, male	2889 (49.1)	12967 (47.9)	.95 (.90–1.01)
Race			.08 (.07-.09)[a]
White	924 (19.0)	18265 (75.2)	
Black	576 (6.9)	7189 (12.7)	
American Indian/Alaska Native	11 (.2)	500 (1.8)	
Asian/Hawaiian/Pacific Islander	1306 (26.2)	495 (1.8)	
Hispanic, any race	3587 (47.8)	3447 (8.5)	
Sexual orientation			2.12 (1.64–2.74)
Heterosexual	6203 (98.5)	28436 (96.9)	
Gay/bisexual	96 (1.5)	1056 (3.1)	
Years of education	9.26 (6.2)	10.07 (7.8)	-.11
Marital status			1.61 (1.50–1.72)[b]
Married/live-in partner	3857 (67.2)	12934 (56.1)	
Divorced/separated	950 (10.7)	5878 (14.5)	
Widowed	273 (3.8)	2322 (6.2)	
Never married	1324 (18.3)	8762 (23.3)	
# of children	2.09 (2.9)	1.97 (4.8)	.03
Urbanicity			6.51 (5.12–8.29)
Urban	6184 (92.6)	24002 (75.6)	
Rural	220 (4.7)	5894 (24.4)	
Region			1.17 (.96–1.43)
Northeast	1135 (20.3)	4041 (17.8)	
Midwest	638 (10.4)	6927 (23.6)	
South	2200 (34.5)	12329 (37.5)	
West	2431 (34.7)	6599 (21.1)	
Employed full/part-time	3997 (62.7)	16558 (56.4)	1.23 (1.20–1.40)
Ever served in the US military	130 (2.5)	3188 (11.8)	.19 (.15–.24)
Annual personal income			1.20 (.99–1.44)[c]
$0	525 (8.9)	1198 (4.6)	
$1-$9999	1266 (19.0)	5660 (18.5)	
$10,000–29,999	2578 (37.0)	11,314 (34.2)	
$30,000–49,999	1050 (16.5)	5955 (19.7)	
$50,000–79,999	573 (9.8)	3533 (13.3)	
$80,000–99,999	176 (3.6)	914 (3.6)	
$100,000 or more	236 (5.2)	1322 (6.2)	
Healthcare coverage			
Medicare	894 (14.5)	6698 (22.7)	.58 (.52–.64)
Medicaid	882 (11.1)	4015 (10.2)	1.11 (.99–1.24)
VA/TRICARE/CHAMPUS	154 (2.8)	1530 (5.1)	.53 (.41–.70)
Private insurance	2599 (45.4)	16,216 (60.2)	.55 (.51–.60)
Government/state insurance	175 (2.6)	732 (2.3)	1.15 (.91–1.44)
Any health insurance	4066 (66.0)	24,017 (82.8)	.40 (.37–.44)
Welfare			
Social security	795 (13.3)	6840 (23.5)	.50 (.45–.56)
SSI	282 (3.8)	1897 (4.7)	.80 (.67–.96)
TAFD	124 (1.6)	839 (1.9)	.83 (.64–1.07)
Food stamps	1118 (13.9)	5777 (14.0)	.99 (.89–1.10)
Any welfare	1788 (25.7)	11891 (36.1)	.61 (.56–.67)
Social support score	2.62 (.40)	2.57 (.52)	.10
Mental health disorders			
Major depressive disorder	837 (12.3)	6592 (22.2)	.49 (.44–.55)
Bipolar disorder	78 (1.3)	675 (2.2)	.57 (.42–.77)
Post-traumatic stress disorder	217 (2.8)	2121 (6.8)	.39 (.33–.47)
Generalized anxiety disorder	253 (4.0)	2453 (8.4)	.46 (.38–.55)
Borderline PD	346 (5.1)	3452 (11.1)	.43 (.37–.49)
Schizotypal PD	170 (2.4)	1527 (4.8)	.50 (.41–.60)
Antisocial PD	60 (.8)	874 (2.9)	.28 (.20–.38)
Any psychosis	125 (1.7)	776 (2.3)	.73 (.57–.94)
Any suicide attempts	200 (2.9)	1794 (5.6)	.50 (.41–.61)

Table 1 — (continued)

Characteristics	Foreign-born (N = 6404) [Mean/raw n (SD/weighted%)]	Native-born (N = 29,896) [Mean/raw n (SD/weighted%)]	Test of difference [Cohen's *d*/odds ratio (95% CI)]
Substance-use disorders			
Tobacco	677 (11.2)	9069 (31.0)	**.28 (.25—.31)**
Alcohol	829 (13.2)	9169 (32.1)	**.32 (.29—.36)**
Cannabis	108 (1.8)	2134 (7.1)	**.24 (.18—.31)**
Sedatives	16 (.3)	344 (1.2)	**.23 (.12—.44)**
Heroin	5 (.1)	153 (.6)	**.14 (.05—.39)**
Other opioids	17 (.3)	671 (2.4)	**.13 (.08—.23)**
Cocaine	39 (.6)	832 (2.7)	**.21 (.15—.31)**
Other stimulants	13 (.2)	554 (2.0)	**.10 (.05—.19)**
Club drugs	9 (.1)	169 (.6)	**.23 (.11—.48)**
Inhalants	5 (.1)	44 (.2)	.82 (.26—2.63)
Hallucinogens	5 (.1)	182 (.7)	**.10 (.04—.27)**
Any lifetime homelessness	73 (1.0)	631 (1.7)	.62 (.49—.77)
Any lifetime incarceration	288 (4.4)	3840 (11.8)	**.35 (.29—.41)**

SSI= Supplemental Security Income, TAFD = Traditional Aid to Families with Dependent Children; PD= personality disorder; SD, standard deviation; OR, odds ratio; CI, confidence interval.
Bolded values indicate d > .3 or OR<.5 or OR>1.5.
[a] Race was dichotomized as White and non-White for logistic regression analyses.
[b] Marital status was dichotomized as Married and Not Married for logistic regression analyses.
[c] Income was dichotomized as ≥$100,000 and <$100,000 for logistic regression analyses.

Table 2 — Hierarchical logistic regression comparing foreign-born and native-born US adults.

Independent variables	Foreign-born vs native-born Americans [Odds ratio (95% CI)]
1st block: sociodemographic characteristics	
White	.09 (.08-.11)***
Heterosexual	1.47 (1.09—1.99)*
Married \ live-in partner	**2.55 (2.33—2.79)***
Urban	**3.91 (2.90—5.26)***
Ever served in US military	**.27 (.21-.35)***
Any healthcare coverage	.51 (.46-.57)***
MacFadden R^2	.27
2nd block: mental and substance-use disorders	
Major depressive disorder	.78 (.69-.89)***
Post-traumatic stress disorder	.68 (.55-.84)***
Generalized anxiety disorder	.98 (.79—1.23)
Borderline personality disorder	.98 (.84—1.15)
Antisocial personality disorder	.65 (.42—1.00)*
Tobacco-use disorder	.60 (.54-.68)***
Alcohol-use disorder	.56 (.50-.63)***
Cannabis-use disorder	.54 (.40-.72)***
Sedative-use disorder	**2.02 (.91—4.49)**
Heroin-use disorder	1.27 (.44—3.68)
Opioid-use disorder	**.36 (.18-.73)***
Cocaine-use disorder	.86 (.55—1.36)
Stimulant-use disorder	.53 (.26—1.06)
Club drug—use disorder	1.14 (.43—3.01)
Hallucinogen-use disorder	.85 (.29—2.55)
MacFadden R^2	.30
3rd block: homelessness	
Lifetime homelessness	1.09 (.92—1.29)
Lifetime incarceration	.50 (.41, .61)***
MacFadden R^2	.30

CI = confidence interval; OR = odds ratio.
Bolded values indicate OR<.5 or OR>1.5. *P < .05, **P < .01, ***P < .001.

participants were significantly less likely to have major depressive disorder, post-traumatic stress disorder, and antisocial personality disorder than native-born participants. Foreign-born participants were also significantly less likely to have tobacco, alcohol, cannabis, and opioid-use disorders. In the third block which only included lifetime homelessness and incarceration, foreign-born participants were found to be significantly more likely to have been incarcerated but were not significantly more likely to be homeless than native-born participants.

Table 3 shows bivariate comparisons between foreign-born and native-born adults with any lifetime adult homelessness. Among the substantial differences found (d > .3 or OR<.5 or OR>1.5), foreign-born adults with homeless histories were more likely to be heterosexual, married/with live-in partner, living in an urban area, and to be receiving social security than their native-born counterparts. Foreign-born adults were also less likely to be white, to have served in the US military, to have any lifetime incarceration, and were less likely to have several mental disorders (schizotypal personality disorder, and any history of psychosis) and nearly all substance-use disorders compared with native-born adults.

Table 4 shows results of a logistic regression analysis comparing the two groups with homeless histories and only including variables that were found to be substantially different in bivariate analyses. Foreign-born adults with homeless histories were more likely to be heterosexual, married/have live-in partner, living in an urban area, receiving social security, and to have sedatives-use disorder than native-born adults with homeless histories (OR<.5 or OR>1.5). In addition, foreign-born adults were less likely to be white, to have served in the US military, to be receiving supplementary security income, and to have schizotypal personality disorder or opioid-use disorder. Together, based on the McFadden R^2 values, these variables explained about 25% of the total variance between groups.

Table 3 – Comparison of foreign-born and native-born US adults with any lifetime homelessness on sociodemographic characteristics and psychiatric diagnoses.

Characteristics	Homeless foreign-born adults (N = 117)	Homeless native-born adults (N = 1565)	Test of difference
Age in years	48.19 (14.93)	44.28 (17.41)	.23
Sex, male	72 (61.46)	873 (61.21)	.99 (.61, 1.59)
Race/ethnicity			**.14 (.08, .23)**
White	6 (11.71)	883 (71.17)	
Black	8 (7.54)	409 (14.99)	
American Indian/Alaska Native	0 (0)	68 (4.89)	
Asian/Hawaiian/Pacific Islander	8 (18.26)	22 (1.32)	
Hispanic, any race	51 (62.49)	183 (7.64)	
Sexual orientation			1.98 (.68, 5.77)
Heterosexual	111 (95.64)	1407 (91.72)	
Gay/bisexual	5 (4.36)	136 (8.28)	
Years of education	8.54 (2.06)	9.22 (2.77)	-.25
Marital status			**1.60 (1.01, 2.54)**
Married/live-in partner	56 (54.28)	485 (42.56)	
Divorced/separated	31 (21.32)	499 (27.26)	
Widowed	5 (4.67)	54 (2.98)	
Never married	25 (19.73)	527 (27.21)	
# of children	2.37 (2.06)	2.55 (11.47)	
Urbanicity			**5.12 (2.39, 10.96)**
Urban	112 (94.38)	1325 (76.63)	
Rural	5 (5.62)	240 (23.37)	
Region			1.12 (.61, 2.09)
Northeast	24 (18.11)	195 (16.45)	
Midwest	9 (6.76)	363 (21.26)	
South	39 (39.77)	530 (33.41)	
West	45 (35.35)	477 (28.88)	
Employed full/part-time	60 (50.62)	653 (46.27)	1.19 (.79, 1.80)
Ever served in the US military	5 (3.71)	231 (15.11)	**.22 (.08, .57)**
Annual personal income			.90 (.53, 1.52)[a]
$0	4 (5.14)	45 (2.84)	
$1-$9999	29 (21.32)	470 (29.72)	
$10,000−29,999	60 (48.05)	744 (43.97)	
$30,000−49,999	17 (17.01)	185 (12.68)	
$50,000−79,999	5 (6.38)	76 (6.29)	
$80,000−99,999	0 (0)	16 (1.36)	
$100,000 or more	2 (2.10)	29 (3.14)	
Healthcare coverage			
Medicare	21 (21.49)	354 (22.41)	.95 (.54, 1.67)
Medicaid	30 (20.46)	433 (22.79)	.87 (.52, 1.46)
VA/TRICARE/CHAMPUS	5 (6.97)	101 (5.53)	1.28 (.48, 3.45)
Private insurance	30 (30.42)	467 (34.63)	.83 (.49, 1.40)
Government/state insurance	5 (4.47)	59 (3.66)	1.23 (.45, 3.42)
Any health insurance	72 (65.22)	1101 (71.44)	.75 (.49, 1.15)
Welfare			
Social security	28 (28.91)	323 (20.46)	**1.58 (.96, 2.61)**
SSI	11 (6.62)	248 (12.96)	**.48 (.23, .97)**
TAFD	6 (6.04)	107 (5.14)	1.19 (.37, 3.78)
Food stamps	39 (27.02)	732 (41.72)	.52 (.33, .82)
Any welfare	55 (45.31)	943 (56.33)	.64 (.41, 1.02)
Social support score	2.63 (.22)	2.61 (.40)	.05
Mental health disorders			
Major depressive disorder	36 (29.84)	572 (36.14)	.75 (.46, 1.22)
Bipolar disorder	13 (10.68)	147 (9.01)	1.21 (.61, 2.39)
Post-traumatic stress disorder	24 (19.67)	343 (20.51)	.95 (.57, 1.58)
Generalized anxiety disorder	19 (18.44)	325 (21.14)	.84 (.50, 1.43)
Borderline PD	34 (25.97)	637 (40.94)	.51 (.33, .79)
Schizotypal PD	13 (8.37)	331 (20.74)	**.35 (.19, .66)**
Antisocial PD	14 (12.49)	288 (20.94)	.54 (.29, 1.01)
Any psychosis	4 (4.00)	149 (8.12)	**.47 (.15, 1.48)**
Any suicide attempts	22 (17.20)	389 (23.69)	.67 (.36, 1.25)

Table 3 — (continued)

Characteristics	Homeless foreign-born adults (N = 117)	Homeless native-born adults (N = 1565)	Test of difference
Substance-use disorders			
Tobacco	46 (37.50)	1034 (67.46)	**.29 (.19, .45)**
Alcohol	49 (40.66)	935 (62.63)	**.41 (.25, .66)**
Cannabis	13 (10.55)	350 (24.28)	**.37 (.20, .68)**
Sedatives	3 (2.51)	80 (6.05)	**.40 (.12, 1.29)**
Heroin	2 (.96)	50 (3.79)	**.25 (.06, 1.09)**
Other opioids	3 (2.76)	157 (11.75)	**.21 (.07, .70)**
Cocaine	10 (6.88)	218 (13.29)	**.48 (.23, 1.00)**
Other stimulants	4 (2.36)	139 (10.38)	**.21 (.07, .67)**
Club drugs	2 (1.45)	38 (2.52)	.57 (.13, 2.61)
Inhalants	2 (1.53)	15 (1.32)	1.16 (.27, 5.00)
Hallucinogens	2 (1.53)	45 (3.80)	**.39 (.10, 1.61)**
Any lifetime incarceration	32 (24.54)	742 (48.06)	**.35 (.22, .56)**

SSI = Supplemental Security Income, TAFD = Traditional Aid to Families with Dependent Children; OR, odds ratio; PD = personality disorder. Bolded values indicate d > .3 or OR<.5 or OR>1.5.
[a] Personal income was dichotomized as less than $30,000 or equal to or greater than $30,000.

Table 4 — Logistic regression comparing homeless foreign-born and homeless native-born US adults on sociodemographic characteristics and psychiatric diagnoses.

Independent variables	Foreign-born vs native-born Americans [Odds ratio (95% CI)]
Age	1.03 (1.00, 1.05)*
White	**.11 (.06, .20)***
Heterosexual	**2.39 (.86, 6.59)**
Married/Live-in partner	**1.81 (1.07, 3.06)***
Urban	**3.99 (1.64, 9.68)****
Ever served in the U.S. military	**.16 (.06, .44)***
SSI	**.37 (.18, .76)****
Social Security	**1.72 (.94, 3.16)**
Schizotypal PD	**.44 (.22, .90)***
Any psychosis	1.43 (.73, 2.82)
Tobacco-use disorder	**.52 (.32, .83)****
Alcohol-use disorder	1.03 (.62, 1.73)
Cannabis-use disorder	.56 (.28, 1.11)
Sedatives-use disorder	**2.07 (.61, 7.03)**
Heroin-use disorder	.81 (.19, 3.53)
Other opioid-use disorder	**.42 (.12, 1.46)**
Cocaine-use disorder	.81 (.36, 1.82)
Other stimulants-use disorder	.75 (.20, 2.84)
Hallucinogens-use disorder	1.36 (.30, 6.09)
Any lifetime incarceration	**.51 (.31, .83)****
McFadden R2 value	.26

SSI = Supplemental Security Income, PD = personality disorder; CI, confidence interval; OR, odds ratio.
Bolded values indicate d > .3 or OR<.5 or OR>1.5. *<.05; **<.01; ***<.001.

Table 5 — Stepwise logistic regression to identify correlates of lifetime homeless among foreign-born US adults.

Independent variables	[Odds ratio (95% CI)]
Years living in United States	1.03 (1.01, 1.04)***
Any welfare	2.07 (1.24, 3.46)**
Mental health disorders	
Major depressive disorder	2.13 (1.27, 3.59)**
Bipolar disorder	3.61 (1.67, 7.83)**
Post-traumatic stress disorder	3.81 (2.00, 7.26)***
Any psychosis	5.07 (2.16, 11.93)***
Substance-use disorders	
Tobacco	2.12 (1.32, 3.43)**
Alcohol	1.85 (1.07, 3.21)*
Lifetime incarceration	3.04 (1.77, 5.21)***
McFadden R² value	.18

CI, confidence interval.
*<.05; **<.01; ***<.001.

use disorders (tobacco or alcohol-use disorder), and had any lifetime incarceration were significantly more likely to report any lifetime adult homelessness. These variables together explained about 18% of the variance in lifetime adult homelessness.

Discussion

In a nationally representative sample of the US adult population, rates of lifetime adult homelessness were similar between foreign-born and native-born adults (1.0% vs 1.7%) and so immigrant status did not confer any additional risk or protective effects against homelessness. We used a restricted definition of homelessness, only including homeless episodes that lasted more than one month. We also used a heterogeneous national sample of immigrants and could not distinguish between those who were legal or illegal immigrants, refugees, or other immigrant groups, and there are likely different homeless rates between immigrant subgroups.

To identify factors associated with lifetime adult homelessness among foreign-born adults, additional analyses were conducted on the subsample of foreign-born adults. As shown in Table 5, a stepwise logistic regression including all variables revealed that foreign-born adults who lived more years in the United States were receiving welfare, had certain mental health disorders (major depressive disorder, bipolar disorder, post-traumatic stress disorder, or psychosis) and substance-

Nonetheless, our findings suggest the 'healthy immigrant effect'[2,3,7] may not be as applicable to homelessness as more specific health conditions, possibly because homelessness is a multifaceted problem. In fact, we found that foreign-born adults had better behavioral health than native-born adults as evidenced by lower rates of various mental and substance-use disorders and lower rates of lifetime incarceration. This finding was despite the fact that foreign-born adults were less likely to have health insurance coverage. Most notably, foreign-born adults were less likely to have major depression, tobacco-use disorder, alcohol-use disorder, and opioid-use disorder. The prevalence of each of these disorders in the US population has been of great public concern with each disorder costing over 100 billion dollars in medical expenses and lost productivity annually.[22—26] Our findings suggest the prevalence and costs associated with these disorders are not disproportionally borne by US immigrants.

Foreign-born adults were found to be less likely to have any lifetime incarceration which can also be costly for state and federal governments. The effect of immigration on crime levels has been a contentious topic for several decades and one-quarter to three-quarters of Americans believe immigration has increased crime rates.[27,28] However, our finding is consistent with two decades of research finding a negative association between immigrant status and incarceration.[29] A previous national study also found that US immigrants from each of the major continents were significantly less likely than native-born US adults to have antisocial personality disorder—a disorder strongly associated with criminal activity.[30] As part of the US immigration application process, applicants undergo a required evaluation for mental disorders with 'associated harmful behaviors and substance-related disorders' which can make them inadmissible for immigration.[31] Foreign nationals with certain criminal records will also be denied admission to the United States.[32] Thus, our findings regarding the better mental health and social functioning of immigrants at least partly reflect the screening out of immigrants who do not meet required admission standards.

When foreign-born and native-born adults with histories of homelessness were compared, we found there was little difference on sociodemographic and psychosocial characteristics. The largest difference was that foreign-born adults with homeless histories were more likely to be living in an urban area than their native-born counterparts, which reflects broader trends on where foreign-born and native-born adults in general live.[33,34] We also found that factors associated with homelessness among only foreign-born adults were largely similar to those identified in the general homeless literature,[35,36] with the exception of drug-use disorder. Use of welfare, mental illness especially psychosis, tobacco, and alcohol-use disorder, and history of incarceration were all independently and significantly associated with lifetime adult homelessness. The lack of association between drug-use disorders and homelessness in foreign-born adults is curious and may be an artifact of floor effects with low rates of substance abuse among foreign-born adults in general.[10,37] There may also be different policies and attitudes toward drug use in the countries that individuals immigrated from that explain some of the findings. Perhaps related to

that point, we found that the longer that immigrants had lived in the United States, the greater their risk for homelessness. This is a unique finding that has not been reported before and suggests that immigrants are more likely to shed previous practices and attitudes from their origin countries over time as they live in the United States, which can put them at increased susceptibility to mental illness, substance abuse, and other factors that can increase homeless risk. This idea would be consistent with the literature finding that the health immigrant effect declines for immigrants in the United States as they acculturate and develop habits and practices similar to native residents.[8,9,38,39]

Taken together, our findings suggest rates of lifetime adult homelessness are similar among US immigrants and native-born residents. Additionally, there was little difference between homeless foreign-born and homeless native-born adults, and they likely share many of the same risk factors except drug-use disorders was so rare among foreign-born adults that it was not found to be associated with homelessness. The 'healthy immigrant effect' seems to apply to costly mental and substance-use disorders and related outcomes like incarceration but not to homelessness where immigrants seem to be as vulnerable as others. Foreign-born adults at risk for homelessness may require special outreach since they are less likely to have health insurance coverage, may have language barriers and lack of knowledge about support programs,[40] may be more reliant on social capital and supportive ethnic networks,[41] and may experience other cultural issues.[41]

There are several important study limitations to note. First, lifetime adult homelessness was broadly assessed and only included homeless episodes that lasted at least 1 month. We could not differentiate between sheltered and unsheltered homelessness; it is possible that participants interpreted our question as asking only about unsheltered homelessness (e.g., 'like living on the street or in a car') which would have resulted in an underestimate of overall homelessness rates. NESARC-III did not collect data on the immigrant status of foreign-born participants, so the results may not generalize to illegal immigrants, refugees, or other special immigrant groups. There may have been a sampling bias since some immigrants may have more reluctant to participate in NESARC-III which affects the generalizability of the results. In addition, level of acculturation of foreign-born participants was unknown and may have been an important unmeasured factor in the results. There may also be historical effects with different waves of immigration from different countries over the past half-century. Since NESARC-III interviews were only conducted in certain languages, there may have been a selection bias against participants who were not native speakers or who spoke another language. NESARC-III also did not include any adults who were residing in institutions (e.g., prisons, homeless shelters) during the sampling period, so the study may have under-sampled the groups we were interested in. These limitations notwithstanding, our study provides a contemporary, comprehensive picture of the behavioral health and social functioning of foreign-born and native-born adults in the United States, which may have implications for ongoing practices and policies around immigration, health care, and homelessness in the country.

Author statements

Ethical approval

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Competing interests

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