Introduction: Psychological distress (PD) is a risk indicator for common mental health disorders in a community, and it is widely used in population health and epidemiological studies.\textsuperscript{1–3} It is defined as a set of painful mental and physical symptoms that are associated with normal fluctuations of mood in most people. In some cases, however, psychological distress may indicate the beginning of major depressive disorder, anxiety disorder, schizophrenia, somatization disorder, or a variety of other clinical conditions. It is assessed by many putative self-report measures of depression and anxiety.\textsuperscript{4}

The prevalence of PD has remained stable in the United States for the last two decades.\textsuperscript{5–7} Recent studies reported a mean prevalence of serious PD in the range of 2.6% to 3.6%,\textsuperscript{5–7} whereas the prevalence of moderate PD was reported as 15.1%.\textsuperscript{6}

PD is influenced by a multitude of factors that could act as risk factors for PD\textsuperscript{8–15} or protective against PD.\textsuperscript{16–24} The risk factors for PD include chronic health conditions and demographic characteristics such as age, sex, education, income, and race/ethnicity. Understanding the factors associated with PD is crucial for developing effective prevention and intervention strategies.
The protective factors include high education, high income, employment status, high social support, health insurance, and physical activities that are associated with lower PD. Immigration status may also act as a protective factor (healthy immigrant effect), suggesting that first-generation immigrants usually have better physical and mental health than the natives of host countries.

Variations in PD across different racial and ethnic groups are of particular interest because of systematic differences in factors that may protect against PD or increase the risk of PD. Racial minorities experience varying levels of stress exposure, but have abilities and resources to cope with them. For example, racial/ethnic minorities can face additional stressors such as perceived racism, stigmatization, and discrimination that can increase the risk of PD. On the other hand, one’s racial/ethnic identity itself may be used as a coping factor, which in turn may become a protective factor against PD.

While education, income, employment, old age, male sex, and social support are well-documented protective factors across all racial/ethnic groups, chronic diseases and disability explain the differences in the prevalence of PD among racial/ethnic groups. However, the degree of protection and magnitude of risk may vary across racial/ethnic groups. For example, the effect of chronic diseases in developing PD is highest among Native Americans, Blacks, and Hispanics. In comparison, the least impact of chronic diseases is seen among non-Hispanic Whites (NHWs) and Asian Americans. Moreover, studies show that differences in PD persist even after controlling for the risk and protective factors for racial/ethnic groups.

Most studies on PD, by race/ethnicity, focus on NHWs, African Americans, or Hispanics. Even when other racial/ethnic minorities are examined, the studies combine the racial groups. Researchers generally combined all the Asian American ethnicities into one group (e.g., Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese), whereas research shows challenges in grouping all the Asian American ethnicities together due to their disparate socioeconomic status. Existing studies have generalized the cultural background of Asian Americans and treated them as one racial group. One recent study examined PD among the racial subgroups of Asian Americans. This study observed that despite some shared cultures, the Asian races are culturally diverse, and PD among these subgroups can be significantly different. However, it only included Chinese, Filipino, Vietnamese, Korean, and Japanese Asian American groups and did not include Asian Indians. Besides, this study included data from only one U.S. state.

Asian Indians compose 19% of the Asian American population in the United States. Asian Indians have characteristics that serve as protective factors against PD. For instance, Asian Indians in the United States have high educational attainment, lower unemployment, lower poverty rate, and higher social support through marriage than the general population. Studies have also shown that Asian Indians retain a strong culture, ethnic identity, and traditional family structure at home while adapting to the U.S. culture and propriety outside the home.

Besides the protective factor, Asian Indians are exposed to multiple risks that could lead to PD. For instance, the Asian Indian population in the United States is younger, reports a high incidence of discrimination, and has a high prevalence of chronic diseases, such as diabetes and coronary heart disease, and perceived discrimination for accessing health care services. Existing literature shows that Asian Indians have several protective and risk factors that could help them cope or develop/exaggerate PD. No study has evaluated PD in Asian Indians in the United States. Thus, the objective of this study is to assess PD in the Asian Indian population and compare it with the NHW population in the United States using nationally representative data.

**Methods**

**Study design**

This study used a cross-sectional design using National Health Interview Survey (NHIS) data from 2012 to 2017. The study was performed using NHIS public-use files consisting of deidentified data, hence it does not require ethics committee approval.

**Data source**

NHIS is an annual cross-sectional survey designed to monitor the health of the civilian noninstitutionalized population of the United States. It is conducted by the National Center for Health Statistics and was initiated in 1957. The NHIS collects data on topics related to demographics, health insurance, health care access, health care utilization, health conditions, and behavioral risk factors.
In this study, we used the core survey—household, family, and sample adult components. The sample design involves multistage clustering, stratification, oversampling of specific groups, and use of survey weights to adjust for nonrespondents.

Study sample
Our study sample consisted of all NHWs and Asian Indian adults (age ≥ 18 years) who responded to the sample adult survey and did not have any missing value on the PD measure, as defined by the six-item Kessler (K6) scale. We pooled NHIS data from 2012 to 2017 to ensure an adequate sample size for the Asian Indian subgroup.

The steps for the study sample selection are described in Appendix Figure A1. The final sample consisted of 126,835 participants (2,218 Asian Indians and 124,617 NHWs).

Measures
Dependent variable: moderate–serious nonspecific PD.

The topic of PD was introduced into the survey in 1997.56 NHIS uses the K6 questions, commonly known as the K6 scale, to identify PD. This scale was developed by Kessler et al. for use in the core survey of the NHIS.56 The scale measures nonspecific PD rather than disorder-specific distress. The K6 scale in the NHIS contains six questions about the participant’s mental state in the last 30 days. These questions asked subjects how often (in the last 30 days) they felt sad, nervous, restless/fidgety, hopeless, everything was an effort, and worthless. These items are rated on a five-point Likert scale from “none of the time” (response = 0) to “all of the time” (response = 4), with the summary score ranging from 0 to 24.

Conventionally, the K6 scale uses the cutpoint score of K6 ≥ 13 to identify serious PD. Prochaska et al. determined and validated the subthreshold cutpoint to distinguish between no or low distress (K6 < 5), moderate distress (5 ≥ K6 < 13), and serious distress (K6 ≥ 13).57 Due to the low prevalence of serious PD, the added moderate threshold in the K6 scale helps to identify participants with significant, but not serious, PD.

In this study, we used the K6 scale score of ≥ 5 as a dependent variable to identify the sampling population with moderate–serious PD. We combined the two cutpoints due to the low prevalence of serious PD, especially considering the smaller sample size of the Asian Indian population in the United States.

Key independent variable: Asian Indians versus NHWs.

Race/ethnicity was used as a key independent variable and classified as NHWs and Asian Indians to assess moderate–serious PD between the two groups. Participants were categorized as NHWs and Asian Indians based on their responses to the NHIS questions on (1) origin (Hispanic, Latino, or Spanish origin) and (2) race.

Individuals who responded no to the first question and selected White for race were categorized as NHWs. Individuals who responded no to the first question and selected Asian American and the subcategory Asian Indian for the second question were categorized as Asian Indians. In this study, we used only the Asian Indian race as a key independent variable as PD in people of other races and ethnicities, including Asian Americans and their subgroups, has been studied.17,20,21,24,58

Other independent variables.

For the other independent variables, we used the individual characteristics that are known to be associated with PD based on published literature.17,59–66 We used biological factors such as age (18–39, 40–49, 50–64, or ≥ 65 years) and sex (male and female). Marital status was used to determine the respondent’s social support. Socioeconomic status was determined using education level, employment status, and income level. For determining access to health care, we used insurance status (insured and not insured).

We also included the number of chronic diseases and conditions as no diseases, one disease, and two or more diseases. We used the race-adjusted body-mass index (BMI) to account for differences in the classification of overweight and obesity in Asian Indians and NHWs, as recommended by the World Health Organization guidelines.67 Physical exercise and activity were recorded as daily, weekly, monthly, or never.

The existing literature shows a bidirectional relationship of PD and behavioral characteristics, such as between smoking and PD62–64 as well as between alcohol use and PD.65,66 We included participants’ smoking status (never, past, or current smoker) and their alcohol use status (never, past, or current alcohol user) to observe the effects of these behaviors on PD. The geographical region (Northeast, Midwest, South, and West) and the NHIS (2012–2017) were used as external factors.

Statistical analyses

Unadjusted differences in moderate–serious PD between NHWs and Asian Indians were examined using the Rao–Scott chi-square test. Multivariable logistic regression was used to examine the association...
between race/ethnicity and moderate–serious PD. In the regression model, independent variables were added in sequential blocks to observe their effect on the dependent variable.

The first model was the unadjusted model with only race/ethnicity as an independent variable. In model 2, we added biological factors, age and sex, to the unadjusted model. In model 3, we added education as it is highly protective against PD. In model 4, we added the rest of the protective factors observed in the literature, which include marital status, socioeconomic status, health insurance, and physical activity. In model 5, we included the risk factors for PD, which included race-adjusted BMI, number of chronic diseases, and participants’ smoking and alcohol use status. In model 6, we added geographical regions and NHIS years.

Parameter estimates from regression were transformed to odds ratios (ORs) and their confidence intervals were determined at 95%. The statistically significant level was set at \( p \leq 0.05 \). All analyses incorporated the strata and weights provided by the NHIS to account for the complex survey design. All analyses were performed using SAS 9.4 (SAS Institute, Inc.).

**Results**

**Sample characteristics**

Based on the study criteria, data on 2,218 Asian Indians and 124,617 NHWs were analyzed. About half were women (51.4%) and younger than 50 years (50.1%). The majority were married (63.8%), with more than high school education (66.9%), were employed (60.1%), and had health insurance (91.2%). Nearly one in three (62.5%) reported at least one chronic condition. Appendix Table A1 describes the characteristics of the sample in detail.

**Description of characteristics of Asian Indians and NHWs**

We found that a high percentage of the Asian Indian population was younger (74.2% participants were < 50 years old) compared with NHWs (49.6% participants were < 50 years old). In comparison with NHWs, Asian Indians reported a higher percentage of marriage (77.1% vs. 63.6%), college education (73.20% vs. 34.5%), employment (68.50% vs. 60%), and income above 400% Federal Poverty Level (FPL) (54.40% vs. 42.9%).

The prevalence of chronic diseases was significantly higher in NHWs compared with Asian Indians as 63.1% NHWs reported one or more chronic diseases, whereas only 38.5% of Asian Indians reported one or more chronic diseases. Similarly, NHWs showed a higher prevalence of current smoking status (17.7% vs. 4.8%) and alcohol use (69.9% vs. 44.1%). A higher percentage of Asian Indians were obese compared with NHWs (48% vs. 28%).

Table 1 describes differences in demographics, lifestyle, socioeconomic status, behavioral characteristics, and health status by race/ethnicity.

Table 2 describes differences in demographics, lifestyle, socioeconomic status, behavioral characteristics, and health status by the prevalence of moderate-serious psychological distress.

**Unadjusted and adjusted associations of Asian Indian ethnicity with PD**

Based on the K6 scale, 19.7% of the sample reported moderate–serious PD, whereas 3.4% of the sample reported serious PD. The ORs and adjusted odds ratios (AORs) from multivariable logistic regression determining the association of race/ethnicity with moderate–serious PD are shown in Table 3. In the unadjusted model (model 1), Asian Indians were less likely to have moderate–serious PD compared with NHWs (OR = 0.50; 95% CI: 0.42–0.58).

After controlling for biological factors, the adjusted odds ratio of moderate–severe PD in Asian Indians was further reduced (AOR = 0.46; 95% CI: 0.39–0.54). Education was highly protective against PD; when controlling for education in model 3, the difference in the likelihood of moderate–serious PD in Asian Indians reduces, but still remains significantly lower in Asian Indians compared with NHWs (AOR = 0.57; 95% CI: 0.49–0.68).

In model 5, after controlling for all the known risk and protective factors and behavioral characteristics (smoking and alcohol use), moderate–serious PD among Asian Indians remained statistically significantly lower compared with NHWs (AOR = 0.72; 95% CI: 0.61–0.85). In the fully adjusted model 6 (not shown in Table 3), Asian Indians were significantly less likely to have PD than NHWs (AOR = 0.7; 95% CI: 0.59–0.82).

**Discussion**

In this study, we examined the association of Asian Indian ethnicity with PD by comparing Asian Indians with NHWs. Our study shows that even after controlling for the relevant risk and protective factors related to PD, Asian Indians showed a lower prevalence of the disease than NHWs. In our study, the prevalence of moderate–serious PD was 19.7%, similar to the
Table 1. Description of Sample by Racial/Ethnic Characteristics of Adults (≥18 Years) Using the National Health Interview Survey, 2012–2017

| Sample characteristics | NHWs | Asian Indians |
|------------------------|------|--------------|
|                        | N (124,617) | N (2,218) |
| Moderate–serious PD (K6 ≥ 5) | <0.001 | 25,827 | 2,677 |
| Moderate–serious PD | No PD | 98,790 | 1,951 |
| Serious PD (K6 ≥ 13) | No PD | 120,064 | 2,187 |
| Age in years | Women | 67,514 | 1,000 |
| 18–39 | Men | 57,103 | 48.0 |
| 40–49 | 37,116 | 2,132 |
| 50–64 | 34,458 | 2,088 |
| ≥ 65 | 35,087 | 2,275 |
| Marital status | Married | 65,643 | 1,509 |
| Widowed, separated, or divorced | 34,578 | 160 |
| Never married | 24,165 | 546 |
| Education | Less than high school | 10,812 | 93 |
| College | 11,954 | 173 |
| College | 34,627 | 11.3 |
| Poverty status | < 100% Federal Poverty Level (FPL) | 13,384 | 247 |
| 100 to < 200% | 19,619 | 235 |
| 200 to < 400% | 34,177 | 404 |
| ≥ 400% | 47,614 | 544 |
| Employment | Employed | 70,578 | 1,544 |
| Unemployed | 53,989 | 673 |
| Health insurance | Insured | 113,558 | 2,029 |
| Uninsured | 10,722 | 182 |
| Physical activity/exercise | Daily exercise | 8,572 | 59 |
| Weekly | 44,802 | 950 |
| Monthly, yearly, or never | 67,424 | 1,089 |
| Unable to exercise | 2,862 | 5 |
| Race-adjusted BMI | Underweight and normal weight | 44,386 | 707 |
| Overweight | 41,677 | 466 |
| Obese | 34,932 | 1,020 |
| No. of chronic diseases | No | 42,419 | 1,425 |
| One | 29,672 | 460 |
| Two or more | 52,510 | 333 |
| Smoking status | Never smoker | 67,551 | 1,915 |
| Past smoker | 34,176 | 172 |
| Current smoker | 22,617 | 126 |
| Alcohol use | Never drinker | 18,199 | 1,057 |
| Former drinker | 19,942 | 112 |

Table 1. (Continued)

| Sample characteristics | NHWs | Asian Indians |
|------------------------|------|--------------|
|                        | N (124,617) | N (2,218) |
| Current drinker | 85,464 | 1030 |
| Region | Northeast | 22,515 |
| Midwest | 33,088 | 385 |
| South | 39,520 | 727 |
| West | 29,494 | 616 |
| NHIS year | 2012 | 20,767 |
| 2013 | 20,119 | 394 |
| 2014 | 22,360 | 389 |
| 2015 | 20,359 | 394 |
| 2016 | 22,727 | 341 |
| 2017 | 18,285 | 296 |

Based on 124,617 NHWs and 2,218 Asian Indians (age ≥ 18 years); cross-sectional data of NHIS participants (Asian Indians or NHWs), from multiple years (2012 through 2017), who participated in the sample adult core and did not have missing data on the PD scale. Numbers may not add up to the total in each group due to missing data for marital status, education, employment, poverty status, health insurance, physical activity, BMI, smoking status, and alcohol use. BMI, body–mass index; K6, six-item Kessler; FPL, Federal Poverty Level; NHIS, National Health Interview Survey; NHWs, non-Hispanic Whites; PD, psychological distress.

18.2% combined moderate and serious PD reported separately by Mojtabai and Jorm using NHIS data from 2001 to 2012.6

We also found the prevalence of serious PD from 2012 to 2017 at 3.4%, which was similar to that reported by other national studies using NHIS data. For instance, Mojtabai and Jorm and Tomitaka et al. reported serious PD at 3.1% from 2001 to 2012,6,7 and CDC reported serious PD at 2.6% to 3.6% from 1997 to 2017.68

The multivariable logistic regression analysis showed that Asian Indians were less likely to report moderate–serious PD compared with NHWs. The prevalence of moderate–serious PD was 11% in Asian Indians compared with 19.9% in NHWs. As this is the first study to examine PD among Asian Indians in the United States, we do not have any published studies for comparison.

However, our findings of PD in Asian Indians are consistent with those of other Asian racial groups in the United States. For instance, Kim et al.,21 the CDC,68 and Bratter and Eschbach24 reported a lower PD score in Asian Americans than NHWs. The major difference between these studies and our study is that they either incorporated all Asian races/ethnicities in one group or did not include Asian Indians in their studies.

The lower prevalence in Asian Indians could be explained by high socioeconomic status, which acts as
Table 2. Description of Sample by the Prevalence of Moderate–Serious Psychological Distress in Adults (≥18 years) Using the National Health Interview Survey, 2012–2017

| Race/ethnicity       | Moderate-serious PD | No moderate-serious PD |
|----------------------|---------------------|------------------------|
|                      | N (26,094) Wt. %    | N (100,741) Wt. %      | p          |
| Asian Indians        | 25,827 19.9         | 98,790 80.1            | <0.001     |
| NHWs                 | 267 11.0            | 1,951 89.0             | <0.001     |
| Age in years         |                     |                        |            |
| 18 to 39             | 8,722 21.8          | 29,726 78.2            | <0.001     |
| 40 to 49             | 4,242 21.4          | 14,116 78.6            |            |
| 50 to 64             | 7,705 20.2          | 27,061 79.8            |            |
| 65                   | 5,425 14.6          | 29,838 85.4            |            |
| Marital status       |                     |                        | <0.001     |
| Married              | 11,250 16.7         | 55,902 83.3            |            |
| Widower, separated, or divorced | 8,689 25.7 | 26,049 74.3 | |
| Never married        | 6,115 24.3          | 18,596 75.7            | <0.001     |
| Education            |                     |                        | <0.001     |
| Less than high school | 3,331 29.8         | 7,574 70.2             |            |
| High school          | 7,134 22.2          | 24,188 77.8            |            |
| Some college         | 9,147 21.7          | 31,511 78.3            | <0.001     |
| College              | 6,404 13.8          | 37,238 86.2            | <0.001     |
| Poverty status       |                     |                        | <0.001     |
| <100% FPL            | 5,317 38.4          | 8,314 61.6             |            |
| 100 to <200%         | 6,005 30.4          | 13,849 69.6            |            |
| 200 to <400%         | 6,982 20.6          | 27,599 79.4            |            |
| ≥400%                | 6,360 13.1          | 42,413 86.9            |            |
| Employment           |                     |                        | <0.001     |
| Employed             | 12,420 16.3         | 59,702 83.7            |            |
| Unemployed           | 13,668 24.8         | 40,994 75.2            |            |
| Health insurance     |                     |                        | <0.001     |
| Insured              | 22,689 18.7         | 92,898 81.3            |            |
| Uninsured            | 3,340 29.9          | 7,564 70.1             |            |
| Physical activity/exercise |       |                        | <0.001     |
| Daily exercise       | 1,584 17.4          | 7,147 82.6             |            |
| Weekly               | 7,491 15.7          | 38,261 84.3            |            |
| Monthly, yearly, or never | 15,664 22.1 | 52,867 77.9 | |
| Unable to exercise   | 1,185 43.2          | 1,682 56.8             |            |
| Race-adjusted BMI    |                     |                        | <0.001     |
| Underweight and normal | 8,815 18.9 | 36,278 81.1 | |
| Overweight           | 7,827 17.7          | 34,316 82.3            |            |
| Obese                | 8,705 23.1          | 27,247 76.9            |            |
| No. of chronic diseases |                   |                        | <0.001     |
| No                   | 6,686 12.1          | 37,158 87.9            |            |
| One                  | 5,849 17.6          | 24,283 82.4            |            |
| Two or more          | 13,588 25.0         | 39,285 75.0            |            |
| Smoking status       |                     |                        | <0.001     |
| Never smoker         | 6,993 41.9          | 9,007 58.1             |            |
| Past smoker          | 6,847 24.8          | 27,501 75.2            |            |
| Current smoker       | 7,631 29.2          | 15,112 70.8            |            |
| Alcohol use          |                     |                        | <0.001     |
| Never drinker        | 3,572 14.2          | 15,684 85.8            |            |
| Former drinker       | 5,292 18.7          | 14,762 81.3            |            |
| Current drinker      | 17,030 66.4         | 69,464 33.6            |            |

Table 2. (Continued)

|                  | Moderate-serious PD | No moderate-serious PD |
|------------------|---------------------|------------------------|
|                  | N (26,094) Wt. %    | N (100,741) Wt. %      | p          |
| Region           |                     |                        |            |
| Northeast        | 4,583 17.8          | 18,422 82.2            | <0.001     |
| Midwest          | 6,738 20.4          | 26,735 79.6            |            |
| South            | 8,131 19.1          | 32,116 80.9            | <0.001     |
| West             | 6,642 21.6          | 23,468 78.4            |            |
| NHIS year        |                     |                        | <0.001     |
| 2012             | 3,727 16.6          | 17,444 83.4            |            |
| 2013             | 4,443 20.6          | 16,070 79.4            |            |
| 2014             | 4,466 18.3          | 18,283 81.7            |            |
| 2015             | 4,417 20.5          | 16,336 79.5            |            |
| 2016             | 4,914 20.4          | 18,154 79.6            |            |
| 2017             | 4,127 22.0          | 14,454 78.0            |            |

Based on 124,617 NHWs and 2,218 Asian Indians (age ≥18 years); NHIS participants (Asian Indians or NHWs), from multiple years (2012 through 2017), who participated in the sample adult core and did not have missing data on the PD scale. Statistically significant differences in characteristics by Asian Indian and NHW status were tested with Rao–Scott chi-square tests. Numbers may not add up to the total in each group due to missing data for marital status, education, employment, poverty status, health insurance, physical activity, BMI, smoking status, and alcohol use. FPL, Federal Poverty Level.

We observed that even after controlling for established protective and risk factors, Asian Indians were less likely to have moderate–severe PD. We speculate that this can be explained by many factors that we did not control for in the study. For instance, Asian Indians have high expectations regarding education and success, collectivism, and a strong cultural continuity in their community.70–73 Asian Indians also preserve a strong ethnic identity and traditional family structure, pay more attention to parenting, and reinforce their high achievements on children.70,71,74–76 Moreover, Asian Indians have a dense social network and derive high social support from their family, relatives, and community.77 These strong cultural/ethnic identity and social support characteristics among
Table 3. Unadjusted and Adjusted Odds Ratios and 95% Confidence Intervals from Multivariable Logistic Regression Determining the Association of Race/Ethnicity with Moderate–Serious Psychological Distress in Adults (≥18 years) Using the National Health Interview Survey, 2012–2017

| Model 1: unadjusted Moderate–serious PD | Racial/ethnic categories | UOR | 95% CI | Sig |
|--------------------------------------|--------------------------|------|--------|-----|
| Asian Indians                        |                          | 0.50 | 0.42–0.58 | *** |
| NHWs (reference group)               |                          |      |         |     |

| Model 2: controlling for sex and age Moderate–serious PD | Racial/ethnic categories | AOR | 95% CI | Sig |
|--------------------------------------------------------|--------------------------|------|--------|-----|
| Asian Indians                                         |                          | 0.46 | 0.39–0.54 | *** |
| NHWs (reference group)                                |                          |      |         |     |

| Model 3: controlling for sex, age, and education | Racial/ethnic categories | AOR | 95% CI | Sig |
|--------------------------------------------------|--------------------------|------|--------|-----|
| Asian Indians                                     |                          | 0.57 | 0.49–0.68 | *** |
| NHWs (reference group)                            |                          |      |         |     |

| Model 4: controlling for sex, age, education, marital status, socioeconomic status, health insurance, and physical activity | Racial/ethnic categories | AOR | 95% CI | Sig |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------|------|--------|-----|
| Asian Indians                                                                                                           |                          | 0.54 | 0.46–0.64 | *** |
| NHWs (reference group)                                                                                                  |                          |      |         |     |

| Model 5: controlling for sex, age, education, marital status, socioeconomic status, health insurance, physical activity, race-adjusted BMI, number of chronic diseases, smoking, and alcohol use status | Racial/ethnic categories | AOR | 95% CI | Sig |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------|------|--------|-----|
| Asian Indians                                                                                                           |                          | 0.72 | 0.59–0.82 | *** |
| NHWs (reference group)                                                                                                  |                          |      |         |     |

Based on 124,617 NHWs and 2,218 Asian Indian adults (age ≥ 18 years); cross-sectional data of NHIS participants (Asian Indians or NHWs), from multiple years (2012 through 2017), who participated in the sample adult core and did not have missing data on the PD scale. Statistically significant differences in characteristics by Asian Indian and NHW status were tested with Rao–Scott chi-square tests. *0.01 ≤ p < 0.05; **0.001 ≤ p < 0.01; and ***p < 0.001.

AOR, adjusted odds ratio; UOR, unadjusted odds ratio; CI, confidence interval.

Our study concludes that Asian Indians are less likely to report PD compared with NHWs. The lower prevalence of distress is attributed to higher socioeconomic status and lower prevalence of chronic diseases. We recommend that mental health practitioners and future researchers should understand the distinctive characteristics and diversity of Asian Americans and other racial minority groups in the United States to better serve these populations.

Conclusions

Our study concludes that Asian Indians are less likely to report PD compared with NHWs. The lower prevalence of distress is attributed to higher socioeconomic status and lower prevalence of chronic diseases. We recommend that mental health practitioners and future researchers should understand the distinctive characteristics and diversity of Asian Americans and other racial minority groups in the United States to better serve these populations.

Authors’ Contributions

Z.A.S. was involved in conceptualization, methodology, statistical analysis, writing—original draft, writing—review, and editing. U.S. was involved in conceptualization, methodology, statistical analysis, writing—review, and editing. Both the authors revised and approved the final article.

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Appendix follows —

### Abbreviations Used

- **ALM**: average life expectancy
- **AA**: African American
- **AOR**: adjusted odds ratio
- **BMI**: body mass index
- **CI**: confidence interval
- **K6**: six-item Kessler scale
- **CIH**: California Indigenous Health
- **NHIS**: National Health Interview Survey
- **NHWR**: non-Hispanic White
- **OR**: odds ratio
- **PD**: psychological distress
- **UOR**: unadjusted odds ratio

*Appendix follows →*
Appendix Figure A1. Study sample selection: National Health Interview Survey, 2012–2017. K6, six-item Kessler; NHWs, non-Hispanic Whites.
## Appendix Table A1. Description of Sample Characteristics of Non-Hispanic White and Asian Indian Adults (≥ 18 Years) Using the National Health Interview Survey, 2012–2017

| Sample characteristics                      | N = 126,835 | Wt. % 100.0 |
|--------------------------------------------|-------------|-------------|
| Moderate–serious PD (K6 ≥ 5)               |             |             |
| Moderate–serious PD                        | 26,094      | 19.7        |
| No PD                                      | 100,741     | 80.3        |
| Serious PD (K6 ≥ 13)                       |             |             |
| Serious PD                                 | 4,584       | 3.40        |
| No PD                                      | 122,251     | 96.6        |
| Sex                                        |             |             |
| Women                                      | 68,514      | 51.4        |
| Men                                        | 58,321      | 48.6        |
| Race/ethnicity                             |             |             |
| Non-Hispanic Whites                        | 124,617     | 98.0        |
| Asian Indians                              | 2,218       | 2.0         |
| Age in years                               |             |             |
| 18 to 39                                   | 38,448      | 34.0        |
| 40 to 49                                   | 18,358      | 16.1        |
| 50 to 64                                   | 34,766      | 27.6        |
| ≥ 65                                       | 35,263      | 22.2        |
| Marital status                             |             |             |
| Married                                    | 67,152      | 63.8        |
| Widow, separated, or divorced              | 34,738      | 17.6        |
| Never married                              | 24,711      | 18.5        |
| Education                                 |             |             |
| Less than high school                      | 10,905      | 8.2         |
| High school                                | 31,322      | 24.6        |
| Some college                               | 40,658      | 31.6        |
| College                                    | 43,642      | 33.3        |
| Poverty status                             |             |             |
| < 100% FPL                                 | 13,631      | 8.3         |
| 100 to < 200%                              | 19,854      | 13.6        |
| 200 to < 400%                              | 34,581      | 26.8        |
| ≥ 400%                                     | 48,773      | 43.1        |
| Employment                                |             |             |
| Employed                                   | 72,122      | 60.1        |
| Unemployed                                 | 54,662      | 39.8        |
| Health insurance                           |             |             |
| Insured                                    | 115,587     | 91.2        |
| Uninsured                                  | 10,904      | 8.5         |

(continued)