Relationship Between Adverse Childhood Experiences and Homelessness and the Impact of Axis I and II Disorders

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Homelessness is a serious societal problem. Approximately 12% to 14% of adults in the United States report a history of homelessness.[1–3] In addition to poverty, homelessness has been associated with the deterioration of mental and physical health, social isolation, and exposure to traumatic events.[4–6] Furthermore, those who have experienced homelessness have significantly elevated mortality rates and high rates of suicidal behavior.[7,8] Worldwide, homelessness has been found to be overrepresented in men and those groups that traditionally experience discrimination.[2]

Although systemic societal factors (e.g., lack of affordable housing) affect how many individuals are homeless at any given time, demographic characteristics and life histories put specific individuals at risk for this detrimental experience.[9] Childhood adversities are found to be substantially overrepresented in homeless samples, and a history of childhood adversity has been related to particularly poor outcomes among the homeless.[9,10] Previous research, however, has a number of limitations. Nearly all studies used interview methodology of currently sheltered homeless or clinical populations, who might have elevated risk factors or be chronically homeless.[10,11] These studies generally lacked a suitable sociodemographic comparison group and tended to focus on homeless individuals within a specific geographic area.[9,12] In addition, all of the other research used relatively small sample sizes not representative of the general US population. The only known epidemiological study investigating homelessness and childhood adversity found evidence of an association between childhood adversity and lifetime homelessness.[13] However, this study investigated limited types of adversities, and used a broad definition of lifetime homelessness, which was inconsistent with standardized definitions of homelessness that imply being homeless for longer periods of time.[13]

The main objective of our study was to better describe and understand the relationship

Objectives. We investigated the links between homelessness associated with serious mental and physical healthy disparities and adverse childhood experiences (ACEs) in nationally representative data, with Axis I and II disorders as potential mediators.

Methods. We examined data from the National Epidemiologic Survey of Alcohol and Related Conditions in 2001–2002 and 2004–2005, and included 34 653 participants representative of the noninstitutionalized US population who were 20 years old or older. We studied the variables related to 4 classes of Axis I disorders, all 10 Axis II personality disorders, a wide range of ACEs, and a lifetime history of homelessness.

Results. Analyses revealed high prevalences of each ACE in individuals experiencing lifetime homelessness (17%–60%). A mediation model with Axis I and II disorders determined that childhood adversities were significantly related to homelessness through direct effects (adjusted odd ratios = 2.04, 4.24) and indirect effects, indicating partial mediation. Population attributable fractions were also reported.

Conclusions. Although Axis I and II disorders partially mediated the relationship between ACEs and homelessness, a strong direct association remained. This novel finding has implications for interventions and policy. Additional research is needed to understand relevant causal pathways. (*Am J Public Health.* 2013;103:S275–S281. doi:10.2105/AJPH.2013.301323)

between childhood adversities and future homelessness in a nationally representative sample. We further addressed many of the limitations in the current literature by using the National Epidemiologic Survey of Alcohol and Related Conditions (NESARC) to investigate whether a history of different childhood adversities were associated with increased odds of developing lifetime homelessness. Additionally, we investigated whether Axis I and Axis II *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*)[14] mental disorders mediated these relationships.

The rationale for investigating mental disorders as a mediator variable stems from a public health interest to better describe co-occurring patterns linking childhood adversity and homelessness. The high prevalence of poor mental health outcomes in those with a history of foster care or other childhood adversities is well documented.[9,15–17] Additionally, the prevalence of mental disorders and addictions is significantly higher among homeless people than in the general

population; these disorders are often comorbid.[18–20] Mental disorders among people who are homeless include severe and persistent mental illnesses, such as schizophrenia, as well as more prevalent conditions, such as mood and affective disorders.[20] Investigating mental disorders as a possible mediator provides a more in-depth consideration of the multiple vulnerabilities faced by homeless individuals and may help to identify differential intervention opportunities.

To our knowledge, our study is the first to examine the link between childhood adversity and lifetime homelessness in a large, nationally representative sample. Investigating this link in such a sample with an adequate control group of participants who have not experienced homelessness was essential in understanding the link between adversity and homelessness above and beyond factors such as income or education. Furthermore, by examining the potential mediating role of mental disorders, we hoped to better elucidate the complex factors linking childhood adversity to

homelessness and to inform appropriate points for intervention.

METHODS

We analyzed data from a combined data set of waves 1 and 2 of the NESARC, a nationally representative sample of individuals funded by the National Institute of Alcohol Abuse and Alcoholism. This survey included data for 34 653 individuals collected in 2001–2002 (wave 1) and 2004–2005 (wave 2). The data were representative of the civilian, noninstitutionalized US population aged 20 years and older (including those living in households, rooming houses, college quarters, group homes, and shelters). The data were collected through face-to-face interviews with trained lay interviewers using techniques with documented validity in a range of international clinical and nonclinical samples. We were able to examine variables related to 4 classes of Axis I disorders, all 10 Axis II personality disorders, a wide range of adverse childhood experiences (ACEs), and lifetime history of homelessness. In-depth details of the NESARC methods have been published elsewhere.[21] All analyses were stratified by gender to elucidate any differing trends given the novelty of this line of research. The different prevalences of homelessness between genders in addition to gender-specific research in other homelessness-related literature provided further rationale for this stratification.[10,12,22]

Measures

Lifetime homelessness. The lifetime homelessness variable was created from 2 questions: in wave 1 of the NESARC, respondents were asked "In your entire life, did you ever 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?" In wave II of the NESARC, respondents were asked whether the same question and whether homelessness had occurred since the last interview. "Yes" responses from both variables were collapsed to create a wave 2 lifetime homelessness variable. The "no" group consisted of individuals who responded "no" to both of these questions, and those participants whose answers were unknown to 1 or both questions were removed from the sample. This definition of

homelessness is in line with the US Department of Housing and Urban development policy.[13]

Childhood adversity. The NESARC assessed respondent's adverse childhood events (occurring before the age of 18 years) with questions based on the Adverse Childhood Experiences study.[23] Questions from the Adverse Childhood Experiences Study pertaining to emotional and physical neglect were adapted from the Childhood Trauma Questionnaire,[24] whereas those pertaining to abuse were adapted from the Conflict Tactics Scale.[25] Questions related to sexual abuse included 4 questions adapted from Wyatt (1985).[26] Participants were asked to respond to questions related to abuse, physical neglect, and having a battered mother based on a 5-point scale (never, almost never, sometimes, fairly often, or very often.) An alternative 5-point scale was used for questions regarding emotional neglect (never true, rarely true, sometimes true, often true, or very often true). Questions regarding household dysfunction, other than having a battered mother, required a yes or no answer.

Childhood maltreatment: abuse and neglect. Three distinct types of abuse (physical, emotional, and sexual) were coded from the list of NESARC questions, consistent with the Adverse Childhood Experience Study definitions.[23] Respondents were considered to have experienced physical abuse if they responded "sometimes" or more when asked how often a parent or other adult living in the respondent's home had (1) pushed, grabbed, shoved, slapped, or hit the respondent, or (2) hit the respondent so hard it left marks or bruises or caused an injury. A respondent was considered to have experienced emotional abuse if they answered "fairly often" or "very often" to any of the following scenarios that asked about how often a parent or other adult living in the respondent's home (1) swore at, insulted, or said hurtful things to the respondent; (2) threatened to hit or throw something at the respondent (but did not); or (3) acted in any other way that made respondents afraid that they would be physically hurt or injured. The presence of sexual abuse was defined as any response more often than "never" (on the aforementioned 5-point scale) to any of 4 questions regarding sexual abuse. These questions investigated the occurrence of sexual touching or fondling, attempted intercourse, or

actual intercourse by an adult or other person when the respondent did not want the act to occur or was too young to understand what was happening.

Physical neglect questions were taken from the Alcohol use Disorder and Associated Disabilities Interview Schedule-*DSM-IV* (AUDADIS-IV). Questions included 4 relevant questions regarding respondents' experiences of being left unsupervised when too young to care for themselves, or going without needed clothing, school supplies, food, or medical treatment. If participants reported any of these occurring once or more, the presence of physical neglect was assumed. Our definition of physical neglect slightly differed from other research definitions using the Adverse Childhood Experience Study because the AUDADIS-IV included 4 of the original 5 questions. Our alternative definition was developed by examining the distribution of summed responses to all physical neglect questions in the NESARC data set. Because a clear break was found between those responding "never" (74.4%) to all physical neglect related items and those responding "almost never" (25.6%), we adopted the aforementioned definition.[27]

Emotional neglect questions probed whether respondents felt a part of a close-knit family or whether anyone in the respondents' families of origin made them feel special, wanted respondents to succeed, believed in respondents, or provided strength and support. This adversity was considered "present" if the respondent had a reversed-scored sum total of 15 or greater from the 5 relevant questions, as was consistent with previous research based on the Child Trauma Questionnaire.[23]

Household dysfunction. Having a battered mother was assessed by asking whether a respondent's father, stepfather foster or adoptive father, or mother's boyfriend had ever done any of the following things to the respondent's mother, stepmother, foster or adoptive mother, or father's girlfriend: (1) pushed, grabbed, slapped, or threw something at her; (2) kicked, bit, hit with a fist, or hit her with something hard; (3) repeatedly hit her for at least a few minutes; or (4) threatened to use or actually used a knife or gun on her. For questions 1 and 2, a response of "sometimes" or more was scored positive for having a battered

mother, whereas for questions 3 and 4, any response more often than "never" met the definition.

The remaining household dysfunction variables examined parental psychopathology. Respondents were asked (yes or no) whether a parent or other adult in the household (1) went to jail or prison, (2) was treated or hospitalized for a mental illness, (3) attempted suicide, (4) actually committed suicide, or (5) had problems with alcohol or drugs (2 separate questions). A response of "yes" to any of these experiences resulted in the presence of the "household dysfunction" variable. All of these household dysfunction definitions were consistent with previous research on childhood adversities in the NESARC.[27]

Adversity experiences summary variables. From the 3 types of childhood adversity (abuse, neglect, or general household dysfunction) described, 2 variables were created: (1) "any abuse or neglect," which indicated the presence of at least 1 type of childhood maltreatment; and (2) "any adverse childhood event," which indicated the experience of at least 1 type of ACE (abuse, neglect, or general household dysfunction). These composite variables were chosen to compare child maltreatment with more general childhood adversity. In addition, they were chosen so that findings could be better comparable to cross research in the field, which used a range of definitions relating to childhood adversity.[27,28]

Axis I and II diagnoses. The AUDADIS-IV was also used to assess Axis I (mood, anxiety, substance use disorders) and Axis II (personality disorders [PDs]) diagnoses. All disorders were based on *DSM-IV* criteria with the exception of the psychotic disorder variable, which was assessed based on lifetime diagnosis in wave 1 with: "Did a doctor or other health professional ever tell you that you had schizophrenia or a psychotic illness or episode?" combined with the following wave 2 questions: "In the last 12 months, did a doctor or other health professional tell you that you had schizophrenia or a psychotic mental illness?" and "Did this happen since your last interview in MO/YR but before 12 months ago?" The AUDADIS-IV tool used a fully structured interview protocol to assess the disorders and was found to have fair to excellent reliability using test–retest methods
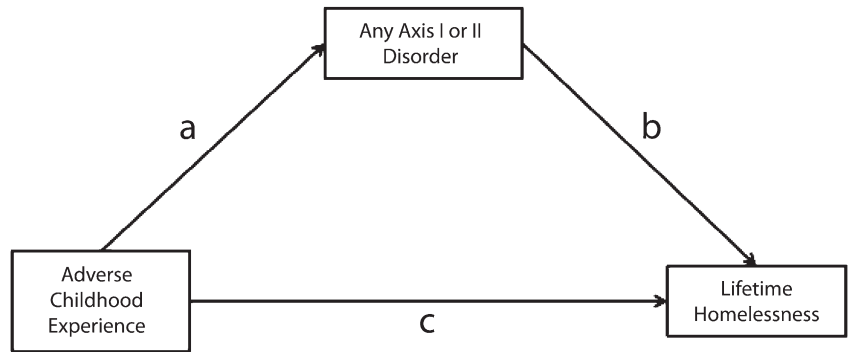
FIGURE 1—Structural equation model adjusted for age, education, household income, marital status, and race/ethnicity on mediator (any Axis I or II) and on dependent (lifetime homeless) variables: National Epidemiologic Survey of Alcohol and Related Conditions, United States, 2001–2002 and 2004–2005.

($\kappa = 0.40$–0.77; interclass correlation coefficient $= 0.50$–0.79; $\alpha = 0.75$–0.83).[29,30] In addition, multiple authors found the tool to have equivalent or better reliability to other semi-structured interviews and concluded that they were reliable and useful research tools.[30,31]

In wave 1 of the NESARC, 7 (of the 10) Axis II personality disorders were assessed (cluster A: paranoid, schizoid; cluster B: antisocial, histrionic; cluster C: avoidant, dependent, obsessive-compulsive). We used these in the present study because personality disorders are conceptualized as being stable over time.[21] The rest of the disorders (cluster A: schizotypal;

cluster B: borderline, narcissistic, antisocial) examined were from wave 2. Antisocial PD was assessed in both waves, but the diagnostic variable used in our analyses was from wave 2. Mood disorders included lifetime major depression, dysthymia, mania, and hypomania. Anxiety disorders included panic disorder (with or without agoraphobia), agoraphobia, social phobia, specific phobia, posttraumatic stress disorder, and generalized anxiety disorder. Substance use disorder included drug and alcohol abuse and dependence.

Covariates. Sociodemographic characteristic variables in the NESARC were identified as

TABLE 1—Prevalence of Adverse Childhood Experiences (ACEs) Among Those With and Without Lifetime Homelessness: National Epidemiologic Survey of Alcohol and Related Conditions, United States, 2001–2002 and 2004–2005

Type of Adverse Childhood Event	Homelessness in Women, No. (%)		Homelessness in Men, No. (%)	
	Yes	No	Yes	No
Abuse				
Physical	222 (47.8)	3224 (15.9)	225 (40.2)	2473 (17.3)
Emotional	175 (36.0)	1622 (8.1)	141 (25.2)	920 (6.3)
Sexual	212 (45.0)	2733 (14.2)	103 (17.6)	719 (4.8)
Neglect				
Physical	252 (52.2)	4309 (21.6)	259 (46.3)	3564 (25.3)
Emotional	162 (32.7)	1961 (9.7)	115 (18.2)	1081 (7.7)
Any abuse or neglect	366 (75.1)	7612 (38.6)	380 (64.3)	5572 (39.6)
Any general household dysfunction	303 (60.9)	5967 (30.6)	322 (55.4)	3693 (26.6)
Any adverse child event	415 (85.0)	9759 (49.8)	459 (77.1)	6964 (50.3)

Note. Numbers are unweighted, percentages are weighted.

covariates based on previous work that showed these factors were related to childhood adversity, mental disorders, and homelessness.[27,32,33] Covariates adjusted for included age (continuous), years of education (continuous), household income (continuous), marital status (3 categories: married or common law; separated, divorced or widowed; and never married) and race/ethnicity (non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian/Alaska Native, non-Hispanic Asian Hawaiian/Pacific Islander, and Hispanic of any race.)

Axis I and II disorders were consolidated into an "any Axis I or II disorder" variable. Axis I disorders included: (1) any lifetime mood disorder (depression, dysthymia, mania, or hypomania); (2) any lifetime anxiety disorder (panic disorder, agoraphobia, social phobia, specific phobia, generalized anxiety disorder, or posttraumatic stress disorder); (3) any psychotic disorder; and (4) any lifetime substance use disorder (abuse or dependence of alcohol, sedatives, tranquilizers, opioids, amphetamines, cannabis, cocaine, hallucinogens, inhalants or solvents, heroin, or other drugs). All 10 Axis II disorders were included in the "any Axis I or II disorder" variable.

Statistical Methods

We conducted all of the following analyses using the weight and stratification variables provided with the wave 2 NESARC data file. This allowed for the data to be representative of the US household population regarding multiple sociodemographic characteristics (age, gender, race/ethnicity).[29] To account for the complex sampling design of the NESARC, SUDAAN software was used to apply Taylor series linearization as the variance estimation for preliminary frequency analyses,[34] Next, we used MPlus version 6.0 to investigate a mediation model using structural equation modeling (SEM).[35] In these analyses, a 95% confidence interval was used, and all results were stratified by gender to provide more specific implications for prevention and intervention.

Mediation analyses were conducted using a simple mediation model with a categorical mediator (any Axis I or II disorder) and categorical outcome (yes or no lifetime homelessness) as described in Muthen (Applications of causally defined direct and indirect effects in mediation analysis using SEM in Mplus unpublished article, 2011) and presented in Figure 1. This mediation technique is now understood to be preferable to traditional Baron and Kenny approaches to mediation, which have comparably lower power and make assumptions regarding mediating variables.[36] Using this technique, log odds ratios were determined for a single model estimating the odds for lifetime homelessness based on presence (compared with absence) of each childhood adversity (Figure 1, path C) also accounting for the relationship between childhood adversity and any Axis I or II disorder (Figure 1, path A), and the relationship between the mediator and lifetime homeless (Figure 1, path B). Using this design, it was possible to determine the presence of a significant mediation (or indirect effect), but the log odds were not obtainable because of the mediator's treatment as a dependent categorical variable and independent continuous variable in the model. All SEM models were adjusted for the effects of age, education, marital status, race/ethnicity, and household income on both the mediator (any Axis I or II disorder) and outcome variable (lifetime homelessness).

Population attributable fractions (PAFs) were also examined for each specific childhood adversity. PAFs estimated the proportion of the dependent variable (homelessness) in the population that would be reduced if the exposure to the independent variable (each ACE) were eliminated.[37] PAFs were calculated using the following formula:

$$(1) \quad PAFs = P(OR - 1)/1 + P(OR - 1),$$

where P represents the percentage of the ACE endorsed in the population sample and OR represents the adjusted odds ratio for ACEs and homelessness.

TABLE 2—Demographic Characteristics Among Those With and Without Lifetime Homelessness: National Epidemiologic Survey of Alcohol and Related Conditions, United States, 2001–2002 and 2004–2005

Demographic Covariates	Homelessness in Women, No. (%)		Homelessness in Men, No. (%)	
	Yes	No	Yes	No
Total	493 (2.26)	19 081 (97.74)	610 (4.03)	13 544 (95.97)
Age, y				
20–34	101 (2.96)	2626 (97.04)	102 (4.55)	1980 (95.45)
35–44	205 (3.32)	5878 (96.68)	186 (4.32)	4044 (95.68)
45–64	157 (2.04)	6310 (97.96)	268 (4.37)	4896 (95.33)
≥ 65	30 (0.64)	4267 (99.36)	54 (1.65)	2624 (98.35)
Household income, $				
0–19 999	231 (4.42)	5120 (95.58)	223 (9.90)	2196 (90.10)
20 000–39 999	136 (2.39)	5019 (97.61)	169 (4.49)	3309 (95.51)
40 000–59 999	61 (1.63)	3400 (98.37)	91 (3.18)	2720 (96.82)
≥ 60 000	65 (1.10)	5542 (98.90)	127 (2.21)	5319 (97.79)
Race/ethnicity				
White	256 (2.13)	10 783 (97.87)	385 (4.12)	8257 (95.88)
Black	109 (2.34)	4025 (97.66)	88 (3.90)	2155 (96.10)
American Indian/Alaska Native	23 (6.28)	303 (83.72)	27 (10.65)	203 (89.35)
Asian, Hawaiian/Pacific Islander	12 (1.38)	504 (98.62)	5 (1.27)	406 (98.73)
Hispanic (any race)	93 (2.51)	3466 (97.49)	105 (3.49)	2523 (94.51)
Education				
< high school	97 (3.03)	3040 (96.97)	164 (8.35)	2008 (91.65)
High school	147 (2.27)	5254 (97.73)	172 (4.04)	3163 (95.96)
≥ some college	249 (2.08)	10787 (97.92)	274 (3.00)	7923 (97.00)
Marital status				
Married/cohabitating	188 (1.76)	9697 (98.24)	273 (3.20)	8304 (96.80)
Separated/divorced	187 (3.22)	6071 (96.78)	181 (7.44)	2419 (92.56)
Single/never married	118 (2.74)	3313 (97.26)	156 (4.69)	2821 (95.31)

RESULTS

In the entire NESARC sample, 493 women (2.3%) and 610 men (4.0%) reported lifetime homelessness. In total, 1103 (3.1%) participants reported lifetime homelessness, whereas 32 625 (96.9%) participants reported no lifetime homelessness.

Table 1 presents the prevalence of childhood adversities among individuals with and without lifetime homelessness. Individuals with lifetime homelessness experienced higher rates of all childhood adversities compared with individuals without lifetime homelessness. The most prevalent childhood adversities for both women and men experiencing lifetime homelessness were physical abuse, physical neglect, and general household dysfunction. Nearly half of women with a history of homelessness also experienced childhood sexual abuse.

Table 2 presents the prevalence of covariates of age, education, household income, marital status, and race/ethnicity among individuals with and without lifetime homelessness. Continuous variables (age, education, income) were split into categories to demonstrate group differences as in previous literature that used the NESARC.[38] Significant crosstab differences were found in men for all covariates with $\chi^2 = 3.70$–19.79 ($P < .01$). For women, significant differences were found for age, household income, and marital status with $\chi^2 = 14.45$–24.13 ($P < .001$), but not for race/ethnicity or education variables ($P > .05$).

Table 3 examines the relationship between each childhood adversity on both lifetime homelessness and any Axis I or II disorder as determined by the structural equation model outlined in Figure 1. ORs are presented here and demonstrated that each type of childhood adversity was significantly associated ($P < .001$) with an increased likelihood of lifetime homelessness in both men and women (Figure 1, path C). For women, childhood emotional abuse was most strongly related to both lifetime homelessness (adjusted odds ratio [AOR] = 4.24) and any Axis I or II disorder (AOR = 4.05). For men, emotional abuse and sexual abuse related to highest likelihood of experiencing lifetime homelessness (AOR = 3.25), whereas emotional abuse was most

TABLE 3—Structural Equation Model Investigating the Relationship of Childhood Adversities on Homelessness and Any Axis I and II Disorder: National Epidemiologic Survey of Alcohol and Related Conditions, United States, 2001–2002 and 2004–2005

Type of Adverse Childhood Event	Women, AOR (95% CI)	Men, AOR (95% CI)
Abuse		
Physical		
Direct on Homeless (A)	3.65* (2.93, 4.54)	2.68* (2.24, 3.19)
Direct on any Axis I or II (C)	2.89* (2.64, 3.16)	2.29* (2.08, 2.52)
Emotional		
Direct on homeless (A)	4.24* (3.40, 5.28)	3.25* (2.68, 3.93)
Direct on any Axis I or II (C)	4.05* (3.51, 4.66)	4.54* (3.69, 5.59)
Sexual		
Direct on homeless (A)	3.40* (2.78, 4.15)	3.25* (2.63, 4.03)
Direct on any Axis I or II (C)	3.01* (2.73, 3.25)	2.51* (2.12, 3.12)
Neglect		
Physical		
Direct on homeless (A)	3.13* (2.51, 3.90)	2.16* (1.80, 2.61)
Direct on any Axis I or II (C)	2.09* (1.92, 2.28)	1.76* (1.61, 1.92)
Emotional		
Direct on homeless (A)	3.63* (2.93, 4.51)	2.04* (1.62, 2.56)
Direct on any Axis I or II (C)	1.98* (1.78, 2.12)	1.74* (1.49, 2.03)
Any abuse or neglect		
Direct on homeless (A)	3.57* (2.79, 4.56)	2.28* (1.89, 2.76)
Direct on any Axis I or II (C)	2.46* (2.30, 2.63)	1.92* (1.78, 2.08)
Any general household dysfunction		
Direct on homeless (A)	2.62* (2.16, 3.18)	2.57* (2.19, 3.02)
Direct on any Axis I or II (C)	2.24* (2.09, 2.39)	2.10* (1.91, 2.30)
Any adverse child event		
Direct on homeless (A)	4.13* (3.08, 5.55)	2.61* (2.15, 3.16)
Direct on Any Axis I or II (C)	2.49* (2.34, 2.64)	2.01* (1.87, 2.17)

Note. CI = confidence interval. Structural equation model adjusted for age, education, household income, marital status, and race/ethnicity on mediator (any Axis I or II) and dependent (lifetime homeless) variables. (A) and (C) refer to paths A and C in the structural equation model in Figure 1.
*$P < .001$.

strongly related to any Axis I or II disorder (AOR = 4.54).

In all models, the relationship between any Axis I or II disorder and lifetime homelessness was significant ($P < .001$), with AORs between 4.26 and 5.00 for women and 7.97 and 8.94 for men (Figure 1, path B). Additionally, all models had a significant indirect effect ($P < .001$; childhood adversity → any Axis I or II disorder → lifetime homeless), indicating a significant partial mediation. As previously detailed, all models adjusted for the sociodemographic characteristics covariates on the mediator (any Axis I or II disorder) and dependent (lifetime homelessness) variables.

Table 4 reports the PAFs for each specific childhood adversity. Adjusted for Axis I and II disorders, the estimated attributable fractions of lifetime homelessness that could be attributed to any ACE were roughly 45% in men and 60% in women.

DISCUSSION

Our findings provided important insight into the relationship between childhood adversities and lifetime homelessness. Results suggested evidence of a strong link between each type of investigated adverse experience in childhood and future homelessness with highly significant ORs for each type of adversity. Finally, each of these

TABLE 4—Population Attributable Fractions for Lifetime Homelessness in Participants With Child Adversity: National Epidemiologic Survey of Alcohol and Related Conditions, United States, 2001–2002 and 2004–2005

Type of Adverse Childhood Event	Women PAF (95% CI)	Men PAF (95% CI)
Abuse		
Physical	30.55 (24.26, 37.01)	23.42 (18.41, 28.50)
Emotional	21.99 (17.27, 27.13)	13.77 (10.66, 17.22)
Sexual	26.34 (20.96, 31.94)	10.65 (7.95, 13.84)
Neglect		
Physical	32.20 (25.19, 39.27)	23.24 (17.27, 29.59)
Emotional	21.31 (16.58, 26.55)	7.77 (4.78, 11.22)
Any abuse or neglect	50.38 (41.42, 58.44)	34.25 (26.59, 41.74)
Any general household dysfunction	33.57 (26.57, 40.48)	30.38 (24.86, 35.96)
Any adverse child event	61.30 (51.28, 69.72)	45.28 (37.15, 52.61)

Note. CI = confidence interval; PAF = population attributable fraction.

relationships was significantly partially mediated by Axis I and II disorders, but nevertheless remained highly significant. Our study added important findings to both childhood adversity and homelessness literatures because it was the first to describe this relationship in a large nationally representative sample, accounting for mediating risk factors such as Axis I and II disorders. Considering the multiple risk patterns faced by individuals with childhood adversity is key to understanding the manifestation vulnerability to health and well-being in adulthood.

The significant association between each type of childhood adversity and lifetime homelessness was consistent with previous research.[9,12,39] Our findings suggested that the disproportionate prevalence of ACEs in currently homeless populations was also found in large nationally representative household samples with lifetime homeless experiences. PAFs found in the present study suggested that moderate to high amounts of lifetime homelessness could be attributed to ACEs in both men and women.

Furthermore, our findings were likely an underestimation of the true prevalence of future homelessness among those experiencing ACEs because the NESARC did not examine those individuals who were institutionalized or incarcerated. These groups are routinely found to have had detrimental childhood experiences and increased rates of lifetime homelessness,[18,33] and thus, the relationship would be expected to be stronger in these individuals.

Axis I and II disorders were found to partially mediate the link between ACEs and future homelessness. These disorders are often overrepresented in homeless populations and those experiencing ACEs but have not been examined as potential mediators of the ACE and lifetime homelessness relationship. Our findings suggested that these disorders also played a significant role through an indirect effect in the outcome of homelessness among those experiencing ACEs. However, just as interesting was the finding of a highly significant relationship between childhood adversities and homelessness even after accounting for all Axis I and II disorders. This suggested that other factors, possibly related to stress, self-regulation, attachment, or social support, contributed significantly to poor outcomes for individuals experiencing ACEs.[40,41]

Study limitations included that our study was cross sectional in nature and retrospective with respect to the childhood adversity questions and homelessness. Inferences regarding causation could not be made with these data. A prospective study could better elucidate the factors linking ACEs to future homelessness. As previously mentioned, the results were likely an underestimation of the significance of the link between ACEs and future homelessness, which should be further studied in institutionalized populations. Additionally, as related to the mediating roles of Axis I and II disorders, we did not have a timeline identifying whether the mental disorders or homelessness occurred first.

Finally, because the sample included individuals who were once homeless and were not currently, our findings might not be as generalizable to those who did not find a way off the streets.

Implications from this research include the importance of understanding the wide variety of poor adult outcomes associated with ACEs. Given that ACEs put individuals at elevated risk for future homelessness, vulnerable populations should be screened for ACEs because these individuals might benefit from specifically tailored interventions. For example, individuals who experience ACEs might have differential risk profiles and homeless outcomes related to factors such as attachment-style or social support. More research should also be done to investigate what mechanisms other than Axis I and II disorders link ACEs to lifetime homelessness. Hypothesized potential mediators included attachment issues, which have been correlated with childhood adversities,[42] and could theoretically lead to more fragile support networks and increased risk of homelessness.[6] Another pathway could relate to the findings that youth who were victimized were more likely to run away, leading to early homelessness or risky experiences that related to later lifetime homelessness.[43] The necessity for understanding this link was further highlighted by the findings that homeless individuals with a history of childhood adversities had even worse mental and physical health than other homeless persons.[10]

In summary, our research presented the first link in a large nationally representative study between ACEs and future homelessness. Each adversity examined was significantly associated with increased odds of future homelessness even after adjusting for Axis I and II disorders. Such significant ORs and PAFs further emphasized the need for research on interventions to prevent childhood adversity and possible methods to mitigate the negative outcomes associated with it. ∎

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Contributors

L. E. Roos led the writing and research and contributed to analyses. N. Mota led the analyses and contributed to research and writing. T. O. Afifi contributed to analyses, writing, revisions, and theoretical approaches. L. Y. Katz contributed to methods, writing, revisions, and theoretical approaches. J. Distasio contributed to writing, revisions, and theoretical approaches. J. Sareen contributed to methods, writing, revisions, and theoretical approaches.

Human Participant Protection

Because of the de-identified nature of the NESARC, and secondary data analysis, approval from an institutional board review was not required.

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