

# Asian American and Pacific Islander Military Veterans in the United States: Health Service Use and Perceived Barriers to Mental Health Services

Jack Tsai, PhD, Julia M. Whealin, PhD, and Robert H. Pietrzak, PhD, MPH

Individuals who identify as Asian American (AA) or Pacific Islander (PI) collectively constitute about 5% of the US population. They are the fastest-growing racial/ethnic minority group in the United States,<sup>1</sup> projected to grow by more than 200% by 2050.<sup>2</sup> Although AA/Pis have served in the military since the early 1800s, there has been very little research on AA/PI veterans. Of particular importance, little is known about how their sociodemographic characteristics, health status, and use of health services differ from those of other veterans.<sup>3</sup>

AA/Pis are a diverse racial/ethnic group that actually consists of over 60 different subgroups, but they are typically grouped together because of similar sociocultural backgrounds. Research has shown that AA/Pis in the general population are often stereotyped as a “model minority” with few economic, health, or social problems, despite evidence to the contrary.<sup>4–6</sup> AA/Pis have also been characterized as “perpetual foreigners,” so they have not always been considered an important US population group.<sup>7</sup>

Studies examining AA/Pis in the general population have found that although AA/PI adults are generally physically healthier than other adults (e.g., they have lower rates of obesity<sup>8</sup> and greater longevity<sup>9</sup>), they are also less healthy in other respects—for example, they are more likely to use tobacco<sup>10</sup> and are at greater risk for diabetes, tuberculosis, hepatitis C, and various forms of cancer.<sup>11–13</sup> Disparities in access to medical care have been particularly salient for Asian and Pacific Islander immigrants, who often experience a range of barriers to medical care, including lack of insurance, language barriers, and cultural differences.<sup>14,15</sup> Several national surveys, including the National Latino and Asian American Study, have identified use of and access to mental health services among AA/Pis as a public health problem. AA/Pis have been found to underuse mental

**Objectives.** We (1) compared use of various health services nationally between Asian American and Pacific Islander (AA/PI) veterans and veterans of other racial/ethnic groups and (2) specifically compared perceived barriers and stigma related to mental health services.

**Methods.** Using bivariate and multivariable statistics, we analyzed a population-weighted sample of 8315 veterans from the 2010 National Survey of Veterans and a random sample of 567 recent veterans from Hawaii.

**Results.** A total of 1.5% of veterans were AA/PI compared with 0.4% a decade ago. Compared with other veterans, AA/PI veterans reported higher socioeconomic status and better mental health, although these findings may be specific to AA veterans. Adjusting for sociodemographic and health differences, we found no differences in health service use or perceived barriers or stigma related to mental health services.

**Conclusions.** AA/Pis are a small but fast-growing racial/ethnic group within the veteran population that deserves attention. Although veteran status may be protective against some barriers to mental health care found in the general AA/PI population, efforts to reduce barriers to health care among veterans should be continued. (*Am J Public Health.* 2014;104:S538–S547. doi:10.2105/AJPH.2014.302124)

health services and often face cultural and institutional barriers to accessing mental health services.<sup>16–19</sup> Some of these barriers may stem in part from stigma related to seeking help for psychological problems<sup>20,21</sup> and may vary by nativity status,<sup>16</sup> whereas other barriers are related to discrimination, socioeconomic disparities, and lack of culturally competent care.<sup>22,23</sup>

It is unknown how these findings from AA/Pis in the general population apply to AA/PI veterans. However, some evidence from national data suggest that although AA/PI veterans are younger and have higher incomes than other veterans, they may face particular barriers in accessing mental health care.<sup>3</sup> Veterans as a whole have been found to be at greater risk than the general population for various mental disorders, including posttraumatic stress disorder (PTSD), major depression, and substance use disorders.<sup>24–27</sup> Of particular concern, 36% of veterans who have served in Afghanistan or Iraq receive a mental health diagnosis, but only 67% have had a follow-up

mental health visit and only 30% have had 9 or more follow-up visits.<sup>28</sup> Veterans have cited various barriers to accessing mental health care, including stigma, distrust of providers, institutional factors, and logistical barriers such as costs and lack of transportation.<sup>29–31</sup> An understanding of variations in health and help-seeking behavior by veterans’ race/ethnicity may help to better tailor services to targeted subgroups.

The need for attention to the mental health of AA/PI military personnel has recently been underscored by preliminary results from the largest study of mental health risk conducted in the military, the Army Study to Assess Risk and Resilience in Servicemembers.<sup>32</sup> This study revealed that AA/PI soldiers had higher suicide rates than all other racial/ethnic groups during deployment, as well as those who had never been deployed.<sup>32</sup> By contrast, AA/Pis in the general population have been found to have much lower suicide rates than other racial/ethnic groups.<sup>33–35</sup>

One important difference between veterans and nonveterans is that many veterans are eligible for free or low-cost health care coverage provided by the Department of Veterans Affairs (VA). The VA is the largest integrated health care network in the United States, and studies of racial/ethnic disparities in VA health care have been mixed across clinical conditions and service type.<sup>36,37</sup> The availability of free or lost-cost health care coverage has led some to argue that the VA operates an “equal-access system” that reduces the influence of potential confounders of racial/ethnic disparities, such as insurance and income.<sup>38–41</sup> In fact, AA/PI veterans have been found to use VA health services at the same rate as other veterans.<sup>42</sup>

To better understand the characteristics, health needs, and health service use of AA/PI veterans, we had 2 main aims. The first was to use a contemporary, nationally representative sample of AA/PI veterans to compare their use of a variety of health services, including VA services, with use by veterans of other racial/ethnic groups. The second was to analyze data from a random sample of recent veterans in Hawaii who have served since 2001—both AA/PI veterans and veterans of other racial/ethnic groups—to compare barriers and stigma specifically related to mental health services.

## METHODS

We used 2 different sources of data in this study. The first was the 2010 National Survey of Veterans (NSV). The 2010 NSV is the sixth in a series of decennial comprehensive nationwide surveys designed to help the VA plan future programs and services for veterans.<sup>43</sup> The 2010 NSV was conducted with mailed, self-administered questionnaires and address-based sampling. Details of the methodology have been described elsewhere.<sup>43</sup> Of 13 058 veterans who were mailed surveys, 8710 returned completed surveys (66.7% response rate). We focused on the 8315 veterans (95%) who reported race/ethnicity. We weighted survey data to represent the entire noninstitutionalized veteran population and to incorporate the probability of selection and survey nonresponse, and we poststratified data to known population-based parameters, including age group, gender, race/ethnicity, and service era.

The second data source was a combined data set of a random sample of veterans in Hawaii who served in Afghanistan or Iraq in Operations Enduring Freedom, Iraqi Freedom, or New Dawn (OEF–OIF–OND) and a random sample of veterans who served in the Hawaii National Guard after September 11, 2001. We stratified both samples by residence on the most populated island (50% from Oahu) versus neighboring islands (50% from Kauai, Hawaii, or Maui), with equal proportions of veterans responding from rural and urban locations. We obtained data from both samples through mailed surveys using a multistage mailing procedure,<sup>44</sup> which involved sending a series of reminder letters. As an incentive, we included \$20 with each survey.

Of 450 veterans randomly selected from Hawaii's OEF–OIF–OND program registry (with a roster of 2565 OEF–OIF–OND veterans) who were mailed surveys, 233 (52% response rate) returned completed surveys. Of 800 veterans randomly selected from a list of all enrolled National Guard members in the state of Hawaii ( $n = 5300$ ) who were mailed surveys, 390 (49% response rate) returned completed surveys. The total sample from both Hawaii samples was 623 veterans, but we focused on the 567 veterans (91%) who reported race/ethnicity.

The 2 Hawaii samples did not differ by gender, age, education, rural–urban region, or marital status, but the National Guard sample did have lower PTSD Checklist scores and were more likely to be AA/PIs than the OEF–OIF–OND sample. Compared with the general population of OEF–OIF–OND veterans and veterans in the National Guard in Hawaii, the respective study samples did not differ with respect to age, gender, or marital status. We collected data for both samples from November 2010 to February 2011.

Both the 2010 NSV and Hawaii samples were surveyed by mail instead of by phone to save time and improve response rates (as phone numbers change more quickly than addresses).

## Measures

The 2010 NSV collected information on various background characteristics, including sociodemographics, military service, employment, and health coverage. Health status was assessed with several questions that asked

veterans to rate their general health on a 5-point scale from 1 (poor) to 5 (excellent), to indicate whether they needed assistance with a list of 11 activities of daily living (which were summed for a total score), and to respond dichotomously to the following: whether they needed home care, whether they were permanently housebound, whether they had smoked 100 cigarettes or more in their lifetime, and whether they were exposed to any military combat (exposed to dead, dying, or wounded people during military service). Health service use was assessed by asking veterans what, if any, health services they had used in the past 6 months, including inpatient medical or surgical care, outpatient medical care, inpatient mental health treatment, outpatient mental health treatment, prescription medications, dental care, and emergency room services. Veterans that reported use of any of these types of health services were further asked whether the services were provided by the VA.

The survey of veterans in Hawaii also collected information on background characteristics and included more detailed psychosocial and health measures, including the Short-Form 12-Item Health Survey (SF-12),<sup>45</sup> the 17-item PTSD Checklist–Civilian Version (PCL-C),<sup>46</sup> and the 4-item CAGE<sup>47</sup> alcohol screen. The SF-12 generates norm-based physical and mental component summary scores (range = 0–100), with scores of 50 (and standard deviations of 10) representing the average level of functioning in the general population. PCL-C scores of 44 or greater are considered indicative of probable PTSD.<sup>48</sup> We defined a positive CAGE screen as a score of 2 or more (indicating a probable problem with alcohol use).

To assess barriers to mental health care, we used 2 additional scales. The 13-item Perceived Stigma and Barriers to Care Scale<sup>49</sup> was used to assess obstacles to receiving mental health treatment. Veterans were asked to rate their agreement with commonly reported barriers (e.g., “I don't have good transportation” and “I would be seen as weak”) from 1 (strongly disagree) to 5 (strongly agree). Factor analyses in veteran and active duty samples<sup>50,51</sup> have revealed a 2-factor solution: stigma-based barriers to care (5 items) and logistical barriers to care (8 items). We calculated the mean response to items for a total score and for the 2 subscales, with higher

scores reflecting greater perceived barriers to care. We used the Devaluation of Consumers Scale,<sup>52</sup> a psychometrically tested 8-item scale, to examine perceptions of community attitudes toward people with mental illness (i.e., stigma). Participants are asked to indicate their level of agreement with statements such as “Most people in my community would accept a person who once had a serious mental illness as a close friend” from 1 (strongly disagree) to 4 (strongly agree). We summed responses to all items for a total score, with higher scores reflecting greater perceptions of stigma.

We assessed health service use with an adapted 15-item version of the Self-Help and Treatment Services Utilization Survey.<sup>53</sup> Veterans were asked whether they used any of various types of professional health services from different sources, including the VA, Vet Center, and non-VA community providers, in the past 3 months. We added several items to ask whether in the past 3 months they had visited a traditional healer, community elder, or spiritual leader; used self-help groups; or talked with family and friends about their emotional problems.

### Data Analysis

In the 2010 NSV, we divided veterans into 5 mutually exclusive racial/ethnic groups: AA/PIs, Whites, Blacks, Hispanics, and Native Americans/Alaska Natives. We grouped AA and PI veterans into 1 category because of the small number of PI veterans ( $n = 16$ ). In the Hawaii data, we divided veterans into 4 racial/ethnic groups: AAs, PIs, Hispanics/Blacks, and Whites. We grouped Black and Hispanic veterans together into 1 category because of the small number of Black veterans ( $n = 11$ ).

For both samples, we used analysis of variance and the  $\chi^2$  test to compare AA and PI veterans with veterans of other racial/ethnic groups with respect to sociodemographic and health characteristics (AA and PI veterans were analyzed together in the 2010 NSV because of small sample sizes). We made posthoc group comparisons using the Fisher Least Significant Difference Test and the pairwise  $\chi^2$  test. Using binary and logistic regressions, we then compared health service use, controlling for significant differences in sociodemographic and health characteristics (found in bivariate analyses). We conducted all analyses with SPSS

version 20.0 software (IBM Corp, Armonk, NY). We set  $\alpha$  at 0.01 for all bivariate analyses and 0.05 for all multivariable analyses to balance type I and type II error, while maintaining statistical power.

We conducted a power analysis using G\*Power version 3.1 software.<sup>54</sup> On the basis of a sizable effect size (odds ratio = 2.3) of a low base rate event (0.05), an  $\alpha$  of 0.05, a  $\beta$  of 0.80, and a medium  $R^2$  with covariates (0.04), a total sample size of 205 would be needed for logistic regression analyses. Both of the smallest comparison samples in the 2010 NSV and the Hawaii data sets exceed this required sample size ( $n = 309$  and  $213$ , respectively).

## RESULTS

We first provide an overall picture of the characteristics and health service use of veterans of different racial/ethnic groups nationally from the 2010 NSV data. We then provide a more in-depth examination of health service use and barriers to mental health care among recent veterans from the Hawaii data.

### Characteristics and Health Service Use in National Survey of Veterans

Of the total sample ( $n = 8315$ ), 121 (1.46%) were AA/PI. Of AA/PIs, 105 (86.78%) were AA and 16 (13.22%) were PI. Table 1 shows that most AA/PI veterans were male, were married, were in their 50s, were college educated, were employed with a household income of \$50 000 or over, had served in the Army or Navy, had never filed for a VA service-connected disability, and were covered by private or employer-provided health insurance. Generally, AA/PI veterans reported “good” general health and about half reported military combat exposure.

Compared with veterans of other racial/ethnic groups, AA/PI veterans were more likely to have served in OEF or OIF. AA/PI veterans were also more likely to be female than other veterans (except for Black veterans), were younger and less likely to be married than White veterans, were better educated than Black veterans and had higher household incomes than Native American/Alaska Native veterans, and were more likely to have private or employer-provided health insurance than Black and Native American/Alaska Native

veterans. About one fifth of AA/PI veterans reported VA coverage, and there were no racial/ethnic differences in VA or TRICARE coverage. (TRICARE is a health care program offered by the Department of Defense’s Military Health System.)

AA/PI veterans reported better general health than Black veterans, but they were more likely to be permanently housebound. White veterans were more likely to have been smokers in their lifetime than AA/PI veterans.

Table 2 shows that, after we controlled for these differences in sociodemographic and health characteristics, there was no significant difference between AA/PI veterans and other veterans in use of any inpatient or outpatient health services. There was also no difference in VA enrollment or use of any of these respective health services as provided by the VA, although it is notable that mental health services used by veterans were the most likely type of service provided by the VA.

Among veterans who reported never using any VA health care, there were no differences by race/ethnicity in the reasons given (Table A, available as a supplement to the online version of this article at <http://www.ajph.org>). The most common reasons veterans reported for not using VA health care were that they did not need it, they were not aware of it or did not know how to apply for VA enrollment, or they used other sources of health care.

### Service Use and Barriers in Recent Hawaii Veterans

Table 3 shows the sociodemographic characteristics and health status of veterans in Hawaii who had served since September 11, 2001. In this sample, we grouped AA veterans separately from PI veterans. Compared with PI veterans, AA veterans were less likely to be living in a rural region and to have been deployed, and they reported higher income, higher SF-12 mental scores, and lower PCL-C scores.

Compared with veterans of other racial/ethnic groups, AA veterans were less likely to have a VA service-connected disability, were less likely to have been deployed, and had lower PCL-C scores. AA veterans also had higher SF-12 mental health scores and reported higher income than Hispanic and Black veterans. There were no differences

**TABLE 1—Sociodemographic and Health Characteristics of Veterans, by Race/Ethnicity: United States, 2010 National Survey of Veterans**

Characteristic	Asian American/Pacific Islander, Mean ±SD or No. (%) (n = 121)	White, <sup>a</sup> Mean ±SD or No. (%) (n = 6852)	Black, Mean ±SD or No. (%) (n = 932)	Hispanic, Mean ±SD or No. (%) (n = 410)	Native American/Alaska Native, Mean ±SD or No. (%) (n = 188)	Group Comparison ( <i>P</i> < .01) <sup>b</sup>
Age, y	54.33 ±17.59	62.77 ±15.50	53.47 ±14.15	53.47 ±14.15	57.20 ±14.20	A < W
Male gender	85 (80.19)	5705 (93.49)	702 (82.11)	332 (91.46)	158 (93.49)	H, W, and N > A
Education						A > B and H <sup>c</sup>
< high school	2 (1.74)	388 (5.69)	24 (2.59)	33 (8.07)	9 (4.79)	
High school or GED	18 (15.65)	1789 (26.25)	271 (29.27)	88 (21.52)	42 (22.34)	
Some college	38 (33.04)	1949 (28.60)	335 (36.18)	149 (36.43)	72 (38.30)	
College degree	41 (35.65)	1846 (27.09)	228 (24.62)	111 (27.14)	45 (23.94)	
Advanced degree	16 (13.91)	843 (12.37)	68 (7.34)	28 (6.85)	20 (10.64)	
Household income, \$						A > B and N <sup>d</sup>
< 10 000	7 (6.42)	237 (3.68)	104 (11.62)	37 (9.44)	24 (13.33)	
10 000–29 999	15 (13.76)	1391 (21.60)	281 (31.40)	99 (25.26)	43 (23.89)	
30 000–49 999	18 (16.51)	1554 (24.13)	193 (21.56)	78 (19.90)	39 (21.67)	
50 000–74 999	34 (31.19)	1390 (21.59)	171 (19.11)	82 (20.92)	25 (13.89)	
75 000–99 999	14 (12.84)	755 (11.73)	83 (9.27)	36 (9.18)	21 (11.67)	
≥ 100 000	21 (19.27)	1112 (17.27)	63 (7.04)	60 (15.31)	28 (15.56)	
Marital status						W > A; A > B <sup>e</sup>
Married or civil union	80 (67.80)	5007 (73.28)	496 (53.74)	265 (64.95)	116 (62.37)	
Previously married	19 (16.10)	1362 (19.93)	297 (32.18)	91 (22.30)	49 (26.34)	
Never married	19 (16.10)	464 (6.79)	130 (14.08)	52 (12.75)	21 (11.29)	
OEF–OIF	29 (25.00)	464 (7.05)	117 (13.28)	80 (20.57)	12 (6.74)	A > W, B, and N
Military branch						
Army	51 (44.74)	3121 (46.13)	512 (55.65)	201 (50.12)	67 (36.61)	NS
Navy	26 (22.81)	1632 (24.12)	138 (15.00)	83 (20.70)	55 (30.05)	NS
Air Force	25 (21.93)	1405 (20.77)	180 (19.57)	63 (15.71)	38 (20.65)	NS
Marine Corps	11 (9.57)	632 (9.34)	103 (11.18)	60 (15.00)	32 (17.39)	NS
Coast Guard	6 (5.22)	104 (1.54)	13 (1.41)	2 (0.50)	1 (0.55)	A > W, B, and H
Other	2 (1.74)	23 (0.34)	6 (0.65)	0 (0.00)	1 (0.55)	A > H
Employment status						
Working	60 (54.05)	2834 (43.67)	434 (49.43)	231 (59.84)	74 (40.66)	NS
Not working but looking	13 (11.71)	523 (8.06)	162 (18.45)	54 (13.99)	29 (15.93)	NS
Not working, not looking	38 (34.23)	3133 (48.27)	282 (32.12)	101 (26.17)	79 (43.41)	NS
VA service-connected disability rating <sup>f</sup>						
Never applied	88 (75.21)	5525 (82.92)	578 (65.09)	297 (76.35)	137 (74.86)	NS
0%	7 (5.98)	349 (5.24)	105 (11.82)	20 (5.14)	9 (4.92)	NS
10%–40%	12 (10.26)	473 (7.10)	111 (12.50)	36 (9.25)	20 (10.93)	NS
≥ 50%	10 (8.55)	316 (4.74)	94 (10.59)	36 (9.25)	17 (9.29)	NS
Health insurance coverage						
No coverage	17 (14.29)	696 (10.26)	258 (28.01)	91 (22.52)	45 (24.06)	B > A
Private or employer provided	75 (61.98)	4573 (66.73)	440 (47.21)	221 (53.77)	84 (44.68)	A > B and N
Medicare or Medicaid	40 (33.06)	2994 (43.69)	236 (25.32)	97 (23.66)	69 (36.90)	NS
VA or TRICARE	26 (21.49)	1196 (17.45)	216 (23.18)	94 (22.93)	50 (26.60)	NS
Other	8 (6.61)	192 (2.80)	24 (2.58)	6 (1.50)	25 (13.37)	A > H

Continued

TABLE 1—Continued

Health status						
General rating of health <sup>g</sup>	3.00 ±0.93	3.15 ±1.05	2.69 ±1.01	3.06 ±1.05	2.87 ±1.12	A > B
Smoked at least 100 cigarettes in lifetime	63 (52.50)	4452 (65.38)	559 (60.43)	218 (53.56)	121 (65.05)	W > A
Need personal aid or attendant	14 (11.57)	429 (6.36)	107 (11.61)	32 (7.92)	19 (10.27)	NS
Permanently housebound	11 (9.32)	108 (1.59)	11 (1.19)	12 (2.99)	4 (2.16)	A > W, B, H, and N
ADLS score <sup>h</sup>	13.12 ±6.22	12.23 ±4.64	12.32 ±4.05	12.68 ±5.67	13.12 ±5.80	NS
Military combat exposure <sup>i</sup>	61 (50.41)	2938 (42.88)	418 (44.85)	219 (53.28)	95 (50.53)	NS

Note. A = Asian American/Pacific Islander; ADLS = activities of daily living; B = Black; H = Hispanic; GED = general equivalency diploma; N = Native American/Alaska Native; NS = not significant; OEF–OIF = Operation Enduring Freedom–Operation Iraqi Freedom; TRICARE = health care program offered by the Department of Defense's Military Health System; VA = Department of Veterans Affairs; W = White.

<sup>a</sup>Participants categorized as White or Black were non-Hispanic White or non-Hispanic Black.

<sup>b</sup>Pairwise group comparisons were statistically tested after omnibus tests determined that there were significant group differences.

<sup>c</sup>In reference to education categories college degree or greater.

<sup>d</sup>In reference to income categories \$50 000 or greater.

<sup>e</sup>In reference to married or civil union.

<sup>f</sup>Veterans who are disabled by an injury or illness during military service are eligible to apply for VA service-connected disability and receive compensation. Service-connected disability is rated in 10% increments from 0% to 100%, with higher ratings providing greater compensation.

<sup>g</sup>General rating of health was rated on a 5-point Likert scale, with higher scores indicating greater health.

<sup>h</sup>Activities of daily living scores ranged from 11 to 44, with higher scores indicating greater disability in daily living.

<sup>i</sup>Military combat exposure was defined as exposure to dead, dying, or wounded people during military service.

between AA, PI, and other veterans on perceived barriers or stigma related to mental health care.

Table 4 shows use of various types of health services by racial/ethnic group. After adjustment for sociodemographic and health differences, there were no significant racial/ethnic differences in reported need of or desire for medical or mental health services, or use of any of these types of health services. Although there were substantial proportions of veterans across racial/ethnic groups that expressed need of or desire for help with psychological problems, there was little use of professional mental health services, including those provided by the VA.

## DISCUSSION

Approximately 1.5% of US military veterans identify as AA or PI, which represents an increase of more than 200% from the 0.4% of AA/PI veterans estimated in 2001.<sup>42</sup> The growth of AA/PIs in the military mirrors the growth of AA/PIs in the general population<sup>1</sup> and is likely to continue over the next few decades,<sup>2</sup> thereby underscoring the need to understand the characteristics and needs of AA/PI veterans. Nationally representative data from the 2010 NSV revealed that AA/PIs were generally of higher socioeconomic status than

veterans of other racial/ethnic minority groups and reported better overall health than Black veterans. However, AA/PI veterans were more likely to be permanently housebound than veterans of all other racial/ethnic groups. A little over one fifth of AA/PI veterans were enrolled in VA health care, which is roughly the same proportion as for veterans of other racial/ethnic minority groups. Importantly, AA/PI veterans were more likely to be OEF or OIF veterans than were veterans of all other racial/ethnic groups, which again reflects the growing number of AA/PIs enlisting in the military and their potential need for VA services.

After we adjusted for differences in sociodemographic and health characteristics, national data indicated that AA/PI veterans used various outpatient, inpatient, and emergency services at the same rate as did veterans of other racial/ethnic groups. Some of these health services, including the majority of mental health services, were provided by the VA. This finding partly supports assertions that the VA operates an “equal-access” system that reduces racial/ethnic disparities for those who are eligible for VA coverage.<sup>38–41</sup> Additionally, there were no racial/ethnic differences in the reasons reported for not using VA health care, but the most common reason was that veterans were not aware of or did not know how to apply for VA enrollment, suggesting that

greater education and promotion of VA care may be needed for veterans who are not enrolled but are eligible.

Consistent with results from the 2010 NSV sample, analysis of data on veterans in Hawaii who served after September 11, 2001, showed that AA veterans reported higher income and better mental health than veterans of other racial/ethnic groups, but there were no differences in health service use after adjustment for sociodemographic and health differences. However, the data further revealed several important differences between AA and PI veterans. AA veterans reported higher incomes, fewer symptoms of PTSD, and better overall mental health than PI veterans. These findings demonstrate differences that may exist among AA/PI veteran subgroups, and they align with results from 2 previous studies on AA/PI veterans that found that AA veterans were less likely to have PTSD than PI veterans,<sup>55,56</sup> as well as results from several studies on AA/PIs in the general population that have found that AAs have a range of better health outcomes than PIs.<sup>57–60</sup> Taken together, these findings encourage the separate analysis of AA/PI subgroups, when possible, given possible differences in health and socioeconomic status between AA and PI veterans.

There were no racial/ethnic differences in perceived barriers to care or stigma related to

**TABLE 2—Health Service Use of Veterans, by Race/Ethnicity: United States, 2010 National Survey of Veterans**

Health Service Use	Asian American/Pacific Islander (Ref) (n = 121)		White <sup>a</sup> (n = 6852)		Black <sup>a</sup> (n = 932)		Hispanic (n = 410)		Native American/Alaska Native (n = 188)	
	No. (%)	AOR (95% CI)	No. (%)	AOR (95% CI)	No. (%)	AOR (95% CI)	No. (%)	AOR (95% CI)	No. (%)	AOR (95% CI)
Ever enrolled in VA care in lifetime	26 (21.49)	1.00	1535 (22.40)	0.86 (0.52, 1.41)	331 (35.52)	0.71 (0.42, 1.19)	135 (32.93)	0.86 (0.52, 1.41)	62 (32.98)	0.67 (0.36, 1.23)
Ever used any VA healthcare in lifetime	28 (23.14)	1.00	1688 (24.64)	0.86 (0.52, 1.40)	352 (37.77)	0.70 (0.42, 1.18)	141 (34.39)	0.70 (0.41, 1.20)	68 (36.17)	0.63 (0.35, 1.15)
Ever used any VA healthcare in past 6 mo	19 (15.70)	1.00	1122 (16.37)	0.84 (0.47, 1.49)	247 (26.50)	0.79 (0.43, 1.44)	95 (23.17)	0.78 (0.41, 1.47)	41 (21.81)	0.95 (0.47, 1.93)
Inpatient medical or surgical care										
Any	14 (11.57)	1.00	829 (12.10)	0.46 (0.19, 1.09)	106 (11.37)	0.54 (0.22, 1.33)	43 (10.49)	0.43 (0.17, 1.08)	25 (13.30)	0.52 (0.19, 1.41)
Paid for by VA	7 (50.00)	1.00	106 (12.79)	2.12 (0.70, 6.39)	37 (34.90)	1.60 (0.51, 5.00)	8 (18.60)	2.36 (0.64, 8.65)	8 (0.32)	1.43 (0.37, 5.52)
Outpatient medical care										
Any	91 (75.20)	1.00	4936 (72.00)	1.41 (0.85, 2.33)	604 (64.80)	1.95 (1.16, 3.28)	267 (65.12)	1.56 (0.90, 2.70)	137 (72.87)	1.26 (0.68, 2.34)
Paid for by VA	13 (14.29)	1.00	749 (15.20)	0.74 (0.37, 1.46)	168 (27.81)	0.81 (0.40, 1.64)	66 (24.71)	0.76 (0.36, 1.59)	31 (22.63)	0.72 (0.32, 1.62)
Inpatient mental health treatment <sup>b</sup>										
Any	1 (0.80)	1.00	63 (0.91)	1.07 (0.18, 6.46)	26 (2.78)	0.71 (0.11, 4.45)	4 (0.98)	1.19 (0.16, 8.97)	5 (2.66)	0.54 (0.07, 4.03)
Paid for by VA	0 (0.00)	1.00	31 (49.20)	0.76 (0.03, 18.52)	17 (65.38)	0.34 (0.01, 8.38)	2 (50.00)	1.07 (0.03, 35.35)	0 (0.00)	2.25 (0.02, 210.17)
Outpatient mental health treatment										
Any	13 (10.74)	1.00	450 (6.57)	1.03 (0.52, 2.05)	110 (11.80)	1.20 (0.59, 2.45)	45 (10.98)	1.05 (0.49, 2.25)	20 (10.64)	1.28 (0.54, 3.06)
Paid for by VA	5 (38.50)	1.00	199 (44.22)	1.09 (0.41, 2.88)	60 (54.54)	1.21 (0.44, 3.29)	25 (55.60)	0.88 (0.31, 2.53)	9 (45.00)	1.16 (0.35, 3.84)
Prescription medications										
Any	86 (71.10)	1.00	5495 (80.20)	1.02 (0.61, 1.72)	681 (73.06)	1.30 (0.76, 2.25)	292 (71.21)	1.13 (0.63, 2.00)	148 (78.72)	0.86 (0.44, 1.67)
Paid for by VA	13 (15.10)	1.00	866 (15.76)	0.83 (0.43, 1.60)	196 (28.79)	0.79 (0.40, 1.56)	77 (26.40)	0.64 (0.31, 1.29)	31 (20.95)	0.92 (0.42, 2.02)
Dental care										
Any	66 (54.50)	1.00	3978 (58.06)	0.86 (0.56, 1.33)	353 (38.88)	1.29 (0.82, 2.04)	204 (49.76)	0.92 (0.57, 1.51)	88 (46.80)	0.93 (0.54, 1.62)
Paid for by VA	1 (1.50)	1.00	94 (2.36)	0.24 (0.02, 3.46)	25 (7.09)	0.23 (0.02, 3.43)	10 (4.90)	0.22 (0.01, 3.46)	4 (4.55)	0.29 (0.02, 5.52)
Emergency room services										
Any	23 (19.00)	1.00	1037 (15.13)	1.04 (0.61, 1.80)	242 (26.97)	0.75 (0.43, 1.32)	71 (17.31)	0.97 (0.53, 1.77)	40 (21.28)	0.92 (0.47, 1.79)
Paid for by VA	6 (26.10)	1.00	144 (13.89)	1.87 (0.73, 4.75)	38 (15.70)	2.30 (0.86, 6.19)	12 (16.90)	2.08 (0.71, 6.14)	7 (17.50)	1.76 (0.52, 6.02)

Note. AOR = adjusted odds ratio; CI = confidence interval; VA = Department of Veterans Affairs. Odds ratios were adjusted for age, gender, education, income, marital status, service in Operation Enduring Freedom or Operation Iraqi Freedom, service branch, health insurance coverage, general rating of health, smoking, and household status.

<sup>a</sup>Participants categorized as White or Black were non-Hispanic White or non-Hispanic Black.

<sup>b</sup>Mental health treatment includes substance abuse treatment.

**TABLE 3—Sociodemographic, Psychosocial, and Health Characteristics of Veterans Who Served in the Military After September 11, 2001, by Race/Ethnicity: Hawaii, November 2010–February 2011**

Characteristic	Asian American, Mean $\pm$ SD or No. (%) (n = 230)	Pacific Islander, Mean $\pm$ SD or No. (%) (n = 170)	Hispanic/Black, <sup>a</sup> Mean $\pm$ SD or No. (%) (n = 43)	White, Mean $\pm$ SD or No. (%) (n = 124)	Group Comparison ( <i>P</i> < .01) <sup>b</sup>
<b>Sociodemographic characteristics</b>					
Age	36.90 $\pm$ 11.70	37.57 $\pm$ 10.27	34.35 $\pm$ 9.06	35.73 $\pm$ 9.80	NS
Male gender, %	198 (86.09)	141 (83.43)	36 (83.72)	101 (82.11)	NS
Employed full-time, %	163 (71.49)	110 (64.71)	26 (60.47)	87 (70.73)	NS
Income > \$35 000, %	172 (78.18)	103 (62.05)	25 (58.14)	86 (69.92)	A > P and H
Married or living together long term, %	169 (73.80)	126 (75.00)	28 (65.12)	85 (70.83)	NS
Rural region, %	59 (25.76)	83 (49.40)	12 (27.91)	42 (33.87)	P > A and W
VA service connected, %	35 (15.70)	38 (23.03)	17 (40.48)	33 (29.20)	W and H > A
Deployed, %	143 (63.56)	127 (76.97)	36 (87.80)	99 (80.49)	W, H, and P > A
<b>Psychosocial and health status</b>					
SF-12 Mental Component Summary score <sup>c</sup>	49.60 $\pm$ 9.72	45.51 $\pm$ 12.84	42.48 $\pm$ 12.92	47.40 $\pm$ 12.48	A > P and H
SF-12 Physical Component Summary score	50.98 $\pm$ 8.16	48.74 $\pm$ 9.13	47.92 $\pm$ 10.27	50.17 $\pm$ 9.63	NS
PCL-C score <sup>d</sup>	26.11 $\pm$ 12.24	32.92 $\pm$ 17.04	40.34 $\pm$ 19.36	32.12 $\pm$ 16.82	P, H, and W > A
Positive CAGE screen, <sup>e</sup> %	26 (11.45)	31 (18.45)	10 (23.81)	24 (19.67)	NS
<b>Barriers to Care<sup>f</sup></b>					
Stigma subscale	2.25 $\pm$ 0.93	2.23 $\pm$ 0.93	2.23 $\pm$ 0.84	2.24 $\pm$ 0.95	NS
Logistical subscale	2.07 $\pm$ 0.83	2.07 $\pm$ 0.82	2.14 $\pm$ 0.81	2.02 $\pm$ 0.95	NS
Total scale score	2.19 $\pm$ 0.84	2.17 $\pm$ 0.80	2.21 $\pm$ 0.68	2.15 $\pm$ 0.94	NS
<b>Devaluation of Consumers scale<sup>g</sup></b>					
	18.65 $\pm$ 3.78	18.37 $\pm$ 4.18	18.90 $\pm$ 4.90	18.96 $\pm$ 4.48	NS

Note. A = Asian American; P = Pacific Islander; H = Hispanic/Black; NS = not significant; W = White; VA = Department of Veterans Affairs.

<sup>a</sup>Thirty-two Hispanic and 11 Black veterans were grouped together.

<sup>b</sup>Pairwise group comparisons were conducted after omnibus tests determined that there were significant group differences. Asian American and Pacific Islander veterans were both treated as reference groups.

<sup>c</sup>The Short-Form 12-Item Health Survey (SF-12) scores range from 0 to 100, with higher scores indicating better health.

<sup>d</sup>Scores for the Posttraumatic Stress Disorder Checklist–Civilian Version (PCL-C) ranged from 17 to 85, with higher scores reflecting greater symptoms.

<sup>e</sup>Scores of 2 or greater on the CAGE screen indicated probable alcohol use problems.

<sup>f</sup>Scores on the Barriers to Care Stigma and Logistical subscales ranged from 1 to 5, with higher scores reflecting greater barriers.

<sup>g</sup>Scores on the Devaluation of Consumer scale ranged from 8 to 32, with higher scores reflecting greater stigma.

seeking mental health services among recent veterans in Hawaii. Across racial/ethnic groups, however, few veterans used professional mental health services despite expressing a need of or desire for such services. Thus, these findings suggest that although there are not any racial/ethnic-specific barriers for AA/PI veterans with respect to mental health services, there remain barriers across racial/ethnic groups. Efforts to reduce stigma and increase access to mental health services should therefore be encouraged. Public and self-stigma reduction strategies could be incorporated into intervention models for veterans to help target perceptions that care use is a sign of weakness, stereotypes about mental illness, self-blame, and uncertainty about symptoms of mental illness and the nature of treatment.<sup>61,62</sup>

In particular, the use of educational materials and personal accounts of veterans, along with public and personal support from military leaders and family members, may help normalize treatment seeking and counteract these barriers to mental health care.

Various studies of AA/Pis in the general population have emphasized the underuse of mental health services and stigma as barriers to mental health care.<sup>19,63</sup> We found that AA/PI veterans did not report greater barriers or stigma, suggesting that veteran status among AA/Pis may be protective against these barriers to care. However, the Perceived Stigma and Barriers to Care Scale used in this study may not be comparable to those used in community surveys because some of the items were specifically related to stigma within the

military. Further research is needed to support the theory that veteran status is protective. AA/PI veterans are all US citizens who have served their country, so they may be different from AA/Pis in the general population in their level of assimilation to US culture and their nativity and generation status, which are related to use of mental health services and stigma regarding their use.<sup>16</sup> Furthermore, many AA/PI veterans presumably have access to VA health care, which may also differentiate them from AA/Pis in the general population, who may experience greater difficulties in accessing affordable mental health care.

### Limitations

This study had several limitations worth noting. Data from both samples were cross-sectional

**TABLE 4—Health Service Use Among Veterans Who Served in the Military After September 11, 2001, by Race/Ethnicity: Hawaii, November 2010–February 2011**

Health Service Use	Asian American (Ref) (n = 230)		Pacific Islander (n = 170)		Hispanic/Black <sup>a</sup> (n = 43)		White (n = 124)	
	No. (%)	AOR (95% CI)	No. (%)	AOR (95% CI)	No. (%)	AOR (95% CI)	No. (%)	AOR (95% CI)
<b>Medical service use</b>								
Needed or wanted help for medical problems	72 (31.44)	1.00	78 (46.43)	1.81 (1.09, 3.00)	24 (55.81)	1.83 (0.78, 4.27)	62 (50.82)	1.63 (0.95, 2.80)
Visited VA for medical problem	27 (11.73)	1.00	31 (18.24)	1.03 (0.48, 2.20)	17 (39.53)	2.21 (0.89, 6.06)	29 (23.39)	1.19 (0.55, 2.57)
Visited non-VA provider for medical problem	38 (16.52)	1.00	40 (23.53)	1.76 (1.00, 3.12)	15 (34.88)	2.48 (1.04, 5.89)	31 (25.00)	1.19 (0.64, 2.22)
<b>Professional mental health services</b>								
Needed or wanted help for psychological problems	30 (13.57)	1.00	46 (28.05)	2.26 (1.03, 4.94)	18 (42.86)	3.53 (1.16, 10.76)	28 (23.53)	1.73 (0.72, 4.13)
Visited VA for psychotropic medications	3 (1.30)	1.00	13 (7.65)	8.48 (0.84, 85.85)	5 (11.63)	5.83 (0.51, 66.53)	9 (7.26)	9.14 (0.93, 89.55)
Visited VA for psychotherapy	6 (2.61)	1.00	15 (8.82)	2.90 (0.66, 12.71)	3 (6.98)	0.39 (0.06, 2.71)	11 (8.87)	1.95 (0.44, 8.59)
Used Vet Center	2 (0.87)	1.00	9 (5.29)	9.56 (0.93, 98.36)	3 (6.98)	2.41 (0.19, 30.60)	4 (3.23)	2.15 (0.17, 27.51)
Visited non-VA provider for psychological problems	2 (0.87)	1.00	5 (2.94)	2.20 (0.37, 12.98)	6 (13.95)	7.58 (1.23, 46.59)	6 (4.84)	4.09 (0.74, 22.52)
<b>Informal mental health support</b>								
Visited traditional healer, community elder, or spiritual leader	2 (0.87)	1.00	10 (5.88)	4.19 (0.80, 21.90)	3 (6.98)	2.24 (0.31, 16.33)	6 (4.84)	3.30 (0.59, 18.52)
Attended self-help group	2 (0.87)	1.00	1 (0.59)	0.41 (0.03, 5.83)	1 (2.33)	1.24 (0.08, 19.08)	4 (3.23)	2.50 (0.32, 19.38)
Talked to family or friend for psychological problems	18 (7.83)	1.00	24 (14.12)	1.77 (0.76, 4.10)	14 (32.56)	4.09 (1.44, 11.60)	18 (14.52)	1.80 (0.74, 4.35)

Note. AOR = adjusted odds ratio; CI = confidence interval; VA = Department of Veterans Affairs. Odds ratios were adjusted for income, rural-urban region, VA service connection, deployment status, Short-Form 12-Item Health Survey Mental Component Summary scores, and Posttraumatic Stress Disorder Checklist scores.

<sup>a</sup>Thirty-two Hispanic and 11 Black veterans were grouped together.

and based on self-report. Because the focus was on AA/PI veterans, other racial/ethnic groups were not examined in detail (e.g., Black vs White). The 2010 NSV data were limited to cursory measures of health, and the Hawaii data were limited to veterans who served after September 2001 and lived in Hawaii. Although the sample sizes of AA/PI veterans were larger than those of most previous studies, they were still fairly small, and some of our logistic regression analyses had statistical power to detect only moderate to large differences. Replication of these results is therefore needed. Additionally, AA and PI veterans could not be analyzed separately in the 2010 NSV data because of small numbers, and smaller AA/PI subgroups (e.g., Chinese vs Japanese) could not be examined. Unfortunately, small sample size is a problem that has affected prior studies of AA/PI veterans<sup>3,55</sup> and studies of AA/PIs in the general population.<sup>64,65</sup>

These weaknesses were counterbalanced by the strengths of the study, which were the use of 2 data sources, including nationally representative data and data on a large random

sample of recent AA/PI veterans; fairly consistent findings across samples; the use of several psychosocial and health measures; and the overall contribution about an understudied but rapidly growing segment of the veteran population.

### Conclusions

AA/PIs are a small but fast-growing racial/ethnic group within the veteran population and are more likely to have served in recent conflicts than other veterans. In general, AA/PIs appear to be of higher socioeconomic status and better mental health than veterans of other racial/ethnic groups, although this finding may be specific to AA veterans and not PI veterans. AA and PI veterans used various health services, including VA services, at a rate similar to those of other veterans and did not report greater barriers or stigma related to mental health services, suggesting that veteran status may be protective against some of the barriers to health care found in the general AA/PI population. However, a sizable number of veterans, regardless of race/ethnicity, underused mental

health services and were not aware of VA health care or did not know how to apply for it, suggesting that greater outreach by the military and VA should be encouraged. ■

### About the Authors

Jack Tsai and Robert H. Pietrzak are with the VA Connecticut Healthcare System, West Haven, CT, and the Department of Psychiatry, Yale University School of Medicine, New Haven, CT. Julia M. Whealin is with the VA Pacific Islands Health Care System and the Department of Psychiatry, John A. Burns School of Medicine, University of Hawaii, Honolulu.

Correspondence should be sent to Jack Tsai, PhD, 950 Campbell Ave, 151D, West Haven, CT 06516 (e-mail: Jack.Tsai@yale.edu). Reprints can be ordered at <http://www.ajph.org> by clicking the "Reprints" link.

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### Contributors

J. Tsai conceptualized the study, analyzed the results, and wrote the article. J. M. Whealin and R. H. Pietrzak provided the data and assisted with interpreting the results and writing the article.

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### Human Participant Protection

The study protocol was approved by institutional review boards at the VA Connecticut Healthcare System and the VA Pacific Islands Health Care System.

### References

- Humes KR, Jones NA, Ramirez RR. Overview of race and Hispanic origin: 2010. March 2011. Available at: <http://www.census.gov/prod/cen2010/briefs/c2010br-02.pdf>. Accessed April 20, 2012.
- US Census Bureau. An older and more diverse nation by midcentury [press release]. August 14, 2008. Available at: <http://www.census.gov/newsroom/releases/archives/population/cb08-123.html>. Accessed April 5, 2011.
- Tsai J, Kong G. Mental health of Asian American and Pacific Islander veterans: brief review of an understudied group. *Mil Med*. 2012;177(11):1438–1444.
- Kim C, Sakamoto A. Have Asian American men achieved labor market parity with white men? *Am Sociol Rev*. 2010;75(6):934–957.
- Museus SD, Kiang PN. Deconstructing the model minority myth and how it contributes to the invisible minority reality in higher education research. *New Dir Institutional Res*. 2009;2009(142):5–15.
- Gee GC, Ro A, Shariff-Marco S, Chae DH. Racial discrimination and health among Asian Americans: evidence, assessment, and directions for future research. *Epidemiol Rev*. 2009;31(1):130–151.
- Ng JC, Lee SS, Pak YK. Contesting the model minority and perpetual foreigner stereotypes: a critical review of literature on Asian Americans in education. *Rev Res Educ*. 2007;31(1):95–130.
- Wang Y, Beydoun MA. The obesity epidemic in the United States—gender, age, socioeconomic, racial/ethnic, and geographic characteristics: a systematic review and meta-regression analysis. *Epidemiol Rev*. 2007;29(1):6–28.
- Lauderdale DS, Kestenbaum B. Mortality rates of elderly Asian American populations based on Medicare and Social Security data. *Demography*. 2002;39(3):529–540.
- Low R, Tanjasiri SP. Slowing the epidemic of tobacco use among Asian Americans and Pacific Islanders. *Am J Public Health*. 2003;93(5):764–768.
- Chen MS Jr, Hawks BL. A debunking of the myth of healthy Asian Americans and Pacific Islanders. *Am J Health Promot*. 1995;9(4):261–268.
- Chen MS. Cancer health disparities among Asian Americans. *Cancer*. 2005;104(12 suppl):2895–2902.
- McNeely MJ, Boyko EJ. Type 2 diabetes prevalence in Asian Americans: results of a national health survey. *Diabetes Care*. 2004;27(1):66–69.
- Lasser KE, Himmelstein DU, Woolhandler S. Access to care, health status, and health disparities in the United States and Canada: results of a cross-national population-based survey. *Am J Public Health*. 2006;96(7):1300–1307.
- Ku L, Matani S. Left out: immigrants' access to health care and insurance. *Health Aff (Millwood)*. 2001;20(1):247–256.
- Abe-Kim J, Takeuchi DT, Hong S, et al. Use of mental health-related services among immigrant and US-born Asian Americans: results from the National Latino and Asian American study. *Am J Public Health*. 2007;97(1):91–98.
- Breslau J, Chang DF. Psychiatric disorders among foreign-born and US-born Asian-Americans in a US national survey. *Soc Psychiatry Psychiatr Epidemiol*. 2006;41(12):943–950.
- Yamamoto J. Research priorities in Asian-American mental health delivery. *Am J Psychiatry*. 1978;135(4):457–458.
- Leong FT, Lau AS. Barriers to providing effective mental health services to Asian Americans. *Ment Health Serv Res*. 2001;3(4):201–214.
- Loya F, Reddy R, Hinshaw SP. Mental illness stigma as a mediator of differences in Caucasian and South Asian college students' attitudes toward psychological counseling. *J Couns Psychol*. 2010;57(4):484–490.
- Atkinson DR, Gim RH. Asian American cultural identity and attitudes toward mental health services. *J Couns Psychol*. 1989;36:91–98.
- Griner D, Smith TB. Culturally adapted mental health intervention: a meta-analytic review. *Psychotherapy*. 2006;43(4):531–548.
- Spencer MS, Chen J, Gee GC, Fabian CG, Takeuchi DT. Discrimination and mental health-related service use in a national study of Asian Americans. *Am J Public Health*. 2010;100(12):2410–2417.
- Boscarino J. Current excessive drinking among Vietnam veterans: a comparison with other veterans and non-veterans. *Int J Soc Psychiatry*. 1981;27(3):204–212.
- Koren D, Norman D, Cohen A, Berman J, Klein E. Increased PTSD risk with combat-related injury: a matched comparison study of injured and uninjured soldiers experiencing the same combat events. *Am J Psychiatry*. 2005;162(2):276–282.
- Gamache G, Rosenheck RA, Tessler R. The proportion of veterans among homeless men: a decade later. *Soc Psychiatry Psychiatr Epidemiol*. 2001;36(10):481–485.
- Kang HK, Bullman TA. Risk of suicide among US veterans after returning from the Iraq and Afghanistan war zones. *JAMA*. 2008;300(6):652–653.
- Seal KH, Maguen S, Cohen B, et al. VA mental health services utilization in Iraq and Afghanistan veterans in the first year of receiving new mental health diagnoses. *J Traumatic Stress*. 2010;23(1):5–16.
- Ouimette P, Vogt D, Wade M, et al. Perceived barriers to care among veterans health administration patients with posttraumatic stress disorder. *Psychol Serv*. 2011;8(3):212–223.
- Pietrzak RH, Johnson DC, Goldstein MB, Malley JC, Southwick SM. Perceived stigma and barriers to mental health care utilization among OEF/OIF veterans. *Psychiatr Serv*. 2009;60(8):1118–1122.
- Hoge CW, Castro CA, Messer SC, McGurk D, Cotting DI, Koffman RL. Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *N Engl J Med*. 2004;351(1):13–22.
- National Institute of Mental Health. Army STARRS preliminary data reveal some potential predictive factors for suicide. 2011. Available at: <http://www.nimh.nih.gov/science-news/2011/army-starts-preliminary-data-reveal-some-potential-predictive-factors-for-suicide.shtml>. Accessed July 19, 2011.
- Lester D. Differences in the epidemiology of suicide in Asian Americans by nation of origin. *Omega*. 1994;29(2):89–93.
- Leong FT, Leach MM, Yeh C, Chou E. Suicide among Asian Americans: what do we know? What do we need to know? *Death Stud*. 2007;31(5):417–434.
- Range LM, Leach MM, McIntyre D, et al. Multicultural perspectives on suicide. *Aggress Violent Behav*. 1999;4(4):413–430.
- Saha S, Freeman M, Toure J, Tippens KM, Weeks C, Ibrahim S. Racial and ethnic disparities in the VA health care system: a systematic review. *J Gen Intern Med*. 2008;23(5):654–671.
- Trivedi AN, Grebla RC, Wright SM, Washington DL. Despite improved quality of care in the Veterans Affairs health system, racial disparity persists for important clinical outcomes. *Health Aff (Millwood)*. 2011;30(4):707–715.
- Jha AK, Shlipak MG, Hosmer W, Frances CD, Browner WS. Racial differences in mortality among men hospitalized in the Veterans Affairs health care system. *JAMA*. 2001;285(3):297–303.
- Optenberg SA, Thompson IM, Friedrichs P, Wojcik B, Stein CR, Kramer B. Race, treatment, and long-term survival from prostate cancer in an equal-access medical care delivery system. *JAMA*. 1995;274:1599–1605.
- Taylor AJ, Meyer GS, Morse RW, Pearson CE. Can characteristics of a health care system mitigate ethnic bias in access to cardiovascular procedures? Experience from the military health services system. *J Am Coll Cardiol*. 1997;30(4):901–907.
- Tsai J, Desai MU, Cheng AW, Chang J. The effects of race and other socioeconomic factors on health service use among a nationally representative sample of US veterans. *Psychiatr Q*. 2014;85(1):35–47.
- Tsai J, Radhakrishnan R. Characterizing Asian American and Pacific Islander veterans who use health services. *Mil Med*. 2012;177(1):1–3.
- Appendix B: National Survey of Veterans Detailed Description of Weighting Procedures. Rockville, MD: Westat and Dept of Veterans Affairs; 2010.
- Mangione TW. Mail surveys. In: Bickman L, Rog DJ, eds. *Handbook of Applied Social Research Methods*. Newbury Park, CA: Sage; 1998:399–428.
- Ware JE, Kosinski M, Tuner-Bowker DM, Gandek B. *Version 2 of the SF-12 Health Survey*. Boston, MA: Quality Metric; 2002.
- Weathers FW, Huska JA, Keane TM. *PCL-C for DSM-IV*. Boston, MA: National Center for PTSD, Behavioral Science Division; 1991.
- Ewing JA. The CAGE questionnaire. *JAMA*. 1984;252(14):1905–1907.
- Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA. Psychometric properties of the PTSD Checklist. *Behav Res Ther*. 1996;34(8):669–673.
- Britt TW, Greene-Shortridge TM, Brink S, et al. Perceived stigma and barriers to care for psychological treatment: implications for reactions to stressors in different contexts. *J Soc Clin Psychol*. 2008;27(4):317–335.

50. Brown MC, Creel AH, Engel CC, Herrell RK, Hoge CW. Factors associated with interest in receiving help for mental health problems in combat veterans returning from deployment to Iraq. *J Nerv Ment Dis.* 2011; 199(10):797–801.
51. Pietrzak RH, Johnson DC, Goldstein MB, Malley JC, Southwick SM. Psychological resilience and postdeployment social support protect against traumatic stress and depressive symptoms in soldiers returning from Operations Enduring Freedom and Iraqi Freedom. *Depress Anxiety.* 2009;26(8):745–751.
52. Struening EL, Perlick DA, Link BG, Hellman F, Herman D, Sirey JA. Stigma as a barrier to recovery: the extent to which caregivers believe most people devalue consumers and their families. *Psychiatr Serv.* 2001; 52(12):1633–1638.
53. Fontana A, Ruzek J, McFall M, et al. *The Veterans Affairs Military Stress Treatment Assessment (VAMSTA): A Descriptive and Monitoring Instrument for the Treatment of PTSD and Comorbid Disorders.* Washington, DC: US Dept of Veterans Affairs; 2006:1–62.
54. Faul F, Erdfelder E, Buchner A, Lang AG. Statistical power analyses using G\*Power 3.1: tests for correlation and regression analyses. *Behav Res Methods.* 2009; 41(4):1149–1160.
55. Matsuoka J, Hamada R, Kilauano W, Coalson R. Asian-Pacific American Vietnam veterans: an exploratory study of war-time experiences and post-war adjustment. *J Multicult Soc Work.* 1992;2(4):103–112.
56. Friedman MJ, Schnurr PP, Sengupta A, Holmes T, Ashcraft M. The Hawaii Vietnam Veterans Project: is minority status a risk factor for posttraumatic stress disorder? *J Nerv Ment Dis.* 2004;192(1):42–50.
57. Wong MM, Klingle RS, Price RK. Alcohol, tobacco, and other drug use among Asian American and Pacific Islander adolescents in California and Hawaii. *Addict Behav.* 2004;29(1):127–141.
58. Makimoto K. Drinking patterns and drinking problems among Asian-Americans and Pacific Islanders. *Alcohol Health Res World.* 1998;22(4):270–275.
59. Hsu WC, Boyko EJ, Fujimoto WY, et al. Pathophysiological differences among Asians, native Hawaiians, and other Pacific Islanders and treatment implications. *Diabetes Care.* 2012;35(5):1189–1198.
60. Kanazawa A, White PM, Hampson SE. Ethnic variation in depressive symptoms in a community sample in Hawaii. *Cultur Divers Ethnic Minor Psychol.* 2007; 13(1):35–44.
61. Dickstein BD, Vogt DS, Handa S, Litz BT. Targeting self-stigma in returning military personnel and veterans: a review of intervention strategies. *Mil Psychol.* 2010;22(2):224–236.
62. Greene-Shortridge TM, Britt TW, Castro CA. The stigma of mental health problems in the military. *Mil Med.* 2007;172(2):157–161.
63. Sue S, Yan Cheng JK, Saad CS, Chu JP. Asian American mental health: a call to action. *Am Psychol.* 2012;67(7):532–544.
64. Srinivasan S, Guillermo T. Toward improved health: disaggregating Asian American and Native Hawaiian/Pacific Islander data. *Am J Public Health.* 2000;90(11):1731–1734.
65. Yu ES, Liu WT. US national health data on Asian Americans and Pacific Islanders: a research agenda for the 1990s. *Am J Public Health.* 1992;82(12):1645–1652.