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Psychiatric Disorders and Mental Health Treatment in American Indians and Alaska Natives: Results of the National Epidemiologic Survey on Alcohol and Related Conditions

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Abstract

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Conflict of Interest Statement

On behalf of all authors, the corresponding author states that there are no conflicts of interests.

Ethical Standards Statement

This current study is an analysis of data on American Indian/Alaska Native adults compared to non-Hispanic whites, from a nationally representative sample of the adult population of the US collected in the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). The NESARC derives from data collected by the US Census Bureau, which administered face-to-face interviews under the direction of the National Institute of Alcoholism and Alcohol Abuse (NIAAA), as described in detail elsewhere. The NESARC research protocol and informed consent procedures, received full ethical review and approval from the US Census Bureau and the Office of Management and Budget. Informed consent procedures were followed. All potential respondents were informed in writing about the nature of the survey, the statistical uses of the survey data, that participation was voluntary, and the adherence to Federal laws protecting confidentiality of identifiable survey information. This information was shared and consent obtained prior to any interviews. The authors had no access to raw data and data analysis only involved de-identified data. The original NESARC data was collected following ethical standards initially established in 1964 Declaration of Helsinki and all later amendments as relevant; no medical procedures were involved – only standardized verbal questions congruent with psychosocial psychiatric diagnostic assessments.

Purpose—To examine the prevalence of common psychiatric disorders and associated treatment-seeking, stratified by gender, among American Indians/Alaska Natives and non-Hispanic whites in the United States. Lifetime and 12-month rates are estimated, both unadjusted and adjusted for sociodemographic correlates.

Method—Analyses were conducted with the American Indians/Alaska Native (n=701) and Non-Hispanic white (n=24,507) samples in the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions ([NESARC] n=43,093).

Results—Overall, 70% of the American Indian/Alaska Native men and 63% of the women met criteria for at least one Diagnostic and Statistical Manual-IV lifetime disorder, compared to 62% and 53% of Non-Hispanic white men and women, respectively. Adjusting for sociodemographic correlates attenuated the differences found. Nearly half of American Indians/Alaska Natives had a psychiatric disorder in the previous year; again, sociodemographic adjustments explained some of the differences found. Overall, the comparisons to non-Hispanic whites showed differences were more common among American Indian/Alaska Native women than men. Among those with a disorder, American Indian/Alaska Native women had greater odds of treatment-seeking for 12-month anxiety disorders.

Conclusion—As the first study to provide national estimates, by gender, of the prevalence and treatment of a broad range of psychiatric disorders among American Indians/Alaska Natives, a pattern of higher prevalence of psychiatric disorder was found relative to Non-Hispanic whites. Such differences were more common among women than men. Prevalence may be overestimated due to cultural limitations in measurement. Unmeasured risk factors, some specific to American Indians/Alaska Natives, may also partially explain these results.

Keywords

Psychiatric epidemiology; American Indian or Alaska Native; non-Hispanic whites; DSM-IV disorders; treatment-seeking

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In 2010, 5.2 million individuals in the United States (US) reported their race as American Indian or Alaska Native (AIAN), either alone or in combination with other races; of these, 2.9 million identified as AIAN only [1]. Mental disorders are among the top ten leading causes of Indian Health Service (IHS) hospitalization and ambulatory care visits [2]. Previous research in regional or reservation samples suggest that AIANs have equal or greater prevalence of many psychiatric disorders as other US population samples [3–9]. Although a previous examination of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) data described the comorbidity of nicotine dependence and other psychiatric disorders [10], to date, a focused comparison is lacking of the psychiatric epidemiological patterns of NESARC's AIAN and non-Hispanic white (NHW) samples.

Research on mental health treatment-seeking among AIANs is also limited. In two reservation samples, lifetime treatment-seeking for any mental health and substance use disorder was 24%–31% [3]. There, AIAN men sought treatment for substance use disorders at greater rates and women sought treatment for mood or anxiety disorders at lower rates than general population samples. However, whether those findings generalize to the population of AIANs in the US is undetermined.

Therefore, a lack of information exists for devising and implementing treatment and prevention interventions to improve the mental health of AIANs nationally. The current study helps to address this information gap. In a national sample of AIANs, we present unadjusted and adjusted lifetime and 12-month prevalence of Diagnostic and Statistical Manual, Fourth Edition (DSM-IV) [11] disorders and patterns of treatment-seeking, stratified by gender, and compare these data to NHWs from the same survey.

METHODS

Sample

The 2001–2002 NESARC Wave 1 data derive from a nationally representative sample of the US adult population conducted by the US Census Bureau, which administered face-to-face interviews under the direction of the National Institute of Alcoholism and Alcohol Abuse (NIAAA), as described in detail elsewhere [12]. The NESARC targeted the civilian, non-institutionalized population, 18 years and older, residing in households throughout the 50 states and the District of Columbia. This included persons living in households and noninstitutional group quarters (e.g., boarding houses, shelters). The final sample included 43,093 respondents. Estimates were adjusted to account for oversampling and respondent and household response. Household and person response rates were 89% and 93%, respectively, for a total response rate of 81%. The weighted data were then adjusted using the 2000 Decennial Census, to be representative of the US civilian population for a variety of sociodemographic variables.

Race/ethnicity was determined by questions congruent with the US Census whereby a single classification of race/ethnicity was derived by algorithm. Individuals who reported being Hispanic/Latino were designated as such regardless of race. Among the remainder, those reporting multiple races were assigned a race category in the following order of priority: 1) Black, 2) AIAN, 3) Asian/Native Hawaiian/Pacific Islander, and 4) White [13]. Only AIAN (non-Hispanic) and NHW respondents were included in the present analyses. The weighted NESARC sample was 2.1% AIAN (n=701) and 70.9% NHW (n=24,507).

The research protocol, including informed consent procedures, received full ethical review and approval from the US Census Bureau and the US Office of Management and Budget.

Diagnostic Assessment

All diagnoses, except psychotic disorder, were made according to DSM-IV criteria using the NIAAA Alcohol Use Disorder and Associated Disabilities Interview Schedule-DSM-IV Version (AUDADIS-IV) [14], a reliable and valid fully structured diagnostic interview designed for use by professional interviewers who are not clinicians. Diagnoses included in the AUDADIS-IV can be separated into four main clusters: 1) *substance use disorders* (alcohol abuse/dependence, any drug abuse/dependence, and nicotine dependence); 2) *mood disorders* (major depressive disorder [MDD], dysthymia, and bipolar disorder); 3) *anxiety disorders* (panic disorder, social anxiety disorder, specific phobia, and generalized anxiety disorder); and 4) *personality disorders* (avoidant, dependent, obsessive-compulsive, paranoid, schizoid, histrionic, and antisocial personality disorders). For personality

disorders, diagnoses required long-term patterns of social and occupational impairment, and exclusion of substance-induced cases [5]. Finally, *conduct disorder, pathological gambling*, and *psychotic disorder* were also assessed.

The NESARC assessed the lifetime prevalence of most of these disorders as well as over the prior 12 months. Personality disorders, however, were measured only on a lifetime basis. Due to concerns about the validity of psychotic diagnoses in general population surveys, possible psychotic disorders were indicated by asking respondents if they were ever told by a doctor or other health professional that they had schizophrenia or a psychotic disorder.

The test-retest reliability and validity of AUDADIS-IV measures of DSM-IV disorders have been reported elsewhere [15–20]. Test-retest reliability was good for *MDD* (κ=0.65–0.73) and good to excellent for *substance use disorders* (κ>0.74). Reliability was fair to good for other *mood and anxiety disorders* (κ=0.40–0.60) and *personality disorders* (κ=0.40–0.67) [15, 16, 19, 21].

Mental Health Service Utilization

To estimate rates of mental health service utilization, respondents with psychiatric disorders were classified as receiving treatment if they sought help from a counselor, therapist, doctor, or psychologist; if they were hospitalized for at least one night or visited an emergency room for mental health reasons; or if they were prescribed any medications to improve their mental health. For *substance use disorders*, questions included treatment at a drug detoxification or rehabilitation unit, a methadone program, an employee-assistance program or through family/social services. Treatment utilization questions were disorder-specific with analyses restricted to respondents with the disorder of interest in the time frame under consideration.

Sociodemographic Characteristics

Sociodemographic variables [22] included here are nativity (US or foreign born), age (18–29, 30–44, 45–64, 65 years or older), education (less than high school, high school, at least some college), both individual and family income (<$20,000, $20,000–$34,999, $35,000–$69,999, and ≥$70,000), marital status (married, widowed, never married), residence (both urban versus rural and Census region {Northeast, Midwest, South, or West}), and insurance coverage (private, public, or none). Participant sex was used as a stratification variable.

Statistical analyses

Weighted cross-tabulations were used to calculate prevalence of disorder for both AIANs and NHWs, stratified by gender. A series of logistic regression analyses yielded odds ratios (ORs) indicating associations between race/ethnicity and: (1) sociodemographic characteristics; (2) lifetime and 12-month psychiatric disorders; and (3) lifetime and 12-month mental health service utilization. In these 3 sets of analyses, NHWs served as the reference group. The ORs and adjusted ORs (AORs) between race/ethnicity and both lifetime and 12-month psychiatric disorders are presented. We consider two percentages to be different if the 95% confidence interval (CI) of their OR does not include 1.0. Standard

errors and 95% confidence limits for all analyses were estimated using SUDAAN [23], statistical software that adjusts for the design characteristics of the survey.

RESULTS

Sociodemographic Characteristics (Table 1)

As expected, AIAN men and women reported lower levels of formal education and income than their NHW counterparts, had lower odds of living in the Northeast or Midwest, had higher odds of living in rural areas, and higher odds of having public insurance or being uninsured.

Lifetime Psychiatric Disorders (Table 2)

About 70% of the AIAN men and 63% of the women met criteria for at least one lifetime DSM-IV disorder, compared to 62% and 53% for NHW men and women respectively. Before adjustment for sociodemographic differences, AIAN men and women had higher odds than NHW men and women for all eight disorder clusters (*alcohol use, drug use, mood, anxiety, and personality disorders* as well as the combined categories of *any substance use, any Axis I, and any psychiatric disorder*). Of the 23 individual disorders assessed, the ORs for AIAN men were significantly higher for 8 disorders when compared to NHW men; for women, the ORs for 10 disorders were significantly greater than 1.0.

Significant AORs were found for less than a quarter of the individual diagnoses once sociodemographics were included in the model. AIAN men and women continued to qualify for higher prevalence of *drug dependence* and both *paranoid* and *antisocial personality disorders*. AIAN men also had higher prevalence of *nicotine dependence* and *schizoid personality disorder* while AIAN women had higher rates of *panic disorder*. After accounting for sociodemographic differences, AIAN men continue to qualify for higher prevalence for three of the disorder clusters while the rates for women remained higher for all eight. Prevalence for both AIAN men and women were higher for *any substance use*, *mood*, and *personality disorders*.

Past 12-Month Psychiatric Disorders (Table 3)

Nearly half of AIANs qualified for a psychiatric disorder in the previous year. In unadjusted analyses, higher odds of disorder were found among AIANs relative to NHW's for five of the seven diagnostic clusters in men and all seven clusters in women; among the individual disorders, significant differences were found in a third (5/15) among men and in nearly half (7/15) among women. As with lifetime disorders, accounting for sociodemographic variables altered the pattern of differences found. In adjusted analyses, both AIAN men and women retained higher odds of only *drug dependence* among the 15 individual disorders assessed; the rates for AIAN men were also higher for *nicotine dependence*. Among the seven disorder clusters, both AIAN men and women retained significantly higher odds for *any psychiatric* and *substance use disorders*. Among women, prevalence was higher for *any Axis I* and *drug use disorder* and men had higher odds for *any mood disorder*.

Mental Health Treatment (Table 4)

In the unadjusted analyses both AIAN men and women had higher odds of seeking treatment for a *lifetime alcohol disorder* than their NHW counterparts. AIAN women also had higher odds than NHW women of seeking treatment for *any psychiatric* and *any anxiety disorder* in the past 12 months. In adjusted analyses, no differences for past 12-month and lifetime treatment-seeking were found between AIAN and NHW men. However, AIAN women with an *anxiety disorder* in the past year had twice the odds of seeking treatment than NHW women.

DISCUSSION

These results represent a substantial addition to the epidemiological literature on the prevalence of common psychiatric disorders and associated treatment-seeking patterns among AIANs. Most studies have focused on culturally defined reservation samples [3, 24, 25, 26], using diverse assessment methods. The NESARC data are unique in their ability to examine a heterogeneous sample of AIANs in the context of a national study using a diagnostic instrument with well-established psychometric characteristics, the AUDADIS-IV.

NESARC AIAN sample

Development of a national sample of AIANs is notoriously difficult [27]. The AIAN population is relatively small, geographically dispersed, and culturally diverse. In the 2010 Decennial Census, 2.9 million individuals (0.9% of the U.S. population) identified AIAN as their only race, up from 2.5 million (also 0.9%) in 2000 [28]. A further 2.3 million chose AIAN in combination with at least one additional race; totaling 5.2 million (1.7%) [1]. Furthermore, 23% of those identifying as AIAN alone also endorsed Hispanic/Latino ethnicity [29]. Whereas historically many AIANs resided on reservations, in 2010 fully 78% lived elsewhere, mostly in urban or suburban locales [29]. Still, the AIAN population is more likely than other Americans to live in rural areas, especially in the West. Finally, the cultural diversity represented is immense; currently, the Federal government recognizes 566 tribes and other entities [30].

Heretofore, much research has focused on tribal, typically reservation, samples. This strategy, when well executed, has the advantage of yielding well-defined, if circumscribed, samples that allow for targeted investigations of cultural differences [31]. These NESARC results provide a critical addition to the extant literature. Although whether NESARC AIAN participants resided in reservations is unknown, over 60% were urban residents. With its large sample, NESARC allows us to explore important questions about the distribution and patterns of psychiatric disorder among AIANs. The current study provides an important first step in such a research agenda.

Prevalence

Overall, as reported elsewhere, a pattern of higher DSM-IV prevalence, compared to NHWs, was seen in this AIAN sample. Examining the unadjusted estimates of individual lifetime disorders, we see that the prevalence among AIAN samples was significantly higher for at least one-third (men: 35%, women: 44%) of the 23 individual disorders assessed when

compared to NHWs of the same gender. When the eight disorder clusters are considered (*any psychiatric, Axis I, substance use, alcohol use, drug use, mood, anxiety*, and *personality disorders*), higher prevalence was found in all of these categories for both women and men. Patterns are similar among the 12-month estimates. Significant ORs were again found in over one-third (men: 33%, women: 47%) of the 15 individual disorders assessed. As with lifetime disorders, the pattern of differences was stronger at the cluster level (all seven clusters among women, 5/7 clusters among men with *any alcohol disorder* and *any anxiety disorder* not statistically significant).

When the models were adjusted for sociodemographic characteristics (age, education, income, insurance type, urbanicity, and region), the differences between AIANs and their NHW counterparts were appreciably attenuated. Among the individual lifetime disorders, 22% and 17% of the comparisons between AIAN and NHW men and women, respectively, remained statistically significant. At the cluster level, higher prevalence was found for men in three of the eight categories *(any substance use, mood*, and *personality disorder)*, while the ORs for women remained higher for all eight clusters. As with the lifetime estimates, the 12-month estimates showed fewer significant adjusted comparisons across individual disorders (2/15 for men and 1/15 for women) and disorder clusters (3/7 for men and 4/7 for women). Once again, the differences found were fewer when differences in socioeconomic characteristics were included.

These gender-stratified findings show that, as in most populations, both AIAN and NHW women were more likely to qualify for DSM-IV disorders than their male counterparts. However, gender stratification also reveals that disorder prevalence, particularly among the unadjusted estimates, tends to differ significantly between AIAN and NHW women more frequently than between AIAN and NHW men, thereby calling special attention to AIAN women's mental health.

As we consider type of disorder, other clear patterns emerge. Among *substance use disorders*, both AIAN men and women had higher rates of disorder when compared to NHW men and women. This was particularly true for *drug dependence* (both lifetime and 12-month timeframes and within both the unadjusted and adjusted estimates). By contrast, alcohol use disorder rates were not consistently greater, especially once adjustments for sociodemographic covariates were taken into account. These results, together with others in which AIAN samples are compared to other Americans [3, 26, 32–35], counter the still-pervasive stereotypes about elevated prevalence of alcohol disorder in these populations.

In the NESARC, AIAN men and women had a higher prevalence of *mood disorders* than NHWs. Earlier literature [24, 36–38], using small samples and less well-established measures, typically reported high levels of *MDD* among AIANs. In contrast, the American Indian Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project (AI-SUPERPFP), conducted in two tribal reservations, reported lower prevalence of *major depressive episode (MDE)* compared to the National Comorbidity Survey (NCS) [39]. Detailed comparative analyses indicated that a combination of methodological and cultural factors, the latter varying by tribal group, likely influenced the MDE prevalence rates found in that particular effort [40]. Here, we did not find significantly elevated AORs for the

lifetime or 12-month estimates of any of the four individual mood disorders. Nevertheless, cumulative prevalence resulted in higher odds of *any mood disorder* for all gender-timeframe combinations except for 12-month prevalence among women. Among AIANs, the cultural validity of the common assessment methods of major depression continues to garner the greatest attention among DSM-defined disorders [36, 38, 41]. As with AI-SUPERPFP, further analyses at the symptom level would help elucidate validity issues in the measurement of this common disorder.

The patterns are more complex for other disorders. Both AIAN men and women showed higher prevalence relative to NHWs for unadjusted lifetime *any anxiety disorder* but this was only replicated among women in the 12-month timeframe; higher prevalence of *panic disorder* was found for women in both timeframes. In the adjusted estimates, only *panic disorder* and *any anxiety disorder* were significantly higher among AIANs, and, then, only for the estimates of lifetime disorder among women. Of special note, the NESARC provides heretofore unavailable data about specific disorders. As has been reported previously, *nicotine dependence* was more common among AIANs, especially among men, as would be expected given the high prevalence of tobacco use in this population [42]. Of note, the AIAN participants in the NESARC did not have higher rates of *conduct disorder*, *pathological gambling*, or *psychotic disorder* when compared to NHWs. Perhaps most striking were the higher rates among AIAN men and women for *any lifetime personality disorder*, with both genders more likely to qualify for *paranoid* and *antisocial personality disorder* and men for *schizoid disorder.* Although the AORs were of smaller magnitude than the unadjusted ORs, the patterns of significance persisted after adjusting for sociodemographic variables.

As we consider the implications of these results, understanding the relative strengths of the estimates by timeframe (lifetime vs. 12-month) and statistical controls (unadjusted vs. adjusted for sociodemographic variables) is important. The unadjusted estimates—and perhaps especially the 12-month estimates—are of specific interest to providers and service systems, as an illustration of patterns of presenting needs of their clients. These results underscore that, compared to NHW patients, AIANs are more likely to present with psychiatric disorders, especially *substance use* (including *nicotine dependence*) and *mood disorders. Personality disorders*, as defined by DSM-IV, may also be common. Conversely, public health advocates, public policy developers, and researchers may focus more on the adjusted and, especially, lifetime estimates of disorder. That patterns of disorder vary as a result of sociodemographic characteristics is well known [5, 39, 43, 44]. But the finding that disparities continue to manifest, albeit in an attenuated way, is noteworthy.

Possible explanations for the observed patterns of higher prevalence among AIANs compared to NHWs include cultural limitations of measurement and unmeasured risk factors —both those that are common across populations and those that are specific to AIANs. In terms of measurement, psychiatric epidemiology relies on the use of highly structured interviews wherein carefully constructed questions operationalize DSM criteria. Although test-retest reliability assessments in general population samples provide important data on the consistency with which such questions are answered, often not fully explored is the degree to which such items may demonstrate differential cultural validity. The AUDADIS-IV questions used in the diagnosis of personality disorders suggest that cultural factors [44,

45] may affect the higher estimates found for the AIANs. Included among the questions assessing *antisocial personality disorder*, for example, are: “Have a time (in your life) when you were absent from work or school a lot?”, “More than once quit a job without knowing where you would find another one?”, and “Have a time that lasted at least 1 month when you lived with friends, acquaintances, or relatives because you didn’t really have a place of your own?” Yet, among AIANs, being absent or leaving a job/school abruptly may not reflect impulsive behavior or character pathology, but may rather represent fulfillment of cultural and spiritual obligations related to a sudden death in the family requiring travel back to the home tribal community [46]. Intensely close attachment to even distant kin [47–49] and accompanying spiritual commitments often take precedence over other obligations [46], for AIANs who are grounded in their respective traditional tribal laws. Moreover, the mainstream societal norm of adults living in stable homes separate from their parents as an indicator of emotional maturity may be irrelevant for many AIANs facing a severe generational housing crisis [50, 51]. Intergenerational living patterns may also be a cultural preference—it is common to live with grandparents, aunts, uncles, and extended kin in one home. The *paranoid personality disorder* module contains potentially problematic items as well. Because of experiences of consistent and marked discrimination, AIANs may be more likely than NHWs to endorse questions such as, “Do you spend a lot of time wondering if you can trust your friends or people you work with?” and “Do you often detect hidden threats or insults in things people say or do?” Other minority populations facing discrimination and poverty also fulfill personality disorder criteria more frequently than NHWs [5, 52]. More nuanced cultural assessments are required (e.g., with the help of instruments such as the DSM-5 Cultural Formulation Interview) [53] to make sense of the sociocultural and psychosocial environment in order to contextualize initial diagnostic impressions [54]. Structured interviews typically do not allow for such refinements, thus, caution is required when interpreting such results—at least until further exploration of cultural differences is conducted.

Moreover, important risk factors unmeasured by the AUDADIS-IV, as in most instruments typically used in epidemiological studies, may vary in pervasiveness and distinctiveness among AIANs compared to other Americans. The heightened risk of collective generational and lifespan traumas among AIANs deserves mention [50, 55–58], especially as they increase vulnerability to multiple lifetime disorders through pathways of childhood adversity and negative family environments [59] as well as collective generational adversity. Uniquely, AIANs endured the legacy of federally mandated Indian boarding schools intended to remove children from tribal culture. Physical abuse at these boarding schools included being chained to a bed, incarcerated in cells, and beatings for speaking AIAN languages, torture, and sexual abuse [60]. The cumulative impact of compulsory Indian boarding schools may have negatively influenced the quality of parent-child interactions across generations and contributed to unresolved grief, depression, and increased prevalence of substance abuse [57, 60–62]. The imposition of the reservation system, the loss of sacred lands and decimation of the buffalo, for example, revered and central to identity for many tribes, compounded the pervasive and overwhelming trauma exposure.

Other risk factors are shared with other populations. Ongoing racism, discrimination, high mortality rates, and physical health disparities [2, 50] likely contribute to higher odds of both

lifetime and 12-month mental disorders among AIANs [55, 62–64]. Perceived discrimination is associated with depression, and frequent historical cultural losses are negatively associated with mental health [61, 64–65]. Cumulative adversity, elevated in AIAN communities, may further impact psychological distress [55, 57, 66–68].

These measurement issues and risk factors may help explain the gender differences found. For instance, asking AIAN men questions such as “Do you rarely show much emotion?” and “Do you rarely react to praise or criticism?” may lead to the misinterpretation of traditional cultural higher odds of disorder when compared to NHW women. AIAN women have over twice the odds of being raped, sexually assaulted, or violently attacked than other US women [55, 57, 58, 63, 69]. The degree to which the higher prevalence rates, found here for AIAN women compared to their NHW counterparts, are explained by differential violence exposure is an important avenue of research.

In summary, the results from this national AIAN sample are consistent with earlier studies of reservation and regional populations. Although differences in sociodemographic covariates partly explain these disparities, the importance of cultural limitations in measurement as well as differential risk factors, some quite specific to AIAN populations, deserves further investigation.

Treatment-Seeking

The differences in treatment-seeking were minor compared to those in disorder prevalence. After adjusting for sociodemographic characteristics, AIAN women had twice the odds of NHW women of seeking treatment for 12-month anxiety disorders. This may be explained in part by the high rates of violent trauma exposure among AIAN women [55, 57, 58, 63, 69], which may prompt help-seeking for more acute and recent anxiety symptoms. The patterns reported here are very similar to those seen in reservation samples [3].

Limitations

Some limitations are similar to those of many large-scale surveys. All results are based on self-reported symptoms with the well-known attendant biases. Data collection for this first wave of NESARC took place between 2000 and 2001 using the DSM-IV nosology. No reason exists to anticipate large changes in prevalence over the ensuing period. Yet, as additional data sources become available, especially those using DSM-5, a high priority should be placed on both the replication of these analyses and as well as explorations of the importance of methodological aspects of measurement and the role of additional social and demographic correlates.

Limitations more specific to the AIAN results also deserve mention. Statistical power limited the available inferences. Given the relative sizes of the samples, the standard errors for AIANs were much larger than those for NHWs. This was especially true for the estimates of individual disorder prevalence and treatment-seeking. Furthermore, immense cultural diversity is subsumed under the “AIAN” ethnic gloss [70]; further differentiation would likely have been apparent had tribal affiliation or reservation residence been assessed and the sample size larger. Some limitations to the cultural validity of the personality disorder modules are likely; similar arguments have been made for other disorders,

especially depressive disorders [34, 37–40]. Importantly, posttraumatic stress disorder (PTSD) was not assessed in the Wave 1 NESARC data analyzed here. Other studies have shown elevated rates of trauma and ensuing PTSD among AIANs [55, 57, 66, 68, 71] compared to other Americans. Finally, treatment-seeking measures were limited by the non-inclusion of traditional healers, who are frequent sources of care in AIAN communities [26], and the lack of assessment of duration or quality of care.

Clinical Implications

As clinicians serving AIANs encounter relatively high prevalence of diagnosable disorders, they are urged to keep several issues in mind. First, the higher prevalence found among AIANs is partly explained by sociodemographic differences. On average, compared to NHWs, AIANs are poorer, have less formal education, are more likely to live in rural areas, and are less likely to have private health insurance. Second, clinicians should be culturally aware and employ the DSM-5 Cultural Formulation Interview to increase the validity of the diagnostic process. Understanding the underlying historical and contemporary stresses that impact the lives of those they serve is also critical. Finally, clinicians should build upon the cultural strengths found in AIAN populations, including the incorporation of traditional healing approaches as warranted.

Conclusion

Common psychiatric disorders tend to be more prevalent among the AIAN population when compared to NHWs. This is especially true of AIAN women. While socioeconomic differences account for a substantial portion of the disparities found, clinicians, health systems, public policy experts, and researchers are urged to attend to both cultural issues of measurement and differential risk factors likely affecting the prevalence and patterns of disorders among AIANs. Comprehensive studies with AIANs in diverse regions on prevalence, comorbidity, treatment-seeking, and outcomes would be beneficial. Such research should incorporate consultation with AIAN advisors in developing, contextualizing, and interpreting assessment measures; inclusion of all types of treatment-seeking such as requesting help from traditional healers and ceremonies; and consideration of barriers to treatment access. Increased funding for research on the effectiveness of culturally congruent prevention and intervention approaches addressing behavioral health issues with AIAN communities is warranted.

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Table 1

Sociodemographic Characteristics of American Indian/Alaska Natives and Non-Hispanic whites

	Men (N=11,159)			Women (N=14,049)		
	AIANs[a] (N=314)	NHWs (ref) (N=10,845)	OR	AIANs (N=387)	NHWs (ref) (N=13,662)	OR
	% (SE)	% (SE)	OR (95% CI)	% (SE)	% (SE)	OR (95% CI)
Nativity						
US-born(ref)	96.78 (1.16)	95.45 (0.55)	1.00	96.71(1.22)	94.78 (0.57)	1.00
Foreign-born	3.22 (1.16)	4.55 (0.55)	0.70 (0.36–1.37)	3.29(1.22)	5.22 (0.57)	0.62 (0.29–1.31)
Age (years)						
18–29(ref)	17.53 (2.34)	19.46 (0.48)	1.00	21.29 (2.44)	18.27 (0.46)	1.00
30–44	33.32 (3.25)	30.28 (0.52)	1.22 (0.83–1.79)	32.31 (2.80)	28.54 (0.49)	0.97 (0.69–1.38)
45–64	37.96 (3.43)	33.69 (0.54)	1.25 (0.86–1.83)	30.50 (2.82)	32.27 (0.45)	0.81 (0.57–1.15)
65+	11.20 (1.62)	16.56 (0.42)	0.75 (0.49–1.15)	15.90 (2.14)	20.92 (0.41)	**0.65 (0.44–0.96)**
Education						
< High School	23.70 (3.03)	11.30 (0.45)	**2.86 (1.92–4.25)**	18.47 (2.20)	11.30 (0.35)	**1.88 (1.36–2.59)**
High School	32.74 (2.92)	29.29 (0.74)	**1.52 (1.12–2.08)**	31.26 (2.69)	30.94 (0.56)	1.16 (0.89–1.52)
College(ref)	43.56 (3.57)	59.40 (0.95)	1.00	50.27 (2.91)	57.76 (0.67)	1.00
Individual Income (USD)						
0–19K(ref)	42.22 (3.46)	28.38 (0.68)	1.00	70.05 (2.73)	57.71 (0.73)	1.00
20–34K	25.28 (2.63)	24.36 (0.63)	**0.70 (0.50–0.96)**	15.81 (1.97)	21.23 (0.39)	**0.61 (0.45–0.83)**
35–69K	25.14 (3.06)	31.72 (0.56)	**0.53 (0.37–0.77)**	12.95(1.78)	16.89 (0.49)	**0.63 (0.45–0.88)**
>70K	7.36 (1.65)	15.54 (0.78)	**0.32 (0.19–0.54)**	1.20 (0.62)	4.18 (0.31)	**0.24 (0.08–0.66)**
Family Income (USD)						
0–19K(ref)	28.88 (3.24)	16.17 (0.51)	1.00	36.48 (3.10)	23.55 (0.55)	1.00
20–34K	21.41 (2.59)	18.84 (0.53)	**0.64 (0.43–0.93)**	18.94 (2.26)	19.35 (0.43)	**0.63 (0.46–0.88)**
35–69K	34.64 (3.44)	34.60 (0.63)	**0.56 (0.38–0.82)**	30.54 (3.27)	32.09 (0.47)	**0.61 (0.43–0.87)**
>70K	15.08 (2.45)	30.39(1.03)	**0.28 (0.18–0.43)**	14.04 (2.00)	25.02 (0.76)	**0.36 (0.25–0.53)**
Marital Status						
Married(ref)	64.94 (2.92)	66.37 (0.56)	1.00	60.78 (3.08)	62.12 (0.56)	1.00
Widowed	14.79 (1.93)	12.35 (0.34)	1.22 (0.89–1.69)	24.24 (2.65)	22.95 (0.43)	1.08 (0.80–1.46)
Never Married	20.26 (2.42)	21.28 (0.54)	0.97 (0.70–1.35)	14.99 (2.11)	14.93 (0.42)	1.03 (0.72–1.45)

	Men (N=11,159)			Women (N=14,049)		
	AIANs[a] (N=314)	NHWs (ref) (N=10,845)	OR	AIANs (N=387)	NHWs (ref) (N=13,662)	OR
	% (SE)	% (SE)	OR (95% CI)	% (SE)	% (SE)	OR (95% CI)
Urbanicity						
Urban(ref)	61.83 (4.79)	76.98 (1.73)	1.00	64.12 (4.21)	77.46 (1.72)	1.00
Rural	38.17 (4.79)	23.02 (1.73)	**2.06 (1.42–3.00)**	35.88 (4.21)	22.54 (1.72)	**1.92 (1.34–2.76)**
Region						
Northeast	13.49 (3.36)	20.71 (3.19)	**0.42 (0.25–0.71)**	12.01 (2.60)	20.78 (3.24)	**0.40 (0.24–0.66)**
Midwest	21.26 (3.76)	27.07 (3.05)	**0.51 (0.31–0.82)**	22.90 (3.21)	26.65 (3.07)	**0.59 (0.38–0.93)**
South	35.99 (4.18)	33.35 (2.83)	0.70 (0.46–1.04)	37.53 (4.03)	33.51 (2.90)	0.77 (0.51–1.18)
West(ref)	29.26 (4.11)	18.87 (2.68)	1.00	27.56 (3.76)	19.06 (2.72)	1.00
Insurance						
Private(ref)	60.92 (3.43)	74.11 (0.66)	1.00	55.41 (3.21)	74.00 (0.60)	1.00
Public	16.99 (2.41)	10.06 (0.37)	**2.05 (1.41–2.99)**	21.29 (2.46)	12.10 (0.34)	**2.35 (1.71–3.24)**
No insurance	22.09 (2.84)	15.83 (0.50)	**1.70 (1.19–2.42)**	23.30 (2.51)	13.90 (0.45)	**2.24 (1.64–3.07)**

[a]Abbreviations: AIANs, American Indians/Alaska Natives; OR, Odds Ratio; SE, Standard error; CI, confidence interval

Table 2

Prevalence and Odds Ratios of Lifetime DSM-IV Disorders for American Indian/Alaska Native and Non-Hispanic whites

	Men (N=11,159)				Women (N=14, 049)			
	AIANs[a] (N=314)	NHWs (ref) (N=10,845)	OR	AOR[b]	AIANs (N=387)	NHWs (ref) (N=13,662)	OR	AOR[b]
	% (SE)	% (SE)	OR (95% CI)	OR (95% CI)	% (SE)	% (SE)	OR (95% CI)	OR (95% CI)
Any Psychiatric Disorder	70.09 (2.99)	62.01 (0.85)	**1.44 (1.08–1.90)**	1.27 (0.95–1.69)	62.90 (2.88)	52.86 (0.79)	**1.51 (1.19–1.92)**	**1.41 (1.10–1.80)**
Any Axis I Disorder	69.66 (3.01)	60.19 (0.85)	**1.52 (1.14–2.02)**	1.34 (1.00–1.80)	61.55 (2.92)	50.97 (0.77)	**1.54 (1.21–1.96)**	**1.42 (1.11–1.83)**
Any Substance Use Disorder	63.90 (3.42)	53.33 (0.86)	**1.55 (1.16–2.08)**	**1.37 (1.01–1.86)**	43.95 (3.06)	33.10 (0.63)	**1.58 (1.24–2.02)**	**1.45 (1.13–1.87)**
Any Alcohol Use Disorder	54.66 (3.64)	46.41 (0.87)	**1.39 (1.04–1.86)**	1.29 (0.96–1.73)	32.31 (3.00)	22.65 (0.62)	**1.63 (1.24–2.14)**	**1.58 (1.20–2.08)**
Alcohol Abuse	28.41 (2.98)	27.41 (0.64)	1.05 (0.78–1.42)	1.08 (0.79–1.47)	17.86 (2.34)	13.70 (0.46)	1.37 (0.99–1.90)	1.40 (0.99–1.97)
Alcohol Dependence	26.25 (2.76)	19.00 (0.54)	**1.52 (1.15–2.01)**	1.30 (0.98–1.73)	14.45 (2.51)	8.94 (0.34)	**1.72 (1.14–2.60)**	1.50 (1.00–2.24)
Any Drug Use Disorder	23.40 (2.77)	14.88 (0.49)	**1.75 (1.28–2.38)**	1.39 (0.99–1.96)	13.93 (2.12)	7.89 (0.32)	**1.89 (1.33–2.68)**	**1.58 (1.11–2.25)**
Drug Abuse	15.70 (2.49)	11.50 (0.40)	1.43 (0.98–2.10)	1.16 (0.77–1.74)	7.82 (1.79)	5.87 (0.26)	1.36 (0.82–2.25)	1.20 (0.73–1.99)
Drug Dependence	7.70 (1.69)	3.38 (0.21)	**2.39 (1.49–3.81)**	**1.81 (1.08–3.02)**	6.12 (1.42)	2.02 (0.15)	**3.16 (1.91–5.22)**	**2.19 (1.28–3.73)**
Nicotine Dependence	35.94 (3.37)	22.60 (0.54)	**1.92 (1.44–2.56)**	**1.56 (1.15–2.12)**	25.23 (2.67)	17.83 (0.43)	**1.55 (1.18–2.05)**	1.31 (0.98–1.75)
Any Mood Disorder	22.54 (2.78)	14.69 (0.40)	**1.69 (1.22–2.34)**	**1.42 (1.02–1.97)**	33.57 (2.68)	24.27 (0.54)	**1.58 (1.24–2.00)**	**1.43 (1.12–1.81)**
Major Depressive Disorder	15.07 (2.51)	10.02 (0.33)	**1.59 (1.06–2.39)**	1.39 (0.93–2.08)	22.90 (2.41)	18.80 (0.43)	1.28 (0.98–1.68)	1.23 (0.93–1.62)
Bipolar I	5.97 (1.30)	3.18 (0.19)	**1.93 (1.21–3.10)**	1.50 (0.92–2.44)	6.31 (1.46)	3.43 (0.22)	**1.90 (1.13–3.18)**	1.42 (0.86–2.35)
Bipolar II	1.07 (0.55)	1.01 (0.12)	1.06 (0.37–3.06)	0.93 (0.32–2.70)	2.94 (1.11)	1.24 (0.11)	**2.40 (1.08–5.35)**	1.84 (0.80–4.25)
Dysthymia	3.13 (1.09)	2.28 (0.15)	1.39 (0.67–2.88)	1.16 (0.55–2.44)	7.04 (1.22)	4.65 (0.21)	**1.55 (1.06–2.27)**	1.38 (0.94–2.03)
Any Anxiety Disorder	18.50 (2.54)	13.75 (0.46)	**1.42 (1.01–2.00)**	1.25 (0.89–1.75)	31.10 (2.90)	22.77 (0.57)	**1.53 (1.17–1.99)**	**1.40 (1.08–1.82)**
Panic Disorder	3.94 (1.07)	3.96 (0.22)	0.99 (0.56–1.76)	0.84 (0.47–1.47)	14.76 (2.39)	7.49 (0.28)	**2.14 (1.45–3.14)**	**1.88 (1.28–2.77)**
Social Anxiety Disorder	6.25 (1.36)	4.63 (0.25)	1.37 (0.85–2.20)	1.13 (0.70–1.82)	10.74 (1.96)	6.28 (0.29)	**1.80 (1.19–2.72)**	1.46 (0.96–2.23)
Specific Phobia	7.86 (1.80)	6.62 (0.33)	1.20 (0.73–1.99)	1.06 (0.64–1.76)	15.75 (2.21)	12.93 (0.42)	1.26 (0.90–1.75)	1.13 (0.81–1.58)
Generalized Anxiety Disorder	4.59 (1.31)	3.21 (0.22)	1.45(0.81–2.61)	1.16 (0.65–2.05)	7.79 (1.66)	5.90 (0.28)	1.35 (0.84–2.15)	1.24 (0.78–1.97)
Conduct Disorder	3.49 (1.62)	1.42 (0.15)	2.51 (0.95–6.66)	2.44 (0.91–6.53)	0.93 (0.46)	0.58 (0.08)	1.60 (0.56–4.53)	1.51 (0.53–4.35)
Pathological Gambling	0.36 (0.26)	0.59 (0.09)	0.62 (0.14–2.71)	0.60 (0.13–2.71)	0.19 (0.15)	0.17 (0.04)	1.07 (0.20–5.71)	0.65 (0.13–3.31
Psychotic Disorder	0.31 (0.19)	0.26 (0.07)	1.16 (0.33–4.15)	0.62 (0.17–2.34)	0.46 (0.33)	0.29 (0.06)	1.60 (0.36–7.14)	1.22 (0.27–5.62)
Any Personality Disorder	27.59 (2.83)	15.62 (0.50)	**2.06 (1.54–2.75)**	**1.74 (1.28–2.36)**	21.01 (2.71)	13.75 (0.42)	**1.67 (1.20–2.31)**	**1.43 (1.03–1.99)**
Avoidant Personality Disorder	3.00 (0.97)	1.91 (0.17)	1.59 (0.80–3.16)	1.01 (0.48–2.11)	4.45 (1.00)	2.94 (0.19)	1.54 (0.96–2.48)	1.12 (0.68–1.85)
Dependent Personality Disorder	0.44 (0.31)	0.39 (0.09)	1.13 (0.25–5.15)	0.50 (0.10–2.50)	0.55 (0.33)	0.65 (0.08)	0.84 (0.24–2.93)	0.59 (0.16–2.10)

	Men (N=11,159)				Women (N=14, 049)			
	AIANs[a] (N=314)	NHWs (ref) (N=10,845)	OR	AOR[b]	AIANs (N=387)	NHWs (ref) (N=13,662)	OR	AOR[b]
	% (SE)	% (SE)	OR (95% CI)	OR (95% CI)	% (SE)	% (SE)	OR (95% CI)	OR (95% CI)
Obsessive-Compulsive Disorder	11.16 (2.06)	8.40 (0.33)	1.37 (0.89–2.11)	1.28 (0.81–2.03)	8.88 (1.70)	8.18 (0.33)	1.09 (0.72–1.67)	1.02 (0.66–1.58)
Paranoid Personality Disorder	11.34 (1.90)	3.29 (0.23)	**3.76 (2.49–5.69)**	**2.66 (1.67–4.24)**	10.03 (1.63)	4.02 (0.23)	**2.66 (1.84–3.85)**	**2.02 (1.36–3.01)**
Schizoid Personality Disorder	8.14 (1.89)	2.90 (0.21)	**2.96 (1.75–5.02)**	**2.45 (1.43–4.19)**	4.63 (1.29)	2.67 (0.17)	1.77 (0.97–3.22)	1.42 (0.79–2.56)
Histrionic Personality Disorder	2.31 (0.69)	1.80(0.16)	1.29 (0.68–2.47)	0.98 (0.49–1.94)	2.46 (0.81)	1.70 (0.13)	1.46 (0.73–2.92)	1.22 (0.58–2.55)
Antisocial Personality Disorder	14.25 (2.32)	5.64 (0.29)	**2.78 (1.89–4.10)**	**2.03 (1.33–3.08)**	5.55 (1.46)	1.74 (0.13)	**3.31 (1.85–5.93)**	**2.28 (1.24–4.21)**

[a] Abbreviations: AIANs, American Indians/Alaska Natives; OR, Odds Ratio; AOR, Adjusted Odds Ratio; SE, Standard error; CI, confidence interval

[b] Adjusted for age, education, individual income, family income, urbanicity, and region.

Table 3

Prevalence and Odds Ratio of 12-month DSM-IV Disorders for American Indian/Alaska Natives and Non-Hispanic whites

	Men (N=11,159)				Women (N=14,049)			
	AIANs[a] (N=314)	NHWs (ref) (N=10,845)	OR	AOR[b]	AIANs (N=387)	NHWs (ref) (N=13,662)	OR	AOR[b]
	% (SE)	% (SE)	OR (95% CI)	OR (95% CI)	% (SE)	% (SE)	OR (95% C)I	OR (95% CI)
Any psychiatric diagnosis	50.88 (3.20)	37.87 (0.74)	**1.70 (1.32–2.19)**	**1.46 (1.12–1.90)**	46.55 (3.10)	35.73 (0.69)	**1.57 (1.23–2.00)**	**1.37 (1.07–1.75)**
Any Axis I Disorder	41.50 (3.26)	31.76 (0.68)	**1.52 (1.16–1.99)**	1.29 (0.97–1.70)	43.44 (3.04)	31.19 (0.64)	**1.69 (1.33–2.16)**	**1.46 (1.14–1.87)**
Any Substance Use disorder	35.69 (3.37)	24.50 (0.60)	**1.71 (1.28–2.29)**	**1.44 (1.05–1.97)**	25.24 (2.70)	16.68 (0.44)	**1.69 (1.27–2.24)**	**1.39 (1.04–1.87)**
Any Alcohol Use Disorder	15.85 (2.33)	12.86 (0.43)	1.28 (0.89–1.83)	1.20 (0.84–1.71)	8.67 (1.98)	5.29 (0.25)	**1.70 (1.03–2.80)**	1.58 (0.95–2.62)
Alcohol Abuse	7.47 (1.65)	7.45 (0.33)	1.00 (0.61–1.64)	1.04 (0.63–1.72)	4.18 (1.25)	2.92 (0.19)	1.45 (0.78–2.70)	1.44 (0.76–2.73)
Alcohol Dependence	8.38 (1.84)	5.41 (0.26)	1.60 (0.99–2.59)	1.34 (0.82–2.20)	4.49 (1.32)	2.37 (0.16)	**1.94 (1.04–3.62)**	1.63 (0.87–3.06)
Any Drug Use Disorder	5.57 (1.38)	2.70 (0.20)	**2.13 (1.24–3.64)**	1.54 (0.85–2.78)	4.30 (1.26)	1.22 (0.12)	**3.64 (1.88–7.03)**	**2.62 (1.32–5.19**
Drug Abuse	4.16 (1.20)	2.16 (0.16)	**1.97 (1.05–3.69)**	1.45 (0.72–2.90)	2.57 (1.05)	0.99 (0.11)	**2.64 (1.09–6.37)**	1.82 (0.76–4.34)
Drug Dependence	3.03 (1.13)	0.79 (0.11)	**3.91 (1.77–8.67)**	**2.83 (1.16–6.90)**	2.24 (0.86)	0.32 (0.05)	**7.09 (3.04–16.52)**	**4.79 (1.90–12.10)**
Nicotine Dependence	26.38 (3.35)	15.70 (0.46)	**1.92 (1.37–2.71)**	**1.49 (1.03–2.15)**	20.20 (2.37)	12.95 (0.39)	**1.70 (1.27–2.28)**	1.35 (1.00–1.81)
Any Mood Disorder	11.85 (2.29)	6.48 (0.25)	**1.94 (1.24–3.02)**	**1.58 (1.02–2.44)**	16.22 (1.97)	10.61 (0.36)	1.63 (1.20–2.21)	1.34 (0.99–1.83)
MDD	7.56 (2.02)	3.70 (0.20)	**2.13 (1.18–3.83)**	1.77 (1.00–3.12)	10.11 (1.65)	7.22 (0.27)	1.44 (0.99–2.10)	1.27 (0.87–1.84)
Bipolar I	3.71 (1.14)	1.86 (0.14)	**2.03 (1.05–3.89)**	1.52 (0.77–2.98)	2.84 (0.83)	2.22 (0.17)	1.29 (0.69–2.42)	0.88 (0.45–1.72)
Bipolar II	0.58 (0.42)	0.59 (0.09)	0.99 (0.22–4.39)	0.98 (0.21–4.53)	1.89 (0.84)	0.64 (0.08)	**2.96 (1.15–7.66)**	2.11 (0.80–5.55)
Dysthymia	0.54 (0.31)	0.91 (0.10)	0.60 (0.19–1.87)	0.46 (0.15–1.43)	3.49 (0.85)	1.87 (0.15)	**1.90(1.12–3.20)**	1.60 (0.93–2.73)
Any Anxiety Disorder	10.41 (1.89)	8.16 (0.33)	1.31 (0.87–1.97)	1.10 (0.71–1.68)	19.72 (2.48)	14.97 (0.47)	**1.40 (1.02–1.91)**	1.21 (0.89–1.66)
Panic disorder	2.67 (0.88)	1.46 (0.13)	1.85 (0.92–3.72)	1.54 (0.74–3.22)	6.43 (1.56)	3.18 (0.17)	**2.10(1.24–3.53)**	1.70 (0.97–2.97)
Social Anxiety Disorder	1.84 (0.75)	2.27 (0.16)	0.81 (0.35–1.89)	0.65 (0.27–1.55)	5.13 (1.34)	3.69 (0.21)	1.41 (0.81–2.46)	1.13 (0.64–1.99)
Specific Phobia	5.73 (1.52)	4.89 (0.26)	1.18 (0.67–2.10)	1.03 (0.57–1.85)	10.41 (1.80)	9.94 (0.37)	1.05 (0.71–1.55)	0.92 (0.63–1.36)
Generalized Anxiety Disorder	1.46 (0.59)	1.39 (0.12)	1.05 (0.47–2.35)	0.72 (0.33–1.59)	3.72 (1.11)	2.92 (0.18)	1.28 (0.69–2.41)	1.08 (0.58–2.01)
Pathological Gambling	0.22 (0.22)	0.20 (0.04)	1.09 (0.14–8.51)	1.07 (0.13–8.55)	0.05 (0.05)	0.09 (0.03)	0.57 (0.07–4.68)	0.36 (0.04–3.23)
Psychotic Disorder	0.31 (0.19)	0.29 (0.07)	1.05 (0.29–3.76)	0.57 (0.15–2.11)	0.62 (0.37)	0.34 (0.06)	1.86 (0.53–6.58)	1.45 (0.39–5.37)

[a] Abbreviations: AIANs, American Indians/Alaska Natives; OR, Odds Ratio; AOR, Adjusted Odds Ratio; SE, Standard error; CI, confidence interval

[b] Adjusted for age, education, individual income, family income, urbanicity, and region.

Table 4

Prevalence of mental health service utilization by American Indian/Alaska Natives and Non-Hispanic whites

	Men (N=11,159)				Women (N=14,049)			
	AIANs (N=314)	NHWs (ref) (N=10,845)	OR	AOR[b]	AIANs (N=387)	NHWs (ref) (N=13,662)	OR	AOR[b]
	% (SE)	% (SE)	OR (95% CI)	OR (95% CI)	% (SE)	% (SE)	OR (95% CI)	OR (95% CI)
Past-year treatment-seeking for any disorder[c]	16.79 (3.69)	13.16 (0.55)	1.33 (0.78–2.26)	0.99 (0.54–1.79)	34.91 (4.39)	26.32 (0.78)	**1.50 (1.02–2.22)**	1.35 (0.91–2.01)
Lifetime treatment-seeking for any disorder[d]	29.00 (3.11)	26.36 (0.65)	1.14 (0.84–1.55)	0.97 (0.70–1.35)	51.99 (3.74)	45.45 (0.71)	1.30 (0.95–1.77)	1.24 (0.91–1.68)
Past-year treatment-seeking for alcohol disorder[e]	8.01 (3.27)	4.97 (0.56)	1.66 (0.66–4.16)	0.81 (0.27–2.47)	8.82 (5.41)	4.46 (0.88)	2.07(0.52–8.32)	1.06 (0.21–5.24)
Lifetime treatment-seeking for alcohol disorder[f]	17.46 (3.30)	11.57 (0.51)	**1.62 (1.01–2.60)**	1.16 (0.68–1.98)	16.84 (4.62)	7.81 (0.52)	2.39(1.21–4.72)	1.60 (0.85–3.01)
Past-year treatment-seeking for drug disorder[g]	7.39 (7.09)	10.98 (1.78)	0.65 (0.08–5.31)	0.23 (0.02–3.16)	18.69 (10.53)	15.38 (3.30)	1.26(0.28–5.61)	1.06 (0.20–5.78)
Lifetime treatment-seeking for drug disorder[h]	8.30 (3.36)	13.73 (1.03)	0.57(0.23–1.40)	0.50 (0.20–1.28)	17.65 (4.98)	12.77 (1.16)	1.46(0.71–3.01)	0.94 (0.40–2.23)
Past-year treatment-seeking for mood disorder[i]	32.19 (10.02)	34.51 (1.90)	0.90(0.35–2.29)	0.93 (0.38–2.32)	49.15 (7.55)	48.79 (1.64)	1.01 (0.55–1.88)	1.04 (0.53–2.01)
Lifetime treatment-seeking for mood disorder[j]	46.34 (6.59)	54.68 (1.42)	0.72(0.42–1.22)	0.76 (0.44–1.33)	78.67 (4.42)	70.10 (0.90)	1.57 (0.92–2.69)	1.72 (0.99–2.98)
Past-year treatment-seeking for anxiety disorder[k]	18.10 (6.96)	21.15 (1.50)	0.82(0.32–2.15)	0.71 (0.28–1.80)	49.35 (6.40)	28.61 (1.11)	**2.43 (1.45–4.09)**	**2.21 (1.27–3.83)**
Lifetime treatment-seeking for anxiety disorder[l]	24.87 (5.83)	31.15 (1.35)	0.73(0.39–1.37)	0.64 (0.34–1.19)	41.05 (5.50)	39.03 (0.91)	1.09 (0.69–1.72)	1.07 (0.67–1.71)

[a] Abbreviations: AIANs, American Indians/Alaska Natives; OR, Odds Ratio; AOR, Adjusted Odds Ratio; SE, Standard error; CI, confidence interval

[b] Adjusted for age, education, individual income, family income, urbanicity, region and insurance.

[c] Among those with a past year diagnosis of: any alcohol disorder, any drug disorder, nicotine dependence, MDD, dysthymia, bipolar disorder, panic disorder, social anxiety disorder, specific phobia, or GAD.

[d] Among those with a lifetime diagnosis of: any alcohol disorder, any drug disorder, nicotine dependence, MDD, dysthymia, bipolar disorder, panic disorder, social anxiety disorder, specific phobia, or GAD.

[h] Among those with a lifetime diagnosis of drug abuse/dependence

[i] Among those with a past-year diagnosis of MDD, dysthymia, or bipolar disorder

[j] Among those with a lifetime diagnosis of MDD, dysthymia, or bipolar disorder

[k] Among those with a past-year diagnosis of panic disorder, social anxiety disorder, specific phobia, or GAD.

[l] Among those with a lifetime diagnosis of panic disorder, social anxiety disorder, specific phobia, or GAD.