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Relationship Among Adverse Childhood Experiences, History of Active Military Service, and Adult Outcomes: Homelessness, Mental Health and Physical Health

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Relationship Among Adverse Childhood Experiences, History of Active Military Service, and Adult Outcomes: Homelessness, Mental Health, and Physical Health

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Objectives. We determined whether a report of adverse childhood experiences predicts adult outcomes related to homelessness, mental health, and physical health and whether participation in active military service influences the relationship between childhood and adult adversity.

Methods. Using data from the 2010 Washington State Behavioral Risk Factor Surveillance System, we tested by means of logistic regression the relationship between adverse childhood experiences and 3 adult outcomes—homelessness, mental health, and physical health—as well as differences among those with a history of active military service.

Results. Adverse childhood experiences separately predicted increased odds of experiencing homelessness as an adult and mental health and physical health problems. Childhood adversity increased the likelihood of adult homelessness and poor physical health among individuals with no history of active military service and the likelihood of mental health problems among individuals with a history of active military service.

Conclusions. The relationship between childhood adversity and adult adversity changes in degree when history of active military service is controlled, which has implications for Armed Forces recruitment strategies and postmilitary service risk assessment. (*Am J Public Health*. Published online ahead of print October 22, 2013: e1–e7. doi:10.2105/AJPH.2013.301474)

Adult homelessness is a significant public health problem, with nearly 634 000 individuals (both children and adults) experiencing homelessness in the United States on a single night in January 2012.[1] Individuals reporting veteran status are overrepresented among the adult homeless population: approximately 13% (62 619) of adults experiencing homelessness identified as veterans during the January 2012 homeless point-in-time count, despite representing only an estimated 7.1% of the US population.[2] Other work has estimated that veterans' risk of homelessness is twice that of nonveterans, underscoring possible differences in the experience of homelessness between veterans and nonveterans.[3] Preventing and ending homelessness among veterans—as well as among Americans generally—is a national priority.[4]

Although recent efforts by the US Departments of Housing and Urban Development and Veterans Affairs (VA) appear to be reducing the overall size of the homeless population,[1,5] additional work is needed to understand the factors that contribute to episodes of homelessness. Adult homelessness often occurs in the context of other negative life events and problems. A variety of individual-level factors appear to contribute to, or are correlated with, homelessness, including disability, mental illness, substance abuse disorders, lack of social or human capital, a history of institutional involvement, and exogenous health and income shocks.[6–24]

Adverse childhood experiences—including abuse, household dysfunction, and neglect—have been shown to predict a multitude of negative outcomes in adulthood, including mental illness,[25–29] addiction,[26–28,30,31] and chronic disease,[26,32–34] frequently in the context of population-representative samples. Meanwhile, the literature linking childhood adversity with adult homelessness has most frequently focused on individuals experiencing homelessness rather than the general population. Various types of specific childhood adversities have been associated with adult homelessness, such as parental substance abuse[35,36] and childhood abuse and neglect.[36–40] In addition, a number of studies have identified high rates of adverse childhood experiences among the homeless population.[20,41–47]

The interest in understanding the shared and distinct contributors to homelessness and related problems among veterans compared with nonveterans is considerable, given the elevated rates of homelessness after military service.[3] Debates surround how active service might contribute to, or detract from, an individual's likelihood of poor subsequent outcomes. For example, active service might involve additional stressors related to being removed from support networks (e.g., family and friends) in addition to possible combat exposure. Meanwhile, veteran status also makes available a range of services through the VA that are not provided to nonveterans, and military service may act as a turning point that benefits many individuals, especially those from at-risk backgrounds.[48]

Although previous research has sought to identify specific risk factors for and pathways to homelessness among veterans, sources of risk do not appear to differ significantly for veterans and nonveterans, with the exception of military service during the post-Vietnam era.[49,50] Several studies looking specifically at the role that childhood adversity—or experiences before an individual entered or left active military service—plays in adult homelessness have included a veteran sample or veteran status as a variable in their models.[20,42,44,51–56] A number of these studies assessed the role of specific adversities, such as family instability,[56] but did not describe the impact of this experience on

adult homelessness. A qualitative study linked childhood abuse and neglect[54] to individuals' decisions to join the military in an effort to escape their family of origin, further linking child abuse and neglect to adult homelessness among this veteran sample.

Past work testing links between adverse childhood experiences and adult homelessness is largely based on cross-sectional retrospective studies using exclusively homeless samples or samples of individuals who all reported some sort of childhood adversity. These approaches are limited in their ability to consider alternative pathways, such as individuals who experience high levels of childhood adversity but not homelessness or those who report low levels of adversity in childhood but go on to experience homelessness nonetheless. The complexity of the relationship between adverse childhood experiences and adult homelessness, along with the limitations of the methods used in the existing literature exploring this relationship, underscores the value of a population-based design that uses probability sampling. This design has only been used in 3 of 29 studies published between 1990 and 2012 that explored the relationship between adverse childhood experiences and homelessness[57–59]; these studies used a limited measure of childhood adversity (i.e., out-of-home placement and living in poverty during 1st grade). Population-representative approaches allow researchers to test for links between childhood experiences and adult outcomes considering the full range of possible outcomes (e.g., among those who are homeless and nonhomeless) and characteristics (those with and without a history of active military service).

Additional work is needed to determine the role that childhood adversity may play in poor adult outcomes for individuals with a history of active military service, as well as whether military service moderates the relationship between adverse childhood experiences and adult homelessness. Two divergent hypotheses exist: military service may mitigate risk by providing alternative socialization and discipline for otherwise at-risk youths or exacerbate risk by increasing exposure to trauma. In this study, we considered how experiences of childhood adversity contribute to adult homelessness and related health and mental health problems. We tested the relationship between adverse childhood experiences and outcomes measured in adulthood for the general population of adults in Washington State, then explored possible differences in the adversity-outcome relationship on the basis of individuals' participation in active military service. By using data collected through the Washington State Behavioral Risk Factor Surveillance System (BRFSS), we addressed a significant limitation in the existing literature: BRFSS data are collected from a probability-based sample representative of the general population, as well as from subsamples of individuals with a history of active military service.

In this study, we aimed to answer 2 questions: Does an individual's report of adverse childhood experiences predict adult outcomes related to homelessness, mental health, and physical health? Does an individual's participation in active military service influence the relationship between adverse childhood experiences and adult outcomes related to homelessness, mental health, and physical health?

METHODS

We used data from respondents to the 2010 BRFSS in Washington State. The BRFSS is a state-based health survey coordinated by the Centers for Disease Control and Prevention and cosponsored by the Washington State Department of Health. The BRFSS uses a sample of both landline and cellular telephone numbers to elicit self-reported health behaviors and preventive health practices from adults. The Washington State Department of Health added questions regarding the primary outcome assessed for this study—adult homelessness—to the BRFSS survey instrument during the final 5 months of data collection; therefore, we considered only data from the 6017 respondents to Form A of the 2010 BRFSS. The study team applied weights based on several survey design factors including number of residential telephones in the household, number of adults in the household, geographic stratification, telephone density stratification, and the adult population in each county. Weighting the data minimized potential bias and maximized the generalizability of study findings to the population of Washington State.

Measures

We used several types of data collected by the BRFSS: demographic factors, scales measuring adverse childhood experiences and psychological distress, history of active military service, and measures of adult homelessness and current physical health. In the following paragraphs, we describe the variables included in this study.

Demographic factors. Analyses controlled for participants' gender and age as well as their self-reported racial and ethnic identification.

Adverse childhood experiences. In this study, we measured childhood adversity by the participants' responses to 11 questions in the Adverse Childhood Experiences (ACE) Module,[31] yielding a computed score (possible range = 0–8). This module asks respondents to recall adverse childhood experiences that occurred before age 18 years: physical, sexual, or emotional abuse; witnessing violence against a household member; having a household member who was mentally ill, depressed, or suicidal; incarceration of a family member; parental separation or divorce; and having a parent or caregiver who was addicted to drugs. This scale has been used widely in past work, linking childhood adversity to a range of health and mental health outcomes.[31,60] Although the scale can be used to rank the severity of childhood adversity—a score of 0 to 2 on the ACE is considered low; 3 to 5, moderate; and 6 to 8, high—we retained the variable as a continuous measure of childhood adversity.

History of active military service. Respondents reported whether they had ever served on active duty in the US Armed Forces. In the analyses presented here, we considered a history of military service to include service in the US Armed Forces, in the regular military, National Guard, or military reserves. History of military service does not include those whose service was limited to training for the reserves or National Guard.

Adult homelessness. We identified respondents as ever experiencing homelessness during adulthood if they indicated that they either (1) lived in a transitional housing program, a hotel or motel paid for by voucher, a domestic violence shelter, or an emergency shelter or (2) in a car or other vehicle, abandoned building, or anywhere outside since age 18 years.

Mental health problem. The Kessler Psychological Distress Scale—intended to identify individuals who do and do not have serious mental illness—includes 6 questions about the individual's experience of symptoms of depression and anxiety during the past 30 days. This 6-item scale has been validated in past work[61–63] and is commonly used in epidemiological surveys such as the BRFSS. We used a threshold (total score of ≥13) to indicate individuals with poor mental health. We included mental health problems as an outcome in this study to confirm whether the relationships found here are consistent with prior research.

Health problem. We determined individuals to have a health problem if they reported that in general their health was "fair" or "poor." The response categories for the question were arranged on a 5-point scale ranging from "excellent" to "poor." We included health problems as an outcome in this study to confirm whether the relationships found here are consistent with prior research.

Statistical Analyses

Analyses involved 2 sets of logistic regressions that addressed the research questions guiding the study. First, we used separate logistic regressions to test the relationship between ACE scores and each of the 3 outcomes considering all adults, covarying age, gender, and race/ethnicity. To test for differences in these relationships for adults with active military service, we added an interaction term (active military service × ACE score) to each model. We then decomposed significant interaction terms to determine the nature of the effect.

RESULTS

Population demographic characteristics and rates of key variables are provided in Table 1. As would be expected in a survey of the general population, a relatively small proportion of individuals experienced adult homelessness (5.5%) or current mental health problems (2.9%); nearly 14% reported fair or poor health. The average age was 46.2 years (SD = 17.6), and the mean ACE score was 1.7 (SD = 1.9). Roughly one half of the total population was female, and almost 80% identified as non-Hispanic White.

Of the total sample, approximately 13% reported a history of active military service. Individuals with a history of active military service were approximately 12.5 years older, significantly more likely to be male, and slightly more likely to identify as non-Hispanic White than those without a history of active military service. These individuals also reported slightly elevated ACE scores (1.8 vs 1.7) and higher rates of adult homelessness (6.0% vs 5.5%), mental health problems (3.8% vs 2.8%), and health problems (17.5% vs 13.1%) than did individuals who did not report a history of military service.

General Population

We used separate analyses to test the hypothesized relationship between childhood adversity and 3 outcomes in the general population: adult homelessness, mental health problems, and health problems. When age, gender, and race/ethnicity were covaried, ACE scores separately predicted increased odds of experiencing homelessness as an adult (Exp[B] = 1.62; $P < .001$), increased odds of reporting a mental health problem (Exp[B] = 1.67; $P < .001$), and increased odds of reporting a health problem, (Exp[B] = 1.36; $P < .001$). Model coefficients are provided in Table 2. The same general pattern of results emerged in analyses considering unweighted data (Table A, available as a supplement to the online version of this article at http://www.ajph.org). We interpret results based on weighted analyses in the next section.

In addition, we performed post hoc analyses to test whether these relationships were unique to each outcome; that is, we ran separate models for each outcome, covarying the other 2 outcomes. The pattern of findings persisted, and the strength of each effect remained salient, representing 20% to 49% increases above base risk for each 1-unit increase in ACE score (Table B, available as a supplement to the online version of this article at http://www.ajph.org).

Individuals with a History of Active Military Service

We used a second set of models to test for a moderation effect of a history of active military service on the relationship between ACE score and each outcome. Each of the interaction terms was significant: predicting adult homelessness, Exp(B) = 0.81 ($P < .001$); mental health problems, Exp(B) = 1.33 ($P < .001$); and fair or poor health, Exp(B) = 0.95 ($P < .001$).

Follow-up analyses revealed that higher ACE scores increased the likelihood of homelessness to a greater degree among those without a history of active military service

TABLE 1—Demographic Characteristics and Adult Outcomes by History of Military Service: Behavioral Risk Factor Surveillance System, Washington State, 2010

Characteristics	Military Service (n = 293 707), No. (%) or Mean ±SD	No Military Service (n = 2 020 281), No. (%) or Mean ±SD	Total (N = 2 313 988), No. (%) or Mean ±SD
ACE score	1.8 ±2.0	1.7 ± 1.8	1.7 ±1.9
Age	57.3 ±17.0	44.8 ±14.1	46.2 ±17.6
Sex			
Male	272 353 (92.7)	856 019 (42.4)	1 128 372 (48.8)
Female	21 354 (7.3)	1 164 262 (57.6)	1 185 616 (51.2)
Race/ethnicity			
White, non-Hispanic	245 614 (83.6)	1 602 272 (79.3)	1 847 886 (79.9)
Non-White or Hispanic	9255 (3.2)	23 570 (1.2)	32 825 (1.4)
Other, non-Hispanic	13 196 (4.5)	146 399 (7.2)	159 595 (6.9)
Multiracial, non-Hispanic	14 519 (4.9)	60 854 (3.0)	75 373 (3.3)
Hispanic	6501 (2.2)	164 936 (8.2)	171 437 (7.4)
Adult homelessness	17 518 (6.0)	110 770 (5.5)	128 288 (5.5)
Mental health Problem	11 017 (3.8)	56 683 (2.8)	67 700 (2.9)
Health problem	51 535 (17.5)	264 521 (13.1)	316 056 (13.7)

Note. ACE = Adverse Childhood Experiences Module. Percentages may not equal 100% because of missing data. All *P*s < .001.

TABLE 2—Logistic Regression Analysis Predicting Outcomes for Adults in the General Population: Behavioral Risk Factor Surveillance System, Washington State, 2010

Variable	Homelessness, OR (95% CI)	Mental Health Problem, OR (95% CI)	Health Problem, OR (95% CI)
ACE score	1.62 (1.62, 1.63)	1.67 (1.67, 1.68)	1.36 (1.36, 1.36)
Age	1.00 (1.00, 1.00)	1.00 (1.00, 1.01)	1.04 (1.04, 1.04)
Gender[a]	0.78 (0.78, 0.79)	0.95 (0.93, 0.96)	0.92 (0.91, 0.93)
Race/ethnicity[b]			
Black, non-Hispanic	2.57 (2.47, 2.68)	4.35 (4.14, 4.56)	1.73 (1.68, 1.78)
Other, non-Hispanic	1.48 (1.45, 1.51)	0.35 (0.33, 0.37)	1.08 (1.06, 1.10)
Multiracial, non-Hispanic	2.56 (2.50, 2.61)	1.28 (1.24, 1.32)	1.47 (1.44, 1.50)
Hispanic	0.78 (0.76, 0.80)	1.96 (1.90, 2.01)	2.73 (2.70, 2.77)

Note. ACE = Adverse Childhood Experiences Module; CI = confidence interval; OR = odds ratio. All *P*s < .001.
[a]Coded as 1 = male and 2 = female.
[b]Relative to White only, non-Hispanic group.

(Exp[B] = 1.67; $P < .001$) than among those with a history of active military service (Exp[B] = 1.42; $P < .001$). A similar pattern emerged in the relationship between ACE score and health: no history of military service, Exp(B) = 1.39 ($P < .001$), and history of military service, Exp(B) = 1.22 ($P < .001$). Conversely, the relationship between ACE score and mental health problems was stronger for those with a history of active military service (Exp[B] = 1.95; $P < .001$) relative to those without a history of active military service (Exp[B] = 1.63; $P < .001$) (Table 3).

Again, additional post hoc analyses suggested that these relationships were unique to each outcome. We ran separate models for each outcome, covarying the other 2 outcomes (Table C, available as a supplement to the online version of this article at http://www.ajph.org).

DISCUSSION

Adults who reported higher levels of childhood adversity were more likely to also experience adult homelessness, as well as potentially related problems with health and current mental health. Consistent with previous findings,[25–34] adverse experiences in childhood appear to place individuals at risk for multiple negative outcomes during adulthood. Using a population-representative sample, the findings reported here confirm the links between adverse childhood experiences and adult homelessness. Furthermore, we found that ACE scores uniquely predict homelessness, mental health problems, and physical health problems, even when accounting for each of the 3 outcomes.

Childhood adversity also increases the risk for negative adult outcomes among individuals with a history of active military service. However, the nature of the relationship between childhood and adult adversity changes in degree when comparing individuals with and without a history of active military service. Although the risk of mental health problems in adulthood appears to be elevated for individuals with a history of active military service, their risk of adult homelessness and physical health problems is attenuated relative to those without a history of active military service. Although respondents who reported a history of active military service reported only slightly higher ACE scores than those without a history of military service, they did report a greater prevalence of adult homelessness, mental health problems, and physical problems. Nevertheless, the findings indicate that

TABLE 3—Logistic Regression Analysis Predicting Outcomes for Adults, by History of Active Military Service: Behavioral Risk Factor Surveillance System, Washington State, 2010

	Homelessness, OR (95% CI)		Mental Health Problem, OR (95% CI)		Health Problem, OR (95% CI)	
Variable	No Service	Military Service	No Service	Military Service	No Service	Military Service
ACE score	1.69 (1.68, 1.69)	1.42 (1.41, 1.43)	1.63 (1.62, 1.64)	1.95 (1.93, 1.98)	1.39 (1.39, 1.39)	1.22 (1.21, 1.22)
Age	1.00 (1.00, 1.00)	0.99 (0.99, 0.99)	1.01 (1.01, 1.01)	1.00** (1.00, 1.00)	1.04 (1.04, 1.04)	1.03 (1.03, 1.03)
Gender[b]	0.70 (0.69, 0.71)	1.51 (1.43, 1.58)	0.92 (0.91, 0.94)	1.20 (1.12, 1.29)	0.90 (0.89, 0.90)	0.84 (0.80, 0.87)
Race/ethnicity[b]						
Black, non-Hispanic	1.53 (1.44, 1.62)	4.90 (4.60, 5.22)	4.05 (3.84, 4.28)	8.48 (7.62, 9.43)	1.81 (1.74, 1.88)	1.56 (1.47, 1.65)
Other, non-Hispanic	1.59 (1.55, 1.63)	0.96* (0.90, 1.03)	0.28 (0.26, 0.30)	0.90** (0.81, 1.00)	1.03** (1.00, 1.05)	1.41 (1.35, 1.47)
Multiracial, non-Hispanic	3.28 (3.21, 3.36)	1.01* (0.95, 1.08)	0.54 (0.51, 0.56)	6.08 (5.72, 6.46)	0.86 (0.83, 0.88)	6.60 (6.35, 6.86)
Hispanic	0.77 (0.74, 0.79)	0.69 (0.62, 0.77)	1.94 (1.89, 2.00)	. . .[c]	2.78 (2.74, 2.82)	1.25 (1.17, 1.34)

Note. ACE = Adverse Childhood Experiences Module; CI = confidence interval; OR = odds ratio. Unless otherwise noted, *P* < .001.
[a]Coded as 1 = male and 2 = female.
[b]Relative to White only, Non-Hispanic group.
[c]Coefficient suppressed due to < 5 unweighted cases with mental health problems.
*$P < .05$. **$P > .05$.

active military service did partially protect against the negative impact of childhood adversity on adult homelessness and physical health. This protection may, at least in part, involve the greater access to comprehensive health and social welfare services that are available to eligible veterans.

By contrast, a history of active military service exacerbated the risk for mental health problems in adulthood. Other work has suggested that childhood and predeployment factors place servicemen and servicewomen at risk for later poor mental health, especially among veterans who experienced childhood maltreatment (e.g., physical abuse) and combat exposure.[64] The ACE scores used in this study largely indexed childhood maltreatment; however, the BRFSS does not elicit detailed information about the nature of military service or combat exposure. An explanation may be that active military service increases the likelihood of experiencing other situations (e.g., combat exposure) that uniquely challenge mental health without adequately addressing these risks by providing protective or compensating services. Such experiences would especially encourage mental health problems among individuals with higher ACE scores, given associations between childhood adversity and an individual's ability to adapt to later challenges.[65]

The findings from this study have implications across the life span, calling for additional support for children experiencing adversity as well as a recognition of the role that childhood adversity plays in adult functioning. Supporting children and families to reduce their exposure to adversity, and promoting natural protective factors in children's lives that can reduce the deleterious effects of adversity, will likely have positive implications for adult homelessness, health, and mental health.[66] In addition, service providers, researchers, and stakeholders should recognize the links between childhood adversity and adult functioning. This recognition could translate into more effective approaches to service delivery, such as incorporating measures of childhood adversity in screening instruments to assess homelessness risk or identifying particular areas of support that individuals may need to prevent episodes of homelessness.

Although this study provides evidence for the relationship between childhood adversity and adult homelessness and related outcomes—as well as an indication that one's history of active military service can convey both protection and risk in terms of adult outcomes—the data and study design have some inherent limitations. Although the construct of history of active military service may imply an individual's exposure to combat, stressors related to deployment, and access to veterans' benefits, the data used for this study did not allow us to control for these in our analyses. The dichotomization of the homelessness variable—ever or never homeless—limits the analysis of respondents' homelessness experiences and does not allow an exploration of the impact of adverse childhood experiences on chronicity of adult homelessness. In addition, on the basis of the study design, the findings from this study are generalizable to the population of the State of Washington; however, these findings may not be generalizable nationally.

This study highlights the need for future research to understand how involvement in military service may moderate outcomes measured in adulthood or during an individual's postservice period. Specifically, this study indicates that childhood adversity and negative adult outcomes are more prevalent among the population with a history of active military service but that experience in the military may attenuate the risk for some adult outcomes and exacerbate the risk for others. Additional research should focus on veterans' experiences before, during, and after their involvement in military service. By understanding further the risks experienced before an individual's entry into military service—as well as the impact of sociodemographic factors such as race and ethnicity—US Armed Forces recruitment strategies could be sensitized to these issues. Moreover, identifying childhood adversity and other risk factors for homelessness among service members leaving the military would support efforts by the US Department of Defense and the VA to prevent homelessness. Additional information related to veterans' experience of homelessness in adulthood, such as chronicity of homelessness, would further refine the types of interventions intended to address homelessness among former service members and further elucidate the pathways to homelessness among military personnel as well as identify points for screening and intervention, particularly around mental health. ■

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Contributors

A. E. Montgomery and J. J. Cutuli contributed to the conceptual design, data analysis, and writing. M. Evans-Chase contributed to the writing. D. Treglia contributed to the data analysis. D. P. Culhane contributed to the conceptual design and interpretation of the findings.

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Human Participant Protection

Institutional review board approval was obtained by the University of Pennsylvania Institutional Review Board. The approval was for secondary analysis of existing administrative data.

References

1. US Department of Housing and Urban Development. *The 2012 Point-in-Time Estimates of Homelessness.* Washington, DC: US Department of Housing and Urban Development; 2012. *2012 Annual Homeless Assessment Report*; vol. 1.

2. US Census Bureau. State and county quickfacts: USA. Available at: http://quickfacts.census.gov/qfd/states/00000.html. Accessed January 23, 2013.

3. Fargo JD, Metraux S, Byrne T, et al. Prevalence and risk of homelessness among US veterans: a multisite investigation. *Prev Chronic Dis.* 2012;9:110–112.

4. US Department of Housing and Urban Development, US Department of Veterans Affairs. *Veteran Homelessness: A Supplemental Report to the 2010 Annual Homelessness Assessment Report to Congress.* Washington, DC: US Department of Housing and Urban Development and US Department of Veterans Affairs; 2011.

5. US Department of Veterans Affairs, Office of Public and Intergovernmental Affairs. Report reveals further reduction in veterans homelessness. Available at: http://www1.va.gov/opa/pressrel/pressrelease.cfm?id=2411. Accessed January 23, 2013.

6. Blow FC, McCarthy JF, Valenstein M, et al. *Care for Veterans with Psychosis in the Veterans Health Administration.* Ann Arbor, MI: US Department of Veterans

Affairs Serious Mental Illness Treatment Research and Evaluation Center; 2004.

7. Culhane DP, Averyt J, Hadley TR. The rate of public shelter admission among Medicaid-reimbursed users of behavioral health services. *Psychiatr Serv.* 1997;48(3): 390–392.

8. Culhane DP, Metraux S. Analyzing shelter stays and shelter stay patterns using administrative data: An overview of practical methods. Paper presented at: Homeless Data Users Conference No. 3 (sponsored by US Department of Health and Human Services); September 13–14, 1999; Washington, DC.

9. Folsom DP, Hawthorne W, Lindamer L, et al. Prevalence and risk factors for homelessness and utilization of mental health services among 10 340 patients with serious mental illness in a large public mental health system. *Am J Psychiatry.* 2005;162(2):370–376.

10. Kuno E, Rothbard AB, Averyt J, Culhane DP. Homelessness among persons with serious mental illness in an enhanced community-based mental health system. *Psychiatr Serv.* 2000;51(8):1012–1016.

11. Baggett TP, O'Connell JJ, Singer DE, Rigotti NA. The unmet health care needs of homeless adults: a national study. *Am J Public Health.* 2010;100(7):1326–1333.

12. Babatsikou FP. Homelessness: a high-risk group for the public health. *Health Sci J.* 2010;4(2):66–67.

13. Hwang SW. Homelessness and health. *CMAJ.* 2001;164(2):229–233.

14. Wolitski RJ, Kidder DP, Fenton FA. HIV, homelessness, and public health: critical issues and a call for increased action. *AIDS Behav.* 2007;11(6 suppl): 167–171.

15. Institute of Medicine. *Homelessness, Health and Human Needs.* Washington, DC: National Academy Press; 1988.

16. Zerger S. *A Preliminary Review of Literature: Chronic Medical Illness and Homelessness.* Nashville, TN: National Health Care for the Homeless Council; 2002.

17. Calsyn RJ, Roades LA. Predictors of past and current homelessness. *J Comm Psychol.* 1994;22(3):272–278.

18. Curtis MA, Corman H, Noonan K, Reichman N. Life Shocks and Homelessness. Cambridge, MA: National Bureau of Economic Research; 2011. National Bureau of Economic Research Working Paper No. 16826.

19. Jones RE. Street people and psychiatry: an introduction. *Hosp Community Psychiatry.* 1983;34(9):807–811.

20. Koegel P, Melamid E, Burnam A. Childhood risk factors for homelessness among homeless adults. *Am J Public Health.* 1995;85(12):1642–1649.

21. Metraux S, Roman CG, Cho R. Incarceration and homelessness. In: Dennis D, Locke G, Khadduri J, eds. *Toward Understanding Homelessness: The 2007 National Symposium on Homelessness Research.* Washington, DC: US Department of Housing & Urban Development; 2008.

22. O'Flaherty B. *What Shocks Precipitate Homelessness*? New York, NY: Columbia University, Department of Economics; 2009. Columbia University Economics Department Working Paper

23. Shinn M, Weitzman BC, Stojanovic D, et al. Predictors of homelessness among families in New York City: from shelter request to housing stability. *Am J Public Health.* 1998;88(11):1651–1657.

24. Susser ES, Lin SP, Conover SA. Risk factors for homelessness among patients admitted to a state mental hospital. *Am J Psychiatr.* 1991;148(12):1659–1664.

25. Anda RF, Brown DW, Felitti VJ, et al. The relationship of adverse childhood experiences to rates of prescribed psychotropic medications in adulthood. *Am J Prev Med.* 2007;32(5):389–394.

26. Anda RF, Felitti VJ, Bremmer JD, et al. The enduring effects of abuse and related adverse experiences in childhood: a convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci.* 2006;256(3):174–186.

27. Anda RF, Whitfield CL, Felitti VJ, et al. Alcohol-impaired parents and adverse childhood experiences: the risk of depression and alcoholism during adulthood. *Psychiatr Serv.* 2002;53(8):1001–1009.

28. Dube SR, Anda RF, Felitti VJ, et al. Childhood abuse, neglect, and household dysfunction, and the risk of illicit drug use: the Adverse Childhood Experiences Study. *Pediatrics.* 2003;111(3):564–572.

29. Dube SR, Anda RF, Felitti VJ, et al. Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study. *JAMA.* 2001;286(24): 3089–3096.

30. Dube SR, Miller JW, Brown DW, et al. Adverse childhood experiences and the association with ever using alcohol and initiating alcohol use during adolescence. *J Adolesc Health.* 2006; 38(4): 444.e1–e10.

31. Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the Adverse Childhood Experiences (ACE) Study. *Am J Prev Med.* 1998;14(4):245–258.

32. Dong M, Dube SR, Felitti VJ, et al. Adverse childhood experiences and self-reported liver disease: new insights into a causal pathway. *Arch Intern Med.* 2003;163(16):1949–1956.

33. Dong M, Giles WH, Felitti VJ, et al. Insights into causal pathways for ischemic heart disease: adverse Childhood Experiences Study. *Circulation.* 2004;110 (13):1761–1766.

34. Dube SR, Fairweather D, Pearson W, et al. Cumulative childhood stress and autoimmune diseases in adults. *Psychosom Med.* 2009;71(2):243–250.

35. Bassuk EL, Buckner JC, Weinreb LF, et al. Homelessness in female-headed families: childhood and adult risk and protective factors. *Am J Public Health.* 1997;87 (2):241–248.

36. Wood D, Valdez B, Hayashi T, Shen A. Homeless and housed families in Los Angeles: a study comparing demographic, economic, and family function characteristics. *Am J Public Health.* 1990;80(9): 1049–1052.

37. Belcher JR, Greene JA, McAlpine C, Ball K. Considering pathways into homelessness: mothers, addictions, and trauma. *J Addict Nurs.* 2001;13(3–4):199–208.

38. Booth BM, Sullivan G, Koegel P, Burnam A. Vulnerability factors for homelessness associated with substance dependence in a community sample of homeless adults. *Am J Drug Alcohol Abuse.* 2002;28(3): 429–452.

39. Herman DB, Susser ES, Sturning EL, Link BL. Adverse childhood experiences: are they risk factors for adult homelessness? *Am J Public Health.* 1997;87 (2):249–255.

40. Wechsberg WM, Lam WK, Zule W, Hall G, Middlesteadt R, Edwards J. Violence, homelessness, and HIV risk among crack-using African-American women. *Subst Use Misuse.* 2003;38(3–6):669–700.

41. Blankertz LE, Cnaan RA, Freedman E. Childhood risk factors in dually diagnosed homeless adults. *Soc Work.* 1993;38(5):587–596.

42. Burt MR, Aron LY, Douglas T, Valente J, Lee E, Iwen B; Urban Institute. *Homelessness: Programs and the People They Serve.* Washington, DC: Urban Institute; 1999.

43. Nyamathi A, Longshore D, Keenan C, et al. Childhood predictors of daily substance use among homeless women of different ethnicities. *Am Behav Sci.* 2001;45 (1):35–50.

44. Piliavin I, Sosin M, Westerfelt A, Matsueda R. The duration of homeless careers: an exploratory study. *Soc Serv Rev.* 1993;67(4):576–598.

45. Shinn M, Knickman JR, Weitzman BC. Social relationships and vulnerabilities to becoming homeless among poor families. *Am Psychol.* 1991; 46(11): 1180–1187.

46. Stein JA, Leslie MB, Nyamathi A. Relative contributions of parent substance use and childhood maltreatment to chronic homelessness, depression, and substance abuse problems among homeless women: mediating roles of self-esteem and abuse in adulthood. *Child Abuse Negl.* 2002;26(10):1011–1027.

47. Tam TW, Zlotnick C, Robertson MJ. Longitudinal perspectives: adverse childhood events, substance use, and labor force participation among homeless adults. *Am J Drug Alcohol Abuse.* 2003;29(4):829–846.

48. Sampson RJ, Laub JH. Socioeconomic achievement in the life course of disadvantaged men: military service as a turning point, circa 1940–1965. *Am Sociol Rev.* 1996;61(3):347–367.

49. Rosenheck R, Frisman L, Chung A- M. The proportion of veterans among homeless men. *Am J Public Health.* 1994;84(3):466–469.

50. Gamache G, Rosenheck R, Tessler R. The proportion of veterans among homeless men: a decade later. *Soc Psychiatry Psychiatr Epidemiol.* 2001;36(10): 481–485.

51. Allgood S, Warren RS. The duration of homelessness: evidence from a national survey. *J Hous Econ.* 2003;12(4):273–290.

52. Calsyn RJ, Roades LA. Predictors of past and current homelessness. *J Comm Psych.* 1994;22(3):272–278.

53. Caton CL, Hasin D, Shrout PE, et al. Risk factors for homelessness among urban adults with no history of psychotic illness: a case-control study. *Am J Public Health.* 2000;90(2):258–263.

54. Hamilton AB, Poza I, Washington DL. Homelessness and trauma go hand-in-hand: pathways to homelessness among women veterans. *Womens Health Issues.* 2011;21(4 suppl):S203–S209.

55. Sullivan G, Burnam A, Koegel P. Pathways to homelessness among the mentally ill. *Soc Psychiatry Psychiatr Epidemiol.* 2000;35(10):444–450.

56. Tessler R, Rosenheck R, Gamache G. Comparison of homeless veterans with other homeless men in a large clinical outreach program. *Psychiatr Q.* 2002;73(2): 109–119.

57. Fothergill KE, Doherty EE, Robertson JA, Ensminger ME. A prospective study of childhood and adolescent antecedents of homelessness among a community population of African Americans. *J Urban Health.* 2012;89(3):432–446.

58. Park JM, Metraux S, Brodbar G, Culhane DP. Public shelter admission among young adults with child welfare histories by type of service and type of exit. *Soc Serv Rev.* 2004;78(2):284–303.

59. Park JM, Metraux S, Culhane DP. Childhood out-of-home placement and dynamics of public shelter utilization among young homeless adults. *Child Youth Serv Rev.* 2005;27(5):533–546.

60. Edwards VJ, Holden GW, Felitti VJ, Anda RF. Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: results from the Adverse Childhood Experiences Study. *Am J Psychiatr.* 2003;160(8):1453–1460.

61. Kessler RC, Andrews G, Colpe LJ, et al. Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychol Med.* 2002;32(6):959–976.

62. Kessler RC, Barker PR, Colpe LJ, et al. Screening for serious mental illness in the general population. *Arch Gen Psychiatry.* 2003;60(2):184–189

63. Kessler RC, Green JG, Gruber MJ, et al. Screening for serious mental illness in the general population with the K6 screening scale: results from the WHO World Mental Health (WMH) survey initiative. *Int J Methods Psychiatr Res.* 2010;19(suppl 1):4–22.

64. Clancy CP, Graybeal A, Tompson WP, et al. Lifetime trauma exposure in veterans with military-related posttraumatic stress disorder: association with current symptomatology. *J Clin Psychiatry.* 2006;67(9):1346–1353.

65. Yates TM, Egeland B, Sroufe LA. Rethinking resilience: a developmental process perspective. In: Luthar SS, ed. *Resilience and Vulnerability: Adaptation in the Context of Childhood Adversities.* New York: Cambridge University Press; 2006:243–266.

66. Masten AS, Cutuli JJ, Herbers JE, Reed M- GJ. Resilience in development. In: Snyder CR, Lopez SJ, eds. *Oxford Handbook of Positive Psychology.* 2nd ed. New York: Oxford University Press; 2009:117–131.