

Risk of incarceration and clinical characteristics of incarcerated veterans by race/ethnicity

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Abstract

Purpose Unprecedented growth in the US prison population has highlighted the overrepresentation of racial/ethnic minorities in prisons. This study examined the hypothesis that veteran status is protective against incarceration for veterans of different racial/ethnic minorities and compared the clinical characteristics of incarcerated veterans by race/ethnicity.

Methods Using national data from a prisoner re-entry program and data from the 2010 National Survey of Veterans, this study examined the risk of incarceration among veterans who were racial/ethnic minorities and compared

sociodemographic and clinical characteristics to White incarcerated veterans.

Results Of a sample of 30,834 incarcerated veterans, 52 % were White, 39 % African American, 7 % Hispanic, and 2 % were categorized as “Other.” African American veterans were 5.6 times and Hispanic veterans 4.3 times more likely to be incarcerated than White veterans across age groups. However, the published odds of being incarcerated as an African American in the general population compared to Whites (6.7 times) is higher, suggesting that veteran status may be somewhat protective against incarceration for African Americans, particularly among certain age groups. Among incarcerated veterans, multivariate analyses found that African American veterans were significantly more likely to have a drug/abuse dependency diagnosis and be currently incarcerated for a drug offense than Whites. Hispanic veterans were significantly more likely to be chronically homeless and also more likely to be incarcerated for a drug offense.

Conclusions Racial/ethnic differences in incarceration persist among veterans, although are slightly attenuated. Efforts to connect incarcerated veterans with mental health services post-release should be supported, especially in connecting veterans to substance abuse treatment.

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Introduction

There has been unprecedented growth in the US prison population in the past three decades [1, 2], which has highlighted the fact that racial/ethnic minorities are greatly overrepresented in the prison population [3]. African

Americans, in particular, constitute the largest race/ethnic group in the prison population and are 6.7 times more likely to be incarcerated than Whites and 2.6 times more likely than Hispanics [4]. In some age groups, African Americans are up to 20 times more likely to be incarcerated than Whites [5] and it is estimated that one in three African American males born after 2001 will go to prison during their lifetime compared to one in 17 White males [6].

This is at least partly due to the US war on drugs, which has dramatically affected African American communities and increased the incarceration of African Americans, although this may represent differential enforcement of drug laws rather than differences in actual drug use [7–9]. Regardless of race, tougher laws and penalties for drug offenses [10] have resulted in an estimated one-half of all prisoners meeting criteria for a diagnosis of drug abuse or dependence [11, 12].

American military veterans are of special concern given their service to the country, and the high rates of emotional and behavioral problems that are observed among those who were extensively exposed to combat and other war zone stressors [13, 14]. The percentage of veterans among state and federal prisoners has steadily declined in the past three decades, from 20 % in 1986 to 12 % in 1997 to 10 % in 2004, which may partly reflect the declining number of veterans in the general population dropping from 16 % in 1985 to 11 % in 2000 [15]. Nonetheless, the Department of Veterans Affairs (VA) has focused on preventing the incarceration of veterans and assisting incarcerated veterans with re-entry into the community after their release [16, 17]. However, little research has been conducted on risks and characteristics of minority subgroups.

There is some evidence that racial/ethnic differences in incarceration may be different among veterans compared to the general population. One previous study found that African American and Hispanic veterans during the early years of the All-Volunteer Force and the Vietnam era were generally at lower risk of incarceration than age- and race-matched non-veterans [18]. A more recent study found that African American veterans were two to four times more likely to be incarcerated than White veterans with the largest difference in the 25–34 age group, but that African American veterans were less likely to be incarcerated than African American non-veterans across all age groups [19].

Service in the US Armed Forces provides access to training, education, and financial benefits along with VA health services that may otherwise not be available to some individuals, which has been found to reduce some racial/ethnic disparities in health and socioeconomic achievement [20–23] and may result in different risk profiles for incarceration among racial/ethnic minority veterans.

To further understand racial/ethnic differences in the risk of incarceration and to identify individual characteristics of

incarcerated prisoners specifically among the veteran population, this study used national data from a VA prisoner re-entry program to examine the risk of incarceration among veterans by race/ethnicity through comparisons with national data on non-institutionalized veterans in the general population and characteristics of incarcerated veterans by race/ethnicity. We hypothesized that veteran status would be protective against incarceration among veterans of racial/ethnic minority groups, and that incarcerated veterans who were racial/ethnic minorities would report more substance abuse problems than incarcerated White veterans.

Methods

Program description

The VA's Health Care for Re-entry Veterans (HCRV) program helps incarcerated veterans in prisons access VA and other community health services upon their release. The HCRV program consists of HCRV specialists, mostly social workers, who provide outreach to veterans in state and federal prisons across the country. HCRV specialists help incarcerated veterans develop plans for pension and compensation benefits, medical and mental health services, and vocational and residential services after their release from prison. HCRV specialist contacts are limited to assessment and planning for post-release treatment, no VA health services are delivered in the incarceration setting. HCRV specialists conduct outreach to incarcerated veterans in various ways; sometimes veterans are identified by prison staff (but not all prisons ask their prisoners about veteran status), while other times HCRV specialists distribute flyers and hold group and information sessions for any interested prisoners. The HCRV program has no formal priorities to target veterans of a particular sociodemographic group or with certain health problems, so data available from the program may be reasonably representative of the incarcerated veteran population as there is no obvious tendency to under- or over-represent certain groups.

Data source

Administrative national data from the HCRV program were analyzed. A total of 30,968 incarcerated veterans were contacted by HCRV specialists nationwide from October 2007 to April 2011. One hundred and thirty-four veterans were missing data on race/ethnicity and thus were excluded from the study, resulting in a study sample of 30,834 incarcerated veterans (52.23 % White, 38.64 % African American, 6.57 % Hispanic, and 2.47 % "Other"). This sample represents only a portion of the incarcerated

veteran population. Although there are no established counts of the number of veterans released annually from federal or state prisons, the national program director of HCRV (fourth author) estimates that about 1 in 3 to 1 in 5 incarcerated veterans who are to be released avail themselves of HCRV services (personal communication, January 2, 2013). The HCRV program is the VA's first national program that provides re-entry services for incarcerated veterans and is the only program source to have national clinical data on veterans in prisons who are to be released.

As a basis of comparison, general population data on a weighted sample of non-incarcerated veterans were obtained from the 2010 National Survey of Veterans [24] and used to estimate the risk of incarceration among veterans of different age-race/ethnic cohorts. The 2010 National Survey of Veterans was a comprehensive nationwide mail survey that collected information about veteran characteristics and health service use that is conducted decennially; it was selected to be one of the main data sources in this study, because it is the most recent representative survey of non-institutionalized veterans (including non-VA service users) that included estimated numbers of veterans by age and race/ethnicity. A total of 8,710 veterans participated; however, 403 were missing data on race/ethnicity and thus were excluded from this study resulting in a sample of 8,307 veterans. Data on the sample were weighted to incorporate the probability of selection, survey non-response, and were post-stratified to known population totals to be representative of the entire non-institutionalized veteran population ($n = 21,087,621$) so that age and race/ethnicity groups were proportionally accurate to the population (84.73 % White, 11.25 % African American, 2.48 % Hispanic, and 1.55 % Other).

Measures

Administrative HCRV data were based on information obtained by HCRV specialists in face-to-face interviews with veterans through a structured assessment form that collected information on sociodemographics, criminal history, clinical status, homeless history, and interest in VA health services. Only estimated population data from the 2010 National Survey of Veterans on the numbers of non-incarcerated veterans by age, race, and ethnicity were used in this study. In the 2010 National Survey of Veterans, information on age and race/ethnicity were based on veteran self-report. On race/ethnicity, veterans were asked to respond to two questions: whether they were Hispanic and what their race was out of 11 categories. Answers to these two questions were combined to place veterans into four mutually exclusive race/ethnic categories: White, African American, Hispanic, or "Other", consistent with the HCRV data. All measures described below pertain to the HCRV data.

Race/ethnicity Veterans were categorized into one of four mutually exclusive race/ethnic categories based upon their self-report: White, African American, Hispanic, or "Other". Of the 2,025 veterans who were categorized as Hispanic, 1,791 (88.44 %) identified as Hispanic White and 234 (11.56 %) identified as Hispanic Black. Among veterans in the "Other" category, 413 (54.20 %) identified as American Indian or Alaskan, 79 (10.37 %) identified as Asian, 74 (9.1 %) identified as Pacific Islander, and 196 (25.72 %) identified as some other race/ethnicity.

Other sociodemographics Information on age, gender, marital status, military history, and combat exposure were obtained through veteran self-report.

Homeless history Length of current homelessness was defined as the time since veterans reported they were housed for 30 days or more minus time currently incarcerated. Homeless history was assessed by asking veterans how many separate episodes of homelessness they had experienced in the previous 3 years.

Criminal justice status The type of offense veterans was currently incarcerated and was classified into six categories: violent offense (e.g., murder, manslaughter, assault, robbery), property offense (e.g., burglary, motor vehicle theft, stolen property, arson, vandalism), drug offense (e.g., possession, trafficking), public order offense (e.g., weapons offense, prostitution, public intoxication, driving under the influence), probation/parole violation, or other/unspecified. Veterans were also asked whether they had been drinking alcohol or using drugs at the time of the offense.

Veterans provided information about their release date and the expected length of their current incarceration was calculated from their release date, which included any time in jail and/or prison. Veterans were also asked the age at which they were first arrested and how many times they had been arrested in their lifetime before their most current incarceration.

Clinical status Veterans were asked whether they had any serious medical problems. A mean mental health score was calculated using eight items from the Addiction Severity Index-Psychiatric subscale (10). Psychiatric diagnoses were made by the HCRV specialist based on interviewer observations, assessment, and client's self-reported history.

Veterans were asked whether or not they had used any VA services in the past 6 months and if they were interested and willing to participate in each of five different VA services after release: psychiatric or substance abuse treatment, medical services, residential treatment services, social-vocational assistance, and case management services.

Data analysis

To examine risk of incarceration among veterans of race/ethnic minority groups compared to White veterans, HCRV

data were used to compare the odds of being a veteran of racial/ethnic minority in age cohorts of the incarcerated sample with those of being a veteran of racial/ethnic minority among non-incarcerated veterans using data from the 2010 National Survey of Veterans. Odds ratios comparing these samples were calculated to estimate the risk of incarceration among various age strata and race/ethnic groups with White veterans as the reference group.

Then, using HCRV data, the individual characteristics of incarcerated veterans of different racial/ethnic groups were examined. Univariate analyses were conducted to compare incarcerated veterans of different race/ethnic groups using analysis of variance and χ^2 tests. Post-hoc tests were conducted with Fisher's Least Significant Difference test and pairwise χ^2 tests. Finally, multivariate analyses, using multinomial regression, were conducted including all significant variables identified in the univariate analyses to identify the independent contributions of each variable, controlling for other variables, in predicting ethnic/minority status. To adjust for multiple comparisons and potential inflated type I error, significance for all statistical tests described above was set at the 0.01 level.

Results

Across age groups, African American veterans were dramatically more likely to be incarcerated compared to Whites (OR 5.60; 95 % CI 5.47–5.74) as were Hispanics (OR 4.29; 95 % CI 4.10–4.50), and veterans of other races/ethnicities (OR 2.66; 95 % CI 2.50–2.86).

Table 1 shows the number of incarcerated veterans and the estimated population of non-incarcerated veterans broken down by race/ethnicity and age. The odds ratios indicate that African Americans were 1.59–5.60 times more likely to be incarcerated than White veterans, with the lowest risk of incarcerated in the youngest age group (the generation most likely to have served in Iraq and Afghanistan) and the greater risk among those 60 years and older.

Hispanic and Other veterans were also more likely to be incarcerated than White veterans across age groups, with the exception of Other veterans 20–29 years old. Most notably, Hispanic veterans 30–39 years old were 7.12 times more likely to be incarcerated than White veterans of the same age group.

As shown in Table 2, bivariate comparisons of incarcerated veterans by race/ethnicity revealed several significant differences. On sociodemographics, White and African American incarcerated veterans were older and less likely to be married than Hispanic and Other incarcerated veterans. Possibly reflecting their older age, White incarcerated veterans were most likely to have served

before the Vietnam War compared to other incarcerated veterans, and African American incarcerated veterans were least likely to have served after September 11, 2001 and were least likely to report combat exposure.

Hispanic incarcerated veterans reported the fewest days worked in the past month, and both Hispanic and African American incarcerated veterans reported lower total income than White incarcerated veterans. Non-White incarcerated veterans were also more likely to be currently homeless or have a history of homelessness than White incarcerated veterans.

On criminal justice status, African American incarcerated veterans were most likely to be currently incarcerated for a property offense or a drug offense, and least likely to be currently incarcerated for a violent offense or a public order offense than other veterans. African American incarcerated veterans were also most likely to report using substances at the time of the offense compared to other veterans and were reported of being arrested more times in their lifetime than White and Hispanic incarcerated veterans.

On clinical status, African American incarcerated veterans were least likely to have a mood disorder or combat-related posttraumatic stress disorder, and had the lowest mental health scores compared to other incarcerated veterans. However, African American incarcerated veterans were most likely to have a drug abuse/dependency diagnosis than other veterans and were more likely to have a psychotic disorder diagnosis than White veterans.

Non-White incarcerated veterans were more likely to be interested and willing to use VA services for residential treatment, social–vocational assistance, and case management services than White incarcerated veterans.

As shown in Table 3, multivariate analyses using multinomial regressions found that controlling for all other variables, many of these differences remained. Most notably, compared to White veterans, African American veterans were significantly more likely to have served during the post-Vietnam War era than after September 11, 2001, were more likely to have a drug abuse/dependency diagnosis and were more likely to have a drug offense, while less likely to have a violent offense or other offenses. African Americans were also significantly more interested and willing to use VA residential treatment services than White veterans.

Hispanic veterans compared to White veterans were significantly more likely to be homeless 2 years or more, and were more likely to have a drug offense or probation/parole violation. Hispanic veterans were also more interested and willing to participate in VA social–vocational assistance than White veterans. There were no significant variables identified differentiating Other veterans from White veterans.

Table 1 Risk of incarceration among veterans of different races/ethnicities

Age (years)	Non-incarcerated White veterans (n = 17,879,127)		Incarcerated White veterans (n = 16,102)	
20–29	566,132		1,252	
30–39	1,013,674		2,171	
40–49	2,206,901		5,043	
50–59	2,882,945		5,114	
60 and above	11,209,475		2,507	
Age (years)	Non-incarcerated African American veterans (n = 2,366,395)	Incarcerated African American veterans (n = 11,942)	Odds ratio (African American vs. White)	95 % confidence interval of odds ratio ^a
20–29	149,771	527	1.59	1.17–2.15
30–39	196,220	1,384	3.29	2.56–4.24
40–49	577,742	4,506	3.41	2.93–3.97
50–59	693,372	4,585	3.73	3.25–4.28
60 and above	749,290	939	5.60	4.88–6.45
Age (years)	Non-incarcerated Hispanic veterans (n = 523,563)	Incarcerated Hispanic veterans (n = 2,024)	Odds ratio (Hispanic vs. White)	95 % confidence interval of odds ratio
20–29	27,408	177	2.92	1.53–5.33
30–39	22,043	336	7.12	3.50–13.38
40–49	95,046	689	3.17	2.28–4.49
50–59	142,706	612	2.42	1.83–3.20
60 and above	236,360	209	3.95	3.08–5.06
Age (years)	Non-incarcerated Other veterans (n = 318,536)	Incarcerated Other veterans (n = 762) ^b	Odds ratio (Asian/Other vs. White)	95 % confidence interval of odds ratio
20–29	35,692	62	0.79	0.43–1.43
30–39	22,138	130	2.74	1.34–5.25
40–49	79,982	245	1.34	0.93–1.99
50–59	59,851	238	2.24	0.30–0.70
60 and above	120,873	86	3.18	2.24–4.60

^a 95 % confidence intervals were based on the original sample of the 2010 National Survey of Veterans instead of the weighted population sample

^b Two incarcerated OEF/OIF/OND veterans were below 19 years old and excluded from this analysis

Table 2 Sociodemographics, homeless history, criminal justice status, and clinical status of incarcerated veterans by race/ethnicity ($n = 30,834$)

	White ($n = 16,103$)	African American ($n = 11,944$)	Hispanic ($n = 2,025$)	Other ($n = 762$)	Test of difference ^a	Group difference
Sociodemographics						
Age	48.69 (11.52)	48.44 (9.02)	46.84 (10.93)	47.05 (10.82)	$F(330,826) = 22.98^{**}$	1,2 > 3,4
Gender—Male	15,845 (98.40 %)	11,727 (98.18 %)	1,995 (98.52 %)	744 (97.64 %)	$X^2(3) = 4.48$	ns
Marital status						
Married	2,313 (14.37 %)	1,823 (15.27 %)	350 (17.28 %)	131 (17.19 %)	$X^2(6) = 491.76^{**}$	3,4 > 2>
Widowed/separated/ divorced	10,015 (62.20 %)	6,012 (50.34 %)	1,188 (58.67 %)	418 (54.86 %)		
Never married	3,772 (23.43 %)	4,107 (34.39 %)	487 (24.05 %)	213 (27.95 %)		
Period of service						
Before Vietnam War	690 (4.29 %)	156 (1.31 %)	43 (2.12 %)	13 (1.71 %)	$X^2(12) = 665.84^{**}$	1 > 3,4 > 2
Vietnam War	4,665 (28.97 %)	2,942 (24.64 %)	464 (22.91 %)	191 (25.07 %)		
Post-Vietnam	6,665 (41.39 %)	6,363 (53.28 %)	881 (43.51 %)	319 (41.86 %)		
Persian gulf	3,327 (20.66 %)	2,177 (18.23 %)	543 (26.81 %)	196 (25.72 %)		
After September 11, 2001	754 (4.68 %)	304 (2.55 %)	94 (4.64 %)	43 (5.64 %)		
Combat exposure	2,653 (16.52 %)	1,379 (11.59 %)	359 (17.76 %)	138 (18.21 %)	$X^2(3) = 156.51^{**}$	1,3,4 > 2
Days worked in past month	4.92 (9.19)	4.54 (9.16)	3.66 (8.40)	4.95 (9.32)	$F(330,821) = 13.08^{**}$	1 > 2>3; 4 > 3
Total income in past month						
No income	10,047 (62.68 %)	8,110 (68.21 %)	1,360 (67.49 %)	492 (64.91 %)	$X^2(6) = 114.74^{**}$	2,3 > 1
<\$1,000	5,552 (34.64 %)	3,576 (20.08 %)	627 (31.12 %)	249 (32.85 %)		
\$1,000 or more	430 (2.68 %)	203 (1.71 %)	28 (1.39 %)	678 (2.24 %)		
Homeless history						
Length of current homelessness						
Not homeless	13,531 (84.41 %)	9,187 (77.63 %)	1,516 (75.57 %)	569 (75.36 %)	$X^2(6) = 313.53^{**}$	1 > 2>3; 1 > 4
<6 months	1,064 (6.64 %)	936 (7.91 %)	145 (7.23 %)	66 (8.74 %)		
<2 years	699 (4.36 %)	862 (7.28 %)	157 (7.83 %)	56 (7.42 %)		
2 years or more	736 (4.59 %)	849 (7.17 %)	188 (9.37 %)	64 (8.48 %)		
Homeless history						
0 episodes	12,337 (76.64 %)	7,976 (66.80 %)	1,379 (68.10 %)	505 (66.27 %)	$X^2(9) = 394.24^{**}$	1 > 2,3,4
1–2 episodes	2,964 (18.41 %)	2,906 (24.34 %)	487 (24.05 %)	198 (25.98 %)		
3–4 episodes	476 (2.96 %)	619 (5.18 %)	88 (4.35 %)	37 (4.86 %)		
5 or more episodes	320 (1.99 %)	439 (3.68 %)	71 (3.51 %)	22 (2.89 %)		

Table 2 continued

	White (<i>n</i> = 16,103)	African American (<i>n</i> = 11,944)	Hispanic (<i>n</i> = 2,025)	Other (<i>n</i> = 762)	Test of difference ^a	Group difference
Criminal status						
Current incarceration offense						
Violent offense	5,970 (39.55 %)	3,105 (29.01 %)	599 (32.38 %)	278 (39.27 %)	$X^2(3) = 317.16^{**}$	1,4 > 3>2
Property offense	3,425 (23.05 %)	3,062 (28.47 %)	424 (23.48 %)	166 (23.58 %)	$X^2(3) = 101.29^{**}$	2 > 1,3,4
Drug offense	2,643 (17.85 %)	3,495 (32.44 %)	543 (29.66 %)	141 (20.32 %)	$X^2(3) = 758.59^{**}$	2 > 3>1,4
Public order offense	2,929 (19.76 %)	959 (9.14 %)	304 (16.93 %)	126 (18.03 %)	$X^2(3) = 533.92^{**}$	1 > 3>2; 4 > 2
Probation/parole violation	3,067 (20.69 %)	2,691 (25.26 %)	522 (28.67 %)	171 (24.53 %)	$X^2(3) = 109.18^{**}$	3 > 2,4 > 1
Other	1,199 (8.14 %)	723 (6.92 %)	129 (7.19 %)	58 (8.30 %)	$X^2(3) = 13.84^*$	1,3 > 2
Length of current incarceration (months)	51.15 (68.07)	47.36 (67.57)	46.73 (59.88)	52.21 (74.39)	$F(329,201) = 8.29^{**}$	1 > 2,3
Using substances at time of offense^a						
No	4,432 (48.47 %)	3,428 (52.67 %)	500 (46.90 %)	210 (49.18 %)	$X^2(9) = 423.60^{**}$	2 > 1,4 > 3
Under influence of alcohol	2,371 (25.93 %)	886 (13.61 %)	238 (22.33 %)	123 (28.81 %)		
Under influence of drugs	1,259 (13.77 %)	1,030 (15.82 %)	180 (16.89 %)	52 (12.18 %)		
Under influence of alcohol and drugs	1,081 (11.82 %)	1,165 (17.90 %)	148 (13.88 %)	42 (9.84 %)		
Age first arrested for crime	27.19 (12.94)	25.74 (9.64)	25.78 (11.20)	26.36 (11.57)	$F(330,817) = 38.61^{**}$	1 > 2,3
# of times arrested in lifetime	7.90 (11.85)	8.64 (11.79)	7.67 (10.48)	8.03 (12.47)	$F(330,819) = 10.58^{**}$	2 > 1,3
Clinical Status						
Any serious medical problems	9,578 (60.97 %)	6,864 (58.76 %)	1,110 (55.92 %)	438 (59.67 %)	$X^2(3) = 26.60^{**}$	2 > 1>3
Psychiatric diagnosis						
Alcohol abuse/dependency	7,487 (46.64 %)	5,026 (42.32 %)	929 (45.99 %)	351 (46.12 %)	$X^2(3) = 53.02^{**}$	1,3,4 > 2
Drug abuse/dependency	6,147 (38.27 %)	6,377 (53.60 %)	902 (44.68 %)	302 (39.68 %)	$X^2(3) = 657.61^{**}$	2 > 3>1,4
Psychotic disorder	1,138 (7.07 %)	766 (6.41 %)	127 (6.27 %)	55 (7.22 %)	$X^2(3) = 5.70$	ns
Mood disorder	5,236 (32.62 %)	2,545 (21.45 %)	512 (25.40 %)	228 (30.00 %)	$X^2(3) = 431.75^{**}$	1,4 > 3>2
Personality disorder	2,231 (13.91 %)	949 (8.00 %)	188 (9.33 %)	75 (9.87 %)	$X^2(3) = 248.66^{**}$	1 > 3>2; 1 > 4
Combat-related PTSD	1,122 (6.99 %)	581 (4.90 %)	123 (6.10 %)	59 (7.75 %)	$X^2(3) = 55.43^{**}$	1,3,4 > 2
Adjustment disorder	3,220 (20.07 %)	2,501 (21.02 %)	357 (17.71 %)	162 (21.37 %)	$X^2(3) = 13.28^*$	1,2,4 > 3
Other psychiatric disorder	2,137 (13.34 %)	922 (7.78 %)	159 (7.90 %)	92 (12.17 %)	$X^2(3) = 238.29^{**}$	1,4 > 2,3
Mental health score	1.34 (1.79)	1.07 (1.68)	1.25 (1.78)	1.38 (1.81)	$F(330,816) = 54.93^{**}$	1,3,4 > 2
Willing to use VA services for						
Mental health	8,815 (59.20 %)	6,451 (58.11 %)	1,077 (59.73 %)	429 (62.08 %)	$X^2(3) = 6.83$	ns

Table 2 continued

	White (<i>n</i> = 16,103)	African American (<i>n</i> = 11,944)	Hispanic (<i>n</i> = 2,025)	Other (<i>n</i> = 762)	Test of difference ^a	Group difference
Medical care	12,250 (81.81 %)	9,024 (81.15 %)	1,515 (82.97 %)	592 (85.06 %)	$X^2(3) = 9.59$	ns
Residential treatment	4,783 (32.42 %)	4,449 (40.75 %)	817 (46.03 %)	297 (43.81 %)	$X^2(3) = 274.22^{**}$	4 > 1; 3 > 2>1
Social–vocational assistance	4,855 (32.84 %)	4,572 (41.83 %)	862 (48.62 %)	293 (43.15 %)	$X^2(3) = 327.33^{**}$	4 > 1; 3 > 2>1
Case management	5,619 (37.89 %)	4,925 (44.81 %)	922 (51.83 %)	343 (50.59 %)	$X^2(3) = 327.33^{**}$	3,4 > 2>1

ns not significant

* $p < 0.01$, ** $p < 0.001$

^a Reference groups are White, married, before Vietnam War, not homeless, no income, not using substances at time of offense

^b There were substantially smaller sample sizes for this question ($n = 9,143$ White veterans; $n = 6,509$ Black veterans, $n = 1,066$ Hispanic veterans, $n = 427$ Other veterans)

Discussion

This study used national data from a VA prisoner re-entry program and a population-based survey to examine risk of incarceration among veterans of different race/ethnic groups. Veterans of all three categories of racial/ethnic minorities were more likely to be incarcerated than White veterans across age groups. Although African American veterans were more likely to be incarcerated than White veterans across age groups (up to 5.6 times more likely), the risk appeared to be slightly lower than the 6.7 times greater likelihood of non-veteran African Americans being incarcerated compared to non-veteran Whites in the general population [4], and much lower than the 7–8 times greater likelihood reported in the 30–34 year age range among these groups in the general population [5]. This finding suggests veteran status may be protective for incarceration among African American veterans, consistent with a few previous studies [18, 19]. Participation in the US Armed Forces may provide individuals with financial benefits and access to work opportunities and health services that would otherwise not be available [20–23], and these advantages may reduce the risk of incarceration among racial/ethnic minority veterans.

However, it is worth noting that Hispanic veterans did show a higher risk for incarceration (4.3 times more likely than Whites) than that reported among Hispanic non-veterans in the general population (2.6 times more likely than Whites). It is not exactly clear why this is but we speculate that it is because Hispanic veterans may generally be more acculturated than non-Hispanic veterans [25] and greater levels of acculturation among Hispanics are associated with increased risk for psychiatric disorders, substance abuse, and behavioral problems [26–29]. However, more research is needed on the effect of acculturation and why

Hispanic veterans may be an increased risk for incarceration compared to Hispanics in the general population.

In examining characteristics of incarcerated veterans, perhaps, the most striking finding was the high rate of alcohol abuse/dependency (42.3–46.6 %) and drug abuse/dependency (38.3–53.6 %) found in the sample, regardless of race/ethnicity. Although African Americans were least likely to report an alcohol/abuse dependency diagnosis, they were most likely to have a drug abuse/dependency diagnosis, more likely to be incarcerated for a drug offense, and more likely to report using substances at the time of their offense than veterans of all other racial/ethnic groups; they were also least likely to currently be incarcerated for a violent offense. This finding supports our study hypothesis and suggests drug abuse is a prevalent risk factor for many incarcerated veterans, but particularly for African American veterans. There are estimates that 80–85 % of prisoners who could benefit from drug abuse treatment do not receive it [11, 12] and others have urged for greater efforts to provide substance abuse treatment in criminal justice settings [30].

The VA does not provide health services in prison settings, but the HCRV program does offer links to VA health services, including substance abuse treatment after release from prison. This may be an effective way to provide substance abuse treatment to veterans that need it, as we found that more than half of the veterans in each race/ethnic group reported they were interested and willing to participate in VA mental health services; moreover, racial/ethnic minority veterans were more interested and willing to participate in VA residential treatment and case management services than White veterans.

This study had several potential limitations. Although the HCRV sample was geographically representative of the incarcerated veteran population, the data were based on only one national VA program and the extent to which the

Table 3 Multinomial regression using sociodemographics, homeless history, criminal justice status, and clinical status variables to predict racial/ethnic minority status

Significant variables (all $p < 0.01$)	African American vs. White
Age	1.02 (1.01–1.03)
Age first arrested for crime	0.99 (0.99–1.00)
Married vs. never married	0.78 (0.69–0.89)
Widowed/separated/divorced vs. never married	0.57 (0.52–0.62)
Homeless less than 6 months vs. 2 years or more	0.74 (0.59–0.93)
Never homeless vs. homeless 5 or more episodes	0.64 (0.48–0.86)
Using alcohol at time of offense vs. using alcohol and drugs at time of offense	0.62 (0.53–0.72)
Using drugs at time of offense vs. using alcohol and drugs at time of offense	0.55 (0.47–0.64)
Served before Vietnam War vs. after 9/11/2001	0.34 (0.21–0.54)
Served post-Vietnam vs. after 9/11/2001	1.58 (1.25–2.00)
Alcohol abuse/dependency	0.85 (0.76–0.94)
Drug abuse/dependency	1.61 (1.45–1.79)
Mood disorder	0.62 (0.56–0.69)
Personality disorder	0.65 (0.56–0.75)
Adjustment disorder	1.33 (1.20–1.47)
Other psychiatry disorder	0.61 (0.53–0.71)
Violent offense	0.69 (0.61–0.79)
Drug offense	1.41 (1.23–1.61)
Public order offense	0.49 (0.42–0.56)
Other/unspecified offense	0.72 (0.60–0.88)
Willing to use VA medical services	0.79 (0.70–0.90)
Willing to use VA residential treatment services	1.20 (1.06–1.35)
Significant variables (all $p < 0.01$)	Hispanic vs. White
Married vs. never married	1.41 (1.11–1.79)
Not homeless vs. homeless 2 years or more	0.34 (0.24–0.48)
Homeless less than 6 months vs. 2 years or more	0.34 (0.23–0.50)
Mood disorder	0.67 (0.55–0.82)
Other psychiatric disorder	0.46 (0.33–0.63)
Drug offense	1.67 (1.33–2.08)
Probation/parole violation	1.45 (1.20–1.75)
Willing to use VA social–vocational assistance	1.47 (1.18–1.82)

sample was representative of all incarcerated veterans and racial/ethnic groups is uncertain but it is likely to over-represent veterans who were near the time to their release from prison, i.e., towards the end of their sentences. However, the sample was large for this population and few previous studies have examined such a large, diverse sample of incarcerated veterans.

The race/ethnic categories used in this study were broad and the clumping of veterans who were not White, Black, or Hispanic into an “Other” group does not provide information about potentially important race/ethnic sub-groups. Future research is needed to examine more specific race/ethnic categories and their individual service needs.

Nonetheless, the findings of this study suggest racial/ethnic differences in incarceration persist among veterans, although are slightly attenuated when compared to adults in the general population. Efforts to connect incarcerated veterans with services post-release should be supported, especially in connecting veterans to substance abuse treatment.

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Conflict of interest None of the authors report any conflicts of interest.

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