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NATIVE AMERICANS' EXPERIENCE OF CHRONIC DISTRESS IN THE USA

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ABSTRACT

Four million Native Americans who identify as single race live in the USA. Another three million identify as Native American in combination with another race. Yet they are rarely the focus of detailed research. We provide the first evidence that levels of consistently poor mental health, or chronic distress, among Native peoples were greater in every year between 1993 and 2020 than among White or Black Americans. We find this to be present among those over the age of thirty but less so for the young. Over time we demonstrate there has been a rise in chronic distress among Native Americans and multi-race individuals. However, chronic distress seems to be lowest among Native peoples living in the seven states with the largest Native American populations of Alaska, Arizona, Montana, New Mexico, North Dakota, South Dakota and Oklahoma. In our judgment these facts are important and not widely known. This stands in stark contrast to the enormous scholarly and media interest in declining physiological well-being among White Americans.

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1. Introduction

Modern research has documented rising despair and declining psychological wellbeing among large sections of the United States population. A particular focus has been low-education White Americans. Some of this important empirical work has documented deaths caused by opioids and suicide.¹ A further group of writings has concentrated on measures of psychological ill-health and indirect markers of distress (Barnes et al, 2010).

This paper focuses on a different, and routinely ignored, group of men and women. It is an inquiry into the mental wellbeing of the Native Americans who live in the United States since 1993. In 2019 there were just over four million citizens who identified solely as Native American and nearly seven million in combination with one or more races (Appendix Table A1a). Yet their experiences are rarely included in work by economists and social scientists (Ferguson 2016, Falleti, 2020). As one example, a search on “Native Americans” on the entire history of the Web of Science produces 47 journal articles that are categorized as Economics. The total number of published articles in the Web of Science categorized as Economics is approximately 700,000. A search on the simple term “Americans” produces approximately 16,000 articles in Economics.

This lack of literature among social scientists is somewhat perplexing. Despite the general emphasis on deaths of despair among White Americans, Shiels et al (2017) has shown that between 1999 and 2016, premature mortality among Native Americans increased at almost twice the rate of White Americans with the primary causes being due to ‘deaths of despair’ such as drug poisonings, chronic liver disease and suicide, with the increase in premature deaths during mid-life from similar causes confirmed for the same period by Woolf et al (2018). Han, Cotto, Etz et al (2021) show that non-Hispanic American Indian or Alaska native had the highest rates of

¹ See for example, Case and Deaton (2015, 2017), Meara and Skinner (2015), Roux (2017), Shanahan et al. (2019) and Stein et al. (2017).

increase for methamphetamine overdose in the United States for the period 2011-2018, rising from 5.6 to 26.4 per 1000,000 among men and from 3.6 to 15.6 for women. Non-Hispanic white men saw increases from 2.2 to 12.6 and from 1.1 to 6.2 for white women, with all the other racial gender groups having lower rates. Spillane et al found that from 2000-2016 the age-standardized rate of alcohol-induced deaths among Natives was markedly higher than for any other race or ethnicity (Spillane et al. 2020). The largest increase in the rate of alcohol-induced deaths were observed among American Indian and Alaska Native men (3.3%) and women (4.2%) versus 1.4% and 3.1% overall. Recent data also show that suicide rates have been highest among Native peoples (Curtin 2019). Of note also is that drug poisoning deaths per 100,000 population in 2019 were higher among Natives than any other group.²

Best et al (2018) estimate that from 2017-2030, all-cause premature death rates among Native Americans and Alaska natives saw a 10% increase. However, to our knowledge, a simultaneous rise in physiological pressures that may drive these trends in deaths of despair among Native people and the economic forces that may underlie them have not been demonstrated in the literature. This is the primary contribution of this paper.³

We draw upon a mixture of economic and psychological data and create a measure of persistent, or chronically poor mental health, which we call chronic distress, and then to chart its level through time among particular groups of US citizens and its association with economic factors. To allow comparisons with modern research on White and Black Americans, we pool data from 27 years of the Behavioral Risk Factor Surveillance System survey organized by the

² Miniño and Hedegaard (2021) report that the age adjusted overdose death rates in 2019 were 21.6 for all races; 30.5 for Non-Hispanic American Indian or Alaska Natives; 26.2 for Non-Hispanic whites; 24.8 for Non-Hispanic Blacks; 3.3 for Non-Hispanic Asians; 9.5 for Non-Hispanic Native Hawaiian or Other Pacific Islanders and 12.7 for Hispanics.

³ The current paper might also be seen as a contribution in the spirit of recent work by both Muennig et al. (2018) although that study was not able to include information on Native Americans, and of Pescosolido et al. (2020).

Centers for Disease Control, and also use recent information available from surveys organized by the Gallup Corporation. These data are most comprehensive survey data available on the mental well-being of Native Americans in the United States.

Our primary measure of *chronic distress*, following Blanchflower and Oswald (2020), is whether someone reported that all 30 days out of the last 30 that their mental health was not good, including stress, depression, and problems with emotions. We use this term given recent evidence of the long run consequences of chronic physical and mental pain (Blanchflower and Bryson, 2021a, 2021b). This definition differs from that used by Gagné et al. (2021) who used 15 days or more out of thirty, however, we show below that regardless of the precise cut-off of 15 days or later, Native Americans face consistently higher rates of distress past.

We show that the upward trend in chronically poor mental health among Native Americans is more pronounced than for White Americans. This is also true of those who are classified as other race who have seen a similar rise. This general increase of chronic distress among Native Americans during the 1990s and 2000s may be surprising given the rise of on-reservation Casino gaming during that period. The literature on rise of Casino gaming has found it has had significant positive effects for the regions and people it affects - both physiologically and materially (Akee et al. 2010, Evans and Topoleski 2002).⁴ We will be unable to answer whether an upward trend in distress exists for Native peoples in and outside of reservations given limited data on small-area geography. Less than half of Native peoples live on reservations, so the patterns we observe may be due to people outside of regions that experienced income gains due to gaming (Akee and Taylor 2014). A prior literature has documented differences in the economic conditions and health conditions of Native Americans (Gracey and King 2009, Walls and Whitbeck 2011, Barnes et al.

⁴ However, gaming is associated with increased crime rates (Grinols and Mustrad 2006).

2010). However, to our knowledge, the widening and consistently high levels of chronic distress in the latest era have never been shown previously, nor their correlation with local economic change.

Prior to the COVID pandemic Center for Disease Control also reports that Native peoples have lower self-reported health (Appendix Table A1c). This poor level of health appears to have made Natives especially vulnerable to COVID. Rate ratios for cases, hospitalizations and deaths compared to White, Non-Hispanics are as below. For hospitalizations and deaths, the ratios for Natives were higher than for all other racial groups and were second highest for cases behind Hispanics.

	Natives	Asians	Blacks	Hispanics
Cases	1.6x	0.7x	1.1x	2.0x
Hospitalizations	3.3x	1.0x	2.9x	2.8x
Deaths	2.4x	1.0x	2.0x	2.3x

Source: ‘Risk for COVID-19 Infection, Hospitalization, and Death By Race/Ethnicity’, CDC 17th June 2021.^{5 6}

This paper is not intended as part of a so-called deficit narrative (Tuck 2009). Rather, it is an attempt to constructively refocus research and policy conversations to understand the social forces that have resulted in the rise in distress by highlighting the fact that White Americans are not the most intensely affected. We also provide evidence on what factors may mitigate chronic distress for Native peoples: we offer evidence that U.S. states with large reservation populations exhibit lower levels of extreme distress. The pattern is consistent with recent innovative work by Pescosolido et al. (2020), who argue that social similarity can be psychological protective.

⁵ <https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html>

⁶ However, there is hope. Encouragingly, according to the CDC COVID Daily Tracker as of July 11, 2021, American Indians and Alaska Natives have the highest vaccination rate, with 45.9% having received at least one dose and 39.6% fully vaccinated, followed by with fully vaccinated percentages in parentheses: Asians (37.0%, 35.5%), whites (33.9%, 32.5%), Native Hawaiian/Pacific Islanders (35.9% 31.8%), Hispanic/Latinos (32.4%, 29.0%), and Blacks (26.2%, 23.6%). <https://covid.cdc.gov/covid-data-tracker/index.html#vaccination-demographics-trends>

1. Background and Data

We make use of data from two main sources. First, we pool twenty-seven years of 1993-2019 annual survey data files from the CDC's Behavioral Risk Factor Surveillance System (BRFSS). There are 18,318 observations from the first part of 2020 in the 2019 survey. Second, we examine information from the Gallup Daily Tracker Polls of 2017 and 2018.

The initial data are taken from the Behavioral Risk Factor Surveillance System (BRFSS) from 1993-2020: there are 8,396,204 observations. Information in the survey is collected monthly, by telephone, with a standardized questionnaire and with technical and methodologic assistance from the CDC. The Behavioral Risk Factor Surveillance System (BRFSS) is the nation's premier system of health-related telephone surveys that collect state data about U.S. residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services. Established in 1984 with 15 states, BRFSS now collects data in all 50 states as well as the District of Columbia and three U.S. territories. BRFSS completes more than 400,000 adult interviews each year, making it the largest continuously conducted health survey system in the world. (<https://www.cdc.gov/brfss/index.html>)

The BRFSS data set we use here provides information on over 8 million American citizens, randomly sampled. One valuable BRFSS question asks individuals: *“Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?”* This is the question we exploit. We code people who give the answer *“30 days out of 30”* as being in extreme distress. We make use of data files from 1993 because that is the year a key question on ‘bad mental-health days’ was first asked. Sample sizes increased from around 100,000 annually in 1993 to 450,000 by the end of the years.

Table 1 reports the weighted distribution of responses to the question by five non-Hispanic groups – White, Black, Asian/Pacific Islanders, Native Americans and those identified in the BRFSS as ‘other race’, plus Hispanics. In panel (a) we present the data for the full sample of respondents for all years of data, from 1993-2020. The percentages presented in the first row show the majority of respondents answer that zero of the past thirty days have they experienced “not good” mental health. However, it is also clear from the second to last row of Table 1, panel, that the percentage of people responding that their mental health was “not good” all thirty of the previous thirty days is especially high among Natives.

Table 2 reports the rate of chronic distress of the weighted samples by racial group. It averages 5.1% over the period 1993-2020 and is higher among natives overall, as well as for those with no college education as well as those with some with the distress markedly higher in the former case (10.4%) than in the latter (7.8%). The same is true for the prime age and especially so for the prime age without any college education. As we will show below the gap between natives and other groups has increased over time for the less educated.

Since 2001 the BRFSS also allows us to separate out other races and multi-race groups; the latter group about three times as many observations as the former. This group includes not just Native Americans in combination with other races but other multi-race groups as well. We restrict the sample to be for those with a high-school diploma or less for ages 35-54 to focus on the education and age group most vulnerable to poor mental health. Natives, and other races, and multi-race groups have more than one in ten respondents saying every day in the last thirty, was a bad mental health day.

The US Census Bureau has traditionally undercounted the number of Native peoples (*Native Americans and the US Census: How the count has changed*, USA Facts, US Census

Bureau, November 21, 2019). In the 2010 Census, American Indians and Alaska Natives living on reservations were undercounted by 4.9 percent, compared with a 0.9 percent over-count in 2000. Estimates from the American Community Survey show a rise between 2010 and 2019 of 13.1% of Native Americans of one race alone or in combination (see Appendix Table A1a, Panel A). Of note is that the numbers under 18 grew by 1.6% while those between ages 18 and 64 went up by 13% compared with a growth of 73% for those sixty-five and older. We report these same statistics for those who report solely Native American as their race in Panel B. It does seem then that the rise has been due, at least in part to resolving an undercount of older natives that occurred in 2010 rather than an increase in the number of children.

Estimates on the rise on Native Americans identifying as Native American only grow at slower rates for those under the age of 45 and slightly higher rates above. Again, those over the age of 65 identifying as Native American have increased identification even more quickly than other age groups. However, there is also substantive evidence of ethnic mobility since the 1990s – specifically, there are a non-trivial number of people who identify as Native American in 2000, and 2010, who would not have identified as Native in 1990 (Liebler and Ortyl 2014, Liebler et al. 2016). Given that much of the below analysis focuses on single-race Native Americans and those below the age of 65, increases in identification may be less of a concern for the interpretation of our findings. However, for completeness, we also present the results for those that identify as having multiple races and discuss how ethnic mobility may influence the trends we observe.

In 2019 the Bureau of Labor Statistics, described the labor-force characteristics of the 2.9 million American Indians and Alaska Natives (AIANs) identifying as AIAN alone, aged 16 and over, based on data from the Current Population Surveys from 2016-2018. This information is

reported in Appendix Table A1b. It shows that Natives had lower levels of education and wages than overall.

2. Econometric Results

The paper's principal analytical findings are reported in time-series plots in Figures 1-3 and in regression equations in Tables 3-8 using the BRFSS. Our principal finding is that Natives have higher levels of chronic distress than whites; blacks, Hispanics and Asians controlling for a host of variables as well as cohort and income. We also find they have lower levels of general health as well as higher numbers of bad *physical* health days. In Table 9 we make use of supporting data from Gallup's US Daily Tracker Survey of 2017 that backs up these findings using a variety of well-being measures.

Figure 1 uses the full-sample data from 1993 to 2020. The graph separates citizens into five non-Hispanic racial groups – Whites, Blacks; Asians and Pacific Islanders, other race, Native Americans, plus Hispanics. Perhaps the most striking feature of Figure 1 is that chronic distress is far greater among Native peoples and other races and the gap has risen over time. By 2019 one in eight Native American citizens said that every day of the last month was a bad day for mental health. The proportion was far above the incidence observed among Whites or Blacks. The small differences in distress between White and Black Americans are consistent with the existing literature on mental health and stress in these populations: despite the socio-economic and historical differences between the two groups, black Americans have relatively comparable or better good mental health than White Americans (Neighbors et al. 1983, Riolo et al. 2005, Keyes 2009, Erving 2019). As we note below once controls are included for education or labor market status Blacks have significantly lower levels of persistently poor mental health than Whites.

Figure 2 depicts equivalent data for an important subsample of individuals, namely, those without either a full or partial level of college education. The graph reveals a broadly similar pattern to that of Figure 1. Once again, chronic distress is markedly higher for natives and there is a secular trend upwards for Blacks, Whites, Natives and other races but the series is flat for Hispanics and Asians. A particularly sharp rate of increase is visible among less-educated Native Americans and other races. By the year 2019, Figure 2 shows that approximately one in eight exhibited persistently poor mental health. Figure 3 turns to U.S. citizens with college education, and again the incidence of persistently poor mental health is markedly higher among Native peoples and other races who have seen a rise in the incidence of extreme distress. The rise is much less marked for the other groups.

Figures 1-3 demonstrate a consistently high large difference between the proportion of Native people experiencing chronic distress and a general rise in over time.⁷ Given the shifts in who identifies as Native American over time, how to interpret the rise in persistently poor mental health is an open question: is the rise in distress as due to an increase among people who would have always identified Native or due to people who have more recently connect with their Native ancestry being more likely to have chronically poor mental health? We believe the former interpretation is more likely than the later for at least two reasons. First, we focus on Native Americans who report only a single race and those that report a different race between censuses are much more likely to have multi-racial identities so are more likely to end up in the other race category in the BBRFS than the sole Native American racial identity category (Liebler et al. 2016). Second, proportionately, highly educated adults are more likely to report being Native American when they had not done so previously (Liebler and Ortyl 2014) and much of the growth in the

⁷ Due to small sample sizes in 2020 in these figures combine 2020 data with 2019.

Native population in the past decade has been among older cohorts (see Appendix Table A1a) (Liebler and Ortyl, 2014).

If, on average, individuals who experience chronic distress than the Native population in the 1990s begin to enter the Native population category in survey data, trends in distress will potentially underestimate any rise in chronic distress among Native people who would always identify as Native. Since both the more highly educated and those over the age of 64 experience less chronic distress on average we would expect changes in identification would mitigate the rise observed among Native Americans.

From Figure 3, we can see that those with at least some college have a slightly flatter trend among Native people than those with less education, possibly suggesting the upward trends are muted if there is greater ethnic mobility among the more highly educated. However, regardless of how the trends are interpreted, those who historically and currently identify as Native American have greater levels of average chronic distress than White Americans.

The time-series graphs in Figures 1-3 simply plot the raw data through time. Thus, they do not correct for the potentially different characteristics of different groups of individuals (as shown in Tables 3-7). A first form of such adjustment is provided in Table 3. Here we present results of estimating pooled cross-section time series regression equations with the dependent variable being a dummy variable for whether a respondent reported thirty of the last thirty days were bad mental health days. Each specification includes dummy variables for Natives, other races, Blacks, Asians/Pacific Islanders, and Hispanics with the base category being Whites. A quadratic in age is included, plus a dummy variable for gender and a dummy variable for whether the survey was taken using a cellphone.⁸ We present the coefficients on each of these variables

⁸ The 2011 survey saw a change in weighting methodology and the addition of cell-phone-only respondents, because an increasing number of U.S. citizens were known to be using cell phones. Evaluations conducted by Centers for

with and without controlling personal circumstance and characteristic variables whose summary statistics were presented in Table 2.

In the first column, the coefficient of the Native and other race variables is around 0.037 in both cases, suggesting that Native peoples and those whose race is not captured in the main race categories of the BRFSS, have a 3.7 percentage point higher rate of chronic distress conditional on age, gender, and method the survey was taken. The second column adjusts for a set of controls for labor-market status, level of education, marital status, and state and year dummy variables. Because of the large sample sizes in Table 3, the coefficients are estimated fairly precisely with t-statistics that typically exceed 10. In the second column of Table 3 the highly statistically significant coefficient on Native Americans, is 0.0096 with a t-statistic of more than 15. As the base category is Whites, this implies that after adjustment for the independent variables the level of extreme distress is approximately 1 percentage point higher among Native Americans than among White Americans. The coefficients on the Black and Hispanic variables both switch sign to significantly negative in column 2 from positive in column 1: Asians are negative in both columns. In columns three and four the equations are re-estimated for 2001-2020 separating the other and multi race variables. The multi-race variable has an especially large coefficient of 0.0400 without the set of personal controls and a coefficient of 0.0212 with the personal controls.

An important implication emerges from Table 3. In Table 1 and Figure 1, it was seen that the raw gap between Native Americans and Whites in the incidence of chronically poor mental well-being was slightly over 4 percentage points (that is, comparing 9.1% with 4.8%). Yet in the

Disease Control using 2010 and 2011 BRFSS data indicate that the addition of cellular-telephone-only households improves survey coverage for certain population groups. For example, it was found that the proportion of interviews conducted with respondents with lower incomes, lower educational levels, or are in younger age groups increases, because these groups more often exclusively rely on cellular telephones for personal communications. We include the cellphone indicator to account for any changes or systematic differences between those that use a cellphone and those that do not that may be corrected with race and extreme distress.

adjusted estimates of Table 3 it is only 1 percentage point. This implies that the majority of the raw difference is accounted for by the different underlying circumstances of Natives when compared to Whites. If Native Americans had the same economic and social circumstances as White Americans, the solid line in Figure 1 would in principle lie only slightly above the two dotted lines for other American citizens.

We also experimented with our definition of chronic distress. Below we report the coefficients and t-values on the Native American variable using the specification in column 2 of Table 3 with personal controls and a sample size of 8,384,852 for the period 1993-2020. We vary the number of days so that half of the days are counted as not good mental health days. We then do so another four times as a smaller proportion of the 30 days are included as despair. Below we report the coefficient and t-values from six experiments with the same controls.

15-30 days	.0084 (9.96)
20-30 days	.0098 (13.14)
25-30 days	.0097 (14.30)
28-30 days	.0100 (15.53)
29-30 days	.0099 (15.37)
30 days	.0098 (15.29)

The results tightly cluster around a coefficient of 0.1 so it appears that our results are largely insensitive to changes in definition.

Table 4 repeats the same econometric exercise but adds decade-of-birth cohort dummy variables with the full sample. It does this to try to probe whether successive generations of Native people are enduring lower or higher rates of chronic distress (with no personal controls in column 1, and with them in column 2). The results are largely unchanged, which suggests that any general cohort effects in mental well-being do not explain why Native peoples have higher rates of chronic distress on average. Table 5 does a further check on a sample from 1993-2020 by adding income controls. Column 1 presents the results for all people, and the next two columns split the sample

by sex. Again, natives have significantly higher rates of chronic distress than all other groups. In both of these tables there is a hump-shaped age pattern (plotted in the Appendix, Figure A1), which also holds within each race, consistent with work on representative samples of people in many nations' data, such as recently in Blanchflower (2020, 2021).⁹

Table 6 produces separate estimates by for four age groups. There are large positive and significant coefficients for the three age groups; 35-54; 55-69 and 70+ but not for the youngest age group. For those under thirty the coefficient is significantly lower than for whites although the coefficients on the Black; Hispanic and Asian race variables are all significantly smaller than for Natives . The other race variable though is significantly positive as it is for all four age groups and for all four age groups is significantly higher and hence have higher levels of distress than for Natives.¹⁰

Modern research on despair (which can be viewed as a parallel concept to what we measure here), shaped originally by Case and Deaton's work, has been especially interested in midlife individuals with low levels of education (Case and Deaton 2015, 2017).¹¹ A commonly discussed hypothesis is that poor employment chances have been an important driver of this growth of chronically poor mental health in the United States. Is that true of Native Americans?

To investigate this, Table 7 moves to a fuller set of regression equations for Native Americans who constitute 1% of our weighted sample with 128,000 observations. We present four sets of results restricting the sample to be just Native Americans. In the first column for all Native people; then as we move to the right in column 2 we restrict the sample to high school

⁹ The age maxima are simply obtained by differentiating with respect to age and solving so in column 1 of Table 4 the equation is $.0535 + .0026\text{Age} - .000033\text{Age}^2$. Differentiating wrt age gives a maximum of $.0026/(2*.000033)=39$.

¹⁰ We should be cautious here with the effects over for the oldest age group of seventy and older given Hudomiet et al's (2021) that there is a mortality selection bias in the US is happiness data over the age of seventy.

¹¹ Of note is that Case and Deaton (2020) do not even refer to the experience of Native Americans.

dropouts; then in column 3 to those ages 35-54 and finally in column four for prime age, 35-54, less educated Natives. In each column of Table 7, large effect-sizes are visible from being out of work, from being unable to work, and from a person's level of education. Other background covariates of evident importance in the equations of Table 7 are: being a student, being retired, being divorced or separated, being widowed and being female. All are associated with a higher probability of chronic distress. There is again an inverted U-shape in age maximizing at age 40 consistent with the findings of Blanchflower (2020).¹²

Finally, extreme distress among less-educated Native peoples is *lowest* in states that have the highest percent of Natives Americans. We examined which states had the highest percentage of Native Americans in our data file. The seven states that had the greatest proportion of Native peoples among their population, pooled across the years, were: Alaska 13.0% (with *chronic-distress* 4.4%); Arizona 2.8% (7.4%); Montana 4.5% (7.0%); New Mexico 7.4 (6.9%); North Dakota 3.6% (7.1%); South Dakota 5.4% (6.7%) and Oklahoma 6.9% (8.8%). Here the numbers in parentheses give the proportions of people who reported being in extreme distress among the least educated, with an overall mean of 10.4%.

This pattern, which is suggestive, is consistent with the social similarity thesis put forward by Pescosolido et al (2020) and the strong homophily shown by Marmaros and Sacerdote (2006), Mayer and Puller (2008) and many others.¹³ This network formation literature consistently finds that friendships and networks show strong clustering by race. Our findings on despair and well-being suggest that such homophily has benefits in terms of warding off depression and mortality.

¹² Other tests are included in the Appendix. Table A2, provides BRFSS chronic distress estimates for different time periods, with the first three columns being without personal controls and the last three columns with them. In each case, the coefficient on the Native variable is significant and positive, in part a) overall and in part b) for the prime age.

¹³ Marmaros and Sacerdote (2006) find, in a study of Dartmouth student and recent alumni interactions that physical proximity and racial similarity have positive impacts on whether students react with each other.

While many researchers have discussed the payoffs of having diverse social networks, we show that there are also payoffs to having similar neighbors.

Table 7 documents the conditional difference in chronic distress in these seven states. In all population groups, Native Americans in these seven states experience lower rates of chronic distress relative to other states. Of particular note is the fact that living in one of these states seems to be the most protective for those who are mid-life high school dropouts. For example, while living in Arizona, is associated a roughly 4.57 percentage points lower rate of chronic distress for Native Americans on average (as seen in column 1), living in Arizona is associated with a 12.02 percentage point lower rate of chronic distress for mid-life Native Americans who did not complete high school.

Appendix Table A3 reports regression estimates both for prime age (35-54) and prime age less educated groups examined in Table 7 for all racial groups. Of note is that the Black coefficient is significant and negative in column four for the prime age less educated even without controls. It remains so when controls are added in columns 2 and 4. The latter group -white less educated prime age - has been the particular focus of the literature on deaths of despair. Here it is apparent that chronic distress as measured is not significantly different between Whites and Natives with controls in column 4 who are mid-life without college. It is higher among other races than Whites but lower for Blacks, Hispanics, and Asians.

Table 8 reports equations using two other variables from BRFSS: Q2-Q3, relating to general health and the number of days in the past thirty when their physical health was not good.

The questions used were as follows:

Q2. Would you say that in general your health is — excellent (5; very good (4); good (3); fair (2) or poor (1)? With our coding in parentheses.

Q3. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?

The results are similar to those using chronic distress. Natives have poorer general health and have a higher number of bad physical health days, plus are more likely to say that every day is a bad physical health day than whites, Blacks, Hispanics and Asians. other groups. Separate results are provided with limited controls and then adding personal controls for education, labor force and marital status.

All these kinds of BRFSS equations indicate low wellbeing, among a greater proportion of Native Americans than for other populations in the United States.

To this point the analysis has relied on BRFSS alone. As a robustness check, therefore, we turn to Table 9 using Gallup data for 2017 from the US Daily Tracker Survey. Here the overall sample size, in Table 9 using 2017 data, is approximately 160,000 individuals. Because the survey questions are different from those in BRFSS, the table is not able to estimate exactly the same form of our chronically poor mental health models as in earlier tables. Instead, Table 9 gives regression equations for four other ill-being, or negative affect, dependent variables – pain, stress, worry and depression. These are (1,0) dependent variables relating to 'yesterday'. The question wordings are:

Q5. Did you experience physical pain/worry/enjoyment/stress yesterday? Yes/No

Q6. Depression – do you currently have, or are you currently being treated for depression? Yes/No?

There were also two positive affect variables, enjoyment using the format of Q5 above, plus a life satisfaction question on a scale of 0-10, the so-called Cantril ladder.

Q7. Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?

The substantive implications of Table 9 are consistent with the paper's earlier patterns. The proportion of people with chronic distress are found to be far greater in general among Native American citizens than other individuals in the United States. In each case, Table 9 reveals that, after controlling for a large set of personal variables, the poor mental health-proxy coefficients for American Indians are large.

Some other results on Gallup data, restricted to those age under seventy, are given in the Appendix for 2018 (Appendix Tables A4 and A5). They include whether the respondent feels safe and secure, likes what they do, is satisfied with their standard of living, along with Cantril's ladder, pain, worry and stress again. The results are entirely consistent with the results for 2017 reported in Table 9. The regression results are also consistent with the BRFSS findings.

Even though a large number of independent variables are held constant in the empirical analysis, and various statistical checks are performed, this paper uses observational data. It finds clear patterns, but that does not necessarily identify deep causal mechanisms behind the higher distress among Native peoples. Economic and social circumstances seem, as a matter of statistical association, to explain much of the observed statistical differences by group, but not all of those differences. We view the paper as a contribution towards the longer-run ideal of establishing the true driving forces of distress and perhaps eventually aiding an understanding of the structural changes potentially required in order to address the observed differences in extreme-distress levels within the modern United States.

3. Conclusions

This paper is the first to compare the much-discussed worsening mental well-being of White American citizens with what was experienced by Native American citizens over the same period. The paper draws upon BRFSS data to calculate a measure of chronic distress, from 1993

to 2020, among a randomly selected group of 8 million U.S. citizens. Complementary data from recent Gallup surveys are used.

The main results are as follows.

- (i) In every year since 1993, the level of chronic distress among Native Americans was substantially higher than among White or Black Americans.¹⁴ This was apparent for Natives ages 30 and over but not for the young.
- (ii) Chronic distress was also relatively high among those who identified themselves as having other racial backgrounds. This is important given the rise over time in the proportion of Americans who report they are Native American combined with some other race.
- (iii) The chronic distress gap (illustrated graphically in Figure 1 in the paper) between the groups widened over time. Levels of persistently poor, and chronic, mental health increased fastest among Native peoples.
- (iv) Poor health appears to have made Natives especially vulnerable to COVID. Cases, hospitalization rates and death rates have been higher than whites. The good news is that by the summer of 2021 vaccination rates among Natives are now higher than any other racial group including whites.
- (v) We provide evidence in line with the social similarity hypothesis. Chronic distress is lower among Native American people living in states with the largest Native American populations generally. There are positive payoffs to having similar neighbors.
- (vi) Modern data from Gallup paint an equivalent statistical picture, using other kinds of mental ill-being indicators, including information on feelings of pain and worry. Natives have lower levels of well-being than other groups.

¹⁴ Although this paper is about extreme mental ill-being, and not about deaths per se, it appears that high despair and distress, as with Whites, seems to go with high deaths of despair for Native Americans in the data of Heron (2019).

The broader American public and many academics are often unaware of the experiences of Native peoples. Those experiences demand attention.

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Table 1. Distribution of Bad Mental Health Days (weighted %)

a) All, 1993-2020						
	White	Black	Asian	Native	Hispanic	Other
0	66.3	65.3	69.8	59.9	65.9	58.3
1	3.6	3.1	3.8	3.1	3.2	3.6
2	5.9	5.0	5.8	5.3	5.0	5.7
3	3.3	3.3	3.4	3.1	3.6	3.5
4-9	7.9	8.0	8.2	8.4	8.3	9.2
10-19	5.9	6.7	4.6	7.5	6.2	7.9
20-29	2.2	2.6	1.7	3.6	2.5	3.6
30	4.9	6.0	2.6	9.2	5.3	8.2
Mean	3.4	3.9	2.4	5.2	3.6	5.0
N	6,510,068	666,027	184,844	122,971	638,091	182,901
b) No college prime age (35-54)						
	White	Black	Asian	Native	Hispanic	Other
0	62.7	62.7	72.3	56.8	67.2	55.8
1	2.7	2.7	2.9	2.4	2.8	2.9
2	5.4	4.7	4.4	4.8	4.2	4.9
3	3.1	3.0	2.5	2.6	3.4	3.2
4-9	7.5	7.6	7.1	7.9	7.6	7.9
10-19	7.6	8.1	4.7	8.4	6.2	8.1
20-29	3.4	3.7	2.4	4.2	2.7	5.0
30	8.4	9.1	3.6	12.8	6.0	12.3
Mean	4.7	4.9	2.9	6.6	5.5	6.5
N	651,057	105,070	14,952	22,585	134,714	21,026

Table 2. Distribution of Chronic Distress by race 1993-2020 (weighted)

	All	Non-college	Some college	Age 35-54	Age 35-54 Some college
Whites	4.9	6.6	3.8	5.4	8.1
Blacks	6.0	7.2	4.8	6.6	8.4
Asians	2.6	3.9	2.2	2.5	4.0
Natives	9.2	10.4	7.8	10.7	12.8
Hispanics	5.3	5.6	4.7	5.7	6.1
Other	8.2	9.8	7.0	9.4	12.3

Table 3. Chronic-Distress Equations, 1993-2020

	1993-2020	1993-2020	2001-2021	2001-2021
Natives	.0376 (57.40)	.0096 (15.05)	.0389 (55.69)	.0098 (14.33)
Other races	.0365 (67.47)	.0202 (38.15)	.0275 (25.60)	.0168 (15.98)
Mixed race			.0400 (62.22)	.0212 (33.79)
Blacks	.0059 (19.46)	-.0166 (54.99)	.0058 (17.55)	-.0174 (53.24)
Asians	-.0179 (30.96)	-.0122 (21.74)	-.0189 (30.53)	-.0130 (21.43)
Hispanic	.0070 (20.92)	-.0111 (32.79)	.0062 (17.26)	-.0123 (33.95)
Cell	.0069 (27.42)	.0051 (20.66)	.0070 (27.40)	.0053 (20.98)
Male	-.0155 (98.45)	-.0104 (64.70)	-.0154 (90.65)	-.0103 (59.14)
Age	.0028 (101.53)	.0023 (71.05)	.0018 (77.31)	.0012 (44.36)
Age ² *100	-.0030 (114.52)	-.0030 (94.23)	-.0021 (95.12)	-.0019 (75.29)
Personal controls	No	Yes	No	Yes
Constant	.0054	.0096	-.0422	.0029
Adjusted R ²	.0074	.0563	.0073	.0586
N	8,394,308	8,384,852	7,340,642	7,331,208
Age maximum	47	38	43	32

All equations include state, year controls. Personal controls include education, labor force and marital status controls. Categories of other and refused also included but not reported. Ordinary Least Squares equations. Extreme distress here is measured as those who give the answer 30 to the BRFSS question “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” BRFSS 1993-2020.

Table 4. Chronic-Distress Equations with Cohort Effects, 1993-2020

Natives	.0363 (57.35)	.0097 (15.07)
Other races	.0364 (67.27)	.0202 (38.19)
Blacks	.0059 (19.33)	-.0165 (54.71)
Asians/Pacific Islanders	-.0179 (31.04)	-.0123 (21.77)
Hispanic	.0071 (21.28)	-.0109 (32.47)
Male	-.0155 (98.34)	-.0104 (64.35)
Age	.0031 (60.62)	.0026 (49.66)
Age ² * 100	-.0032 (73.54)	-.0032 (64.59)
Cell	.0057 (23.33)	.0044 (17.05)
Cohort dummies (8)	Yes	Yes
Personal controls	No	Yes
Constant	-.0645	-.0392
Adjusted R ²	.0077	.0564
N	8,394,308	8,384,852
Age maximum	48	41

All equations include state and year dummies; personal controls are, education, labor force and marital status. Ordinary Least Squares equations. BRFSS 1993-2020. Extreme distress here is measured as those who give the answer 30 to the BRFSS question “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?”

Table 5. Chronic-Distress Equations with Adjustment for Household Income, 1993-2020

	All	Males	Females
Natives	.0042 (6.47)	.0037 (4.03)	.0037 (4.03)
Other races	.0175 (32.84)	.0165 (21.89)	.0165 (21.89)
Blacks	-.0208 (67.09)	-.0150 (31.69)	-.0250 (61.18)
Asians/Pacific Islanders	-.0151 (26.21)	-.0095 (12.26)	-.0196 (23.30)
Hispanic	-.0168 (48.42)	-.0106 (21.38)	-.0214 (44.83)
Male	-.0085 (51.12)	n/a	n/a
Age	.0026 (79.80)	.0022 (27.41)	.0033 (72.42)
Age ² * 100	-.0033 (103.20)	-.0027 (38.35)	-.0042 (92.90)
Cell	.0039 (15.50)	.0020 (5.50)	.0050 (14.31)
Income dummies	Yes	Yes	Yes
Constant	.0535	.0524	.0469
Adjusted R ²	.0604	.0581	.0611
N	8,048,237	3,277,416	4,770,821
Age maximum	39	55	39

All equations include state and year dummies; education, labor force and marital status and race refused. Ordinary Least Squares equations. BRFSS 2010-2020. Extreme distress here is measured as those who give the answer 30 to the BRFSS question “*Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?*”

Table 6. Chronic distress equations by age, 1993-2020

	Age 18-34	Age 35-54	Age 55-69	Age 70+
Natives	-.0026 (1.96)	.0079 (7.15)	.01531 (12.13)	.0175 (11.19)
Other races	.0184 (16.82)	.0208 (21.69)	.0232 (22.19)	.0150 (13.34)
Blacks	-.0105 (15.98)	-.0218 (40.61)	-.0224 (38.09)	-.0048 (7.29)
Asians/PI	-.0131 (13.19)	-.0110 (11.56)	-.0100 (7.44)	-.0049 (3.12)
Hispanic	-.0166 (27.09)	-.0133 (22.93)	-.0057 (7.34)	.0044 (4.86)
Male	-.0170 (44.82)	-.0167 (57.38)	-.0081 (26.67)	-.0002 (0.85)
Cell	.0046 (6.68)	.0075 (15.61)	.0027 (6.03)	-.0004 (0.85)
Constant	.0085	.0351	.0576	.0561
Adjusted R ²	.0354	.0834	.0613	.0137
N	1,472,509	2,793,450	2,416,097	1,702,796

Note: equations also include state and year dummies, labor force, marital status and education and full sets of single year of age dummies.

Table 7. Chronic-Distress Equations, 1993-2020, for Natives

	All	HS dropouts	Age 35-54	Age 35-54 & HS dropout
Alaska	-.0592 (7.11)	-.0843 (3.85)	-.0772 (5.37)	-.1682 (4.09)
Arizona	-.0437 (5.02)	-.0566 (2.41)	-.0662 (4.42)	-.1202 (2.77)
Montana	-.0303 (3.62)	-.0570 (2.59)	-.0526 (3.62)	-.1448 (3.50)
New Mexico	-.0325 (3.88)	-.0312 (1.40)	-.0506 (3.50)	-.1237 (2.98)
North Dakota	-.0406 (4.39)	-.0576 (2.27)	-.0538 (3.39)	-.1099 (2.31)
Oklahoma	-.0146 (1.75)	-.0080 (0.36)	-.0329 (2.26)	-.0540 (1.29)
South Dakota	-.0431 (5.22)	-.0639 (2.95)	-.0672 (4.69)	-.1449 (3.60)
Age	.0048 (15.22)	.0061 (7.30)		
Age ² *100	-.0060 (18.10)	-.0077 (9.16)		
Male	-.0166 (10.05)	-.0157 (3.26)	-.0248 (8.88)	-.0205 (2.20)
Cell	.0088 (3.64)	.0194 (2.67)	.0109 (2.55)	.0227 (1.59)
Self-employed	.0109 (3.47)	.0151 (1.54)	.0120 (2.56)	-.0060 (0.38)
Out of work ≥1 year	.0710 (18.22)	.0647 (6.49)	.0902 (4.65)	.0936 (5.45)
Out of work < 1 year	.0383 (10.41)	.0404 (3.94)	.0509 (8.74)	.0482 (2.66)
Homemaker	.0298 (8.67)	.0506 (5.89)	.0283 (5.04)	.0631 (4.03)
Student	.0180 (3.89)	.0429 (2.65)	.0207 (1.95)	.0874 (1.72)
Retired	.0430 (14.17)	.0552 (6.41)	.0442 (4.32)	.0101 (0.29)
Unable to work	.1765 (66.95)	.1558 (22.74)	.2156 (51.11)	.1787 (15.32)
Education Grades 1- 8	-.0563 (2.96)	-.0570 (2.55)	-.0879 (1.91)	-.0896 (1.59)
Grades 9- 11	-.0747 (3.96)	-.0813 (3.66)	-.1304 (2.87)	-.1350 (2.42)
Grade 12/GED	-.0898 (4.78)		-.1409 (3.10)	
College 1-3	-.0851 (4.53)		-.1323 (2.91)	
College 4+	-.0992 (5.27)		-.1485 (3.27)	
Divorced	.0318 (14.11)	.0270 (4.05)	.0333 (9.38)	.0305 (2.59)
Widowed	.0294 (9.81)	.0186 (2.53)	.0528 (7.39)	.0724 (3.62)
Separated	.0528 (12.36)	.0426 (4.11)	.0543 (8.38)	.0432 (2.50)
Never married	.0021 (0.89)	-.0161 (2.31)	-.0024 (0.65)	-.0089 (0.73)
Living together	.0106 (2.75)	-.0056 (0.51)	.0121 (1.91)	-.0022 (0.12)
Constant	.0568	.0459	.2208	.2596
Adjusted R ²	.0625	.0612	.0965	.0843
N	122,751	20,995	46,834	6,540
Age maximum	40	40		

Notes: t-statistics are in parentheses. Extreme distress here is measured as those who give the answer 30 to the BRFSS question “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?” The equations include a full set of state and year dummies and columns 3 include single year of age dummies. Other base categories: employee, Alabama, never attended school/kindergarten; employee; and married. Source: BRFSS

Table 8. OLS General Health, #Bad Physical Health Days– BRFSS, 1993-2020

	<u>General health status</u>		<u>Bad physical health days</u>	
			<u>#days</u>	<u>30/30 bad days</u>
Natives	-.4864 (160.17)	-.2238 (79.95)	.6964 (29.89)	.0155 (21.03)
Other	-.3120 (124.17)	-.1734 (75.04)	.9092 (47.40)	.0195 (32.11)
Blacks	-.3493 (247.77)	-.1437 (108.96)	-.5050 (45.95)	-.0163 (46.76)
Asians/PI	-.1214 (45.05)	-.1797 (72.38)	-.4062 (19.81)	-.0061 (9.48)
Hispanic	-.4846 (311.19)	-.2387 (161.61)	-.1372 (11.20)	-.0051 (13.18)
Age	-.0068 (237.98)	-.0130 (92.60)	.0577 (49.57)	.0011 (31.40)
Age ² * 100	-.0081 (66.06)	.0029 (20.96)	-.0222 (19.27)	-.0000 (0.12)
Male	.0003 (0.42)	-.0382 (54.16)	-.3359 (57.36)	.0032 (17.33)
Cell	-.0538 (45.33)	-.0337 (30.86)	.1779 (19.77)	.0053 (18.60)
Personal controls	No	Yes	Yes	Yes
Constant	4.0153	3.9461	1.1618	.0121
Adjusted R ²	.0796	.2241	.1715	.1171
N	8,656,247	8,646,501	8,355,077	8,355,077

T-statistics in parentheses. All equations include year and state dummies. Personal controls are for education, labor force and marital status. Equations also included race-refused category. General health status 1 "poor" 2 "fair" 3 "good" 4 "very good" 5 "excellent".

Table 9. OLS Well-being equations – US Gallup Daily Tracker, 2017

	Negative affect				Positive affect	
	Pain	Stress	Depression	Worry	Cantril	Enjoyment
American Indians	.0659 (8.73)	.0022 (0.27)	.0329 (5.15)	.0162 (2.05)	-.1688 (5.22)	-.0410 (6.84)
Blacks	-.0312 (8.22)	-.1055 (25.36)	-.0660 (20.51)	-.0706 (17.75)	-.0528 (3.24)	-.0242 (8.01)
Asians	-.0651 (9.27)	-.0764 (9.91)	-.0886 (14.84)	-.0240 (3.25)	-.0695 (2.31)	-.0274 (4.91)
Native Hawaiians	-.0283 (2.26)	-.0871 (6.36)	-.0344 (3.24)	-.0425 (3.25)	.0174 (0.33)	-.0427 (4.30)
Hispanic	-.0317 (6.84)	-.0655 (12.89)	-.0454 (11.55)	-.0192 (3.95)	.1867 (9.38)	-.0327 (8.87)
Age	.0123 (39.00)	-.0015 (4.40)	.0067 (25.09)	.0049 (14.90)	-.0224 (16.58)	-.0050 (19.86)
Age ² * 100	-.0105 (36.95)	-.0030 (9.82)	-.0077 (31.99)	-.0069 (23.04)	.0266 (21.70)	.0052 (22.72)
Male	-.0087 (3.93)	-.0754 (30.76)	-.0709 (37.36)	-.0704 (30.03)	-.1308 (13.65)	-.0026 (1.48)
Constant	.0321	.6610	.2043	.3414	6.8773	.8483
Adjusted R ²	.0570	.0597	.0644	.0345	.0742	.0345
N	159,979	159,992	159,907	160,017	159,576	159,774
Age maximum	59	25	44	40	42	48

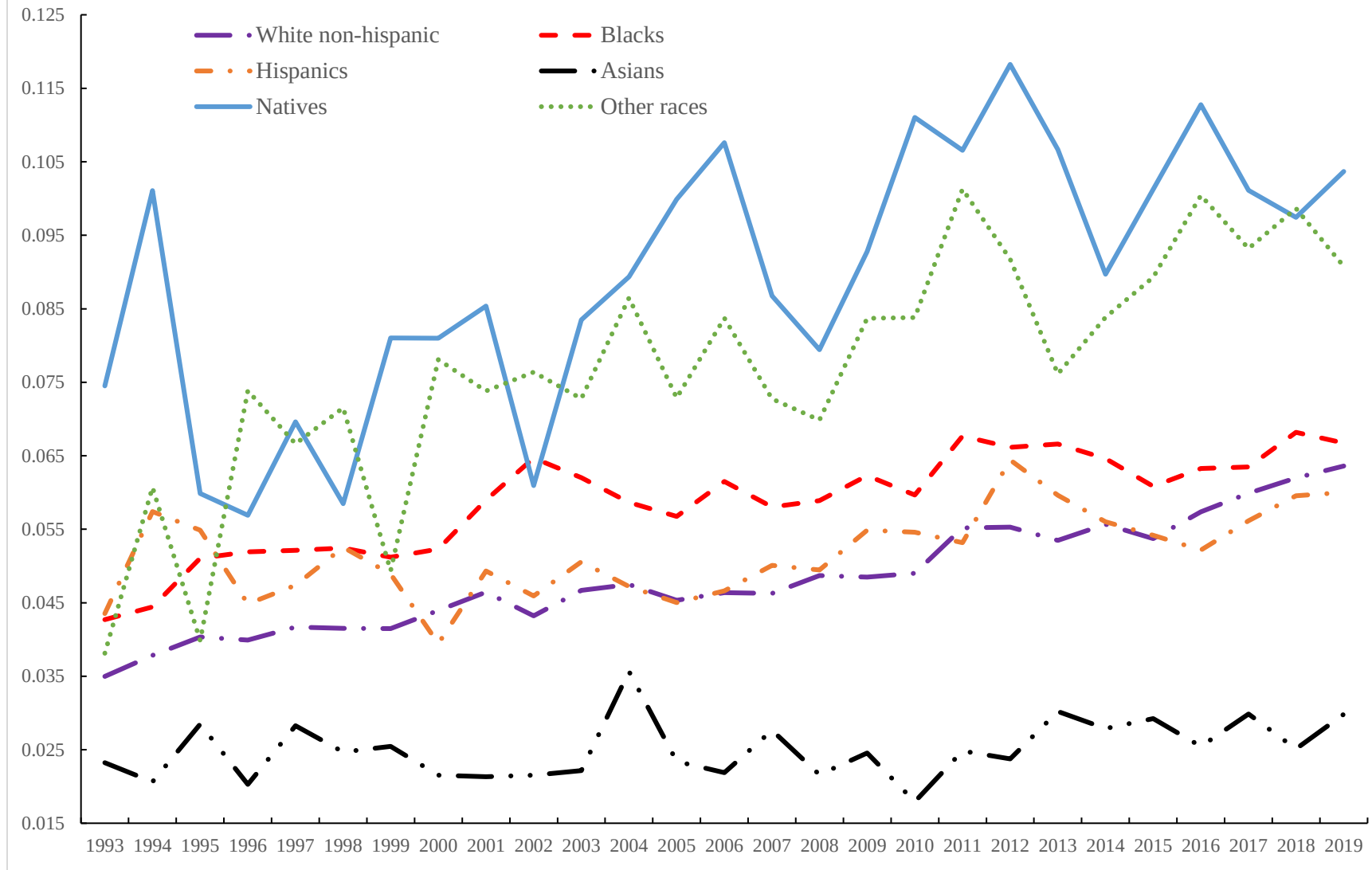
Q1. Did you experience the following feelings during a lot of the day yesterday? Enjoyment/physical pain/worry/stress?

Q2. Have you ever been told by a physician or nurse that you have any of the following, or not - depression?

Q3. Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel =you stand at this time?

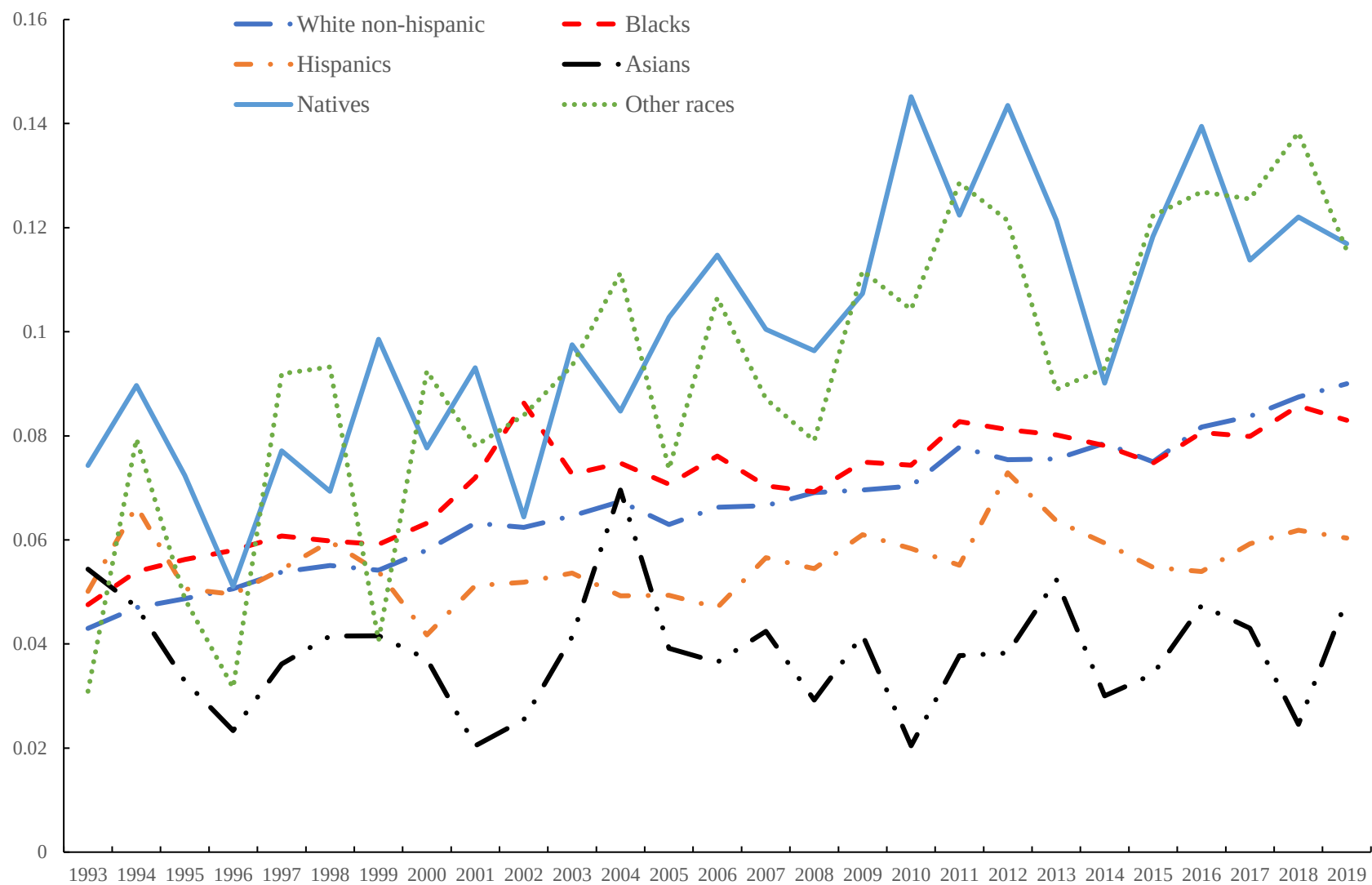
T-statistics in parentheses. All equations include state dummies plus personal controls for education, labor force and marital status. Excluded category is white. Also includes DK and refused dummies (not reported).

Figure 1. The incidence of chronic distress by race, 1993-2019



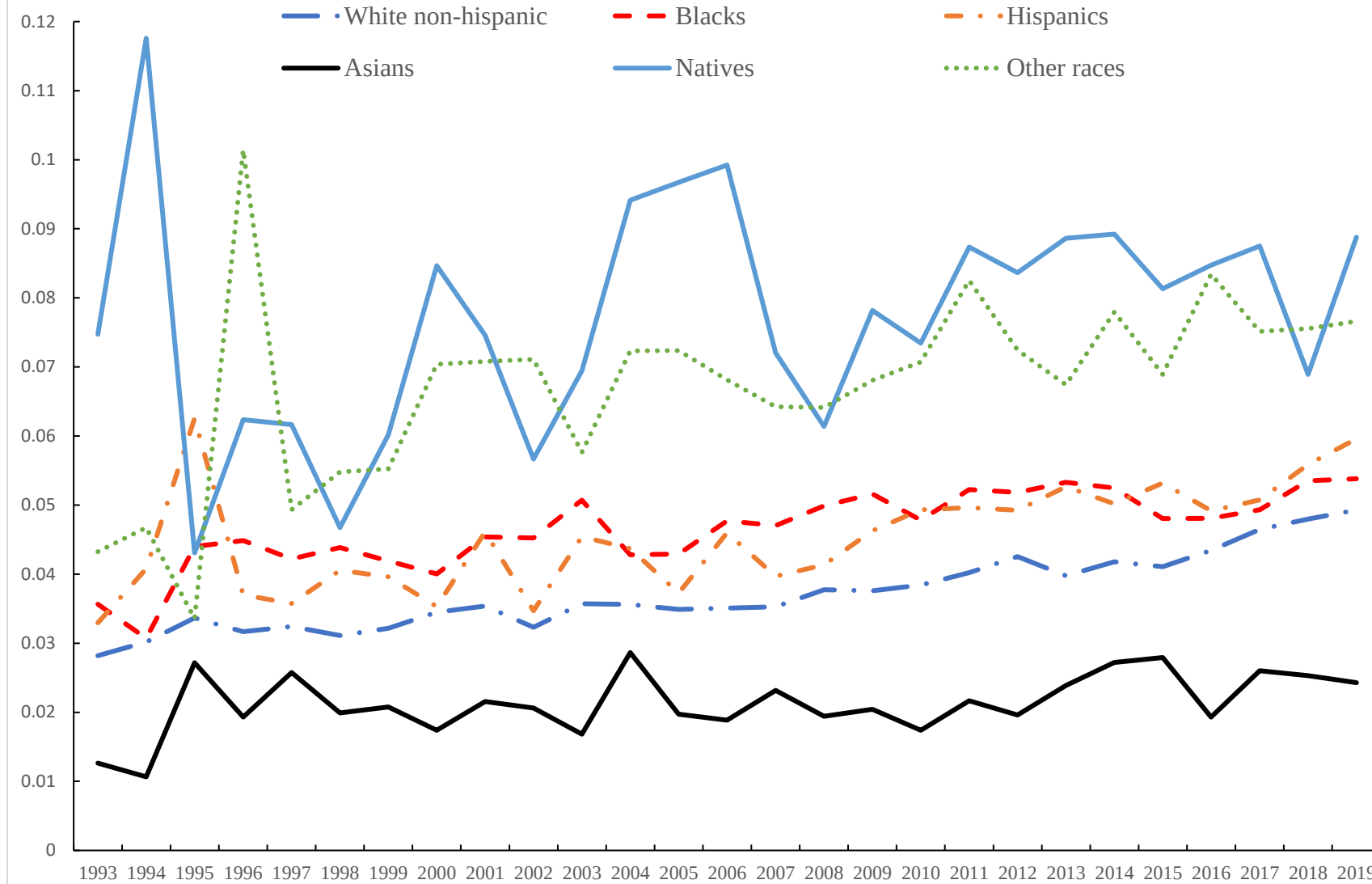
Sample sizes whites=6,510,064; blacks=666,027; Asians=184,844; Natives=122,971; other races=182,091; Hispanics=638,087

Figure 2. Chronic distress among those with no college education



Footnotes Sample sizes as follows whites=2,361,763 blacks=324,363; Asians=46,937; Natives=63,420; other races=70,050; Hispanics=366,669. Less-educated =at most a high school diploma/GED.

Figure 3. Chronic distress among those with some college, 1993-2019



Sample sizes whites=4,148,301; blacks=341,664; Asians=137,907; Natives=59,551; other races=112,851; Hispanics=271,419

Supplementary Appendix
One Figure and Five Tables

Table A1a. Numbers of American Indians and Alaska Natives in the United States not Hispanic: By Age Group

Panel A: Alone or in Combination

	<u>2010</u>	<u>2019</u>	% change
Under 18 years	1,970,733	2,002,203	1.6
Under 5 years	562,456	548,666	-2.5
5 to 13 years	968,743	1,017,413	5.0
14 to 17 years	439,534	436,124	-0.8
18 to 24 years	733,236	766,214	4.5
25 to 44 years	1,716,138	1,961,218	14.3
45 to 64 years	1,312,953	1,513,592	15.3
65 years and over	405,422	702,325	73.2
85 years and over	35,532	63,804	79.6
Total	6,138,482	6,945,552	13.1

Panel B: Alone

	<u>2010</u>	<u>2019</u>	% change
Under 18 years	1,167,725	1,116,260	-0.1
Under 5 years	329,544	314,226	4.6
5 to 13 years	576,807	591,848	2.6
14 to 17 years	261,374	260,186	-0.5
18 to 24 years	460,875	454,350	-1.4
25 to 44 years	1089640	122551	12.5
45 to 64 years	799000	938246	17.4
65 years and over	235034	403675	71.8
85 years and over	19274	403675	83.6
Total	3,752,274	4,188,092	11.6

Source: Census Bureau <https://www.census.gov/newsroom/press-kits/2020/population-estimates-detailed.html>

Table A1b. Means for 2016-2018 – in percentages

	Natives	Total
Unemployment rates		
Age 16+	7.8	4.4
16-24	13.9	9.4
25-54	6.9	3.7
55+	5.0	3.3
Age 25+		
Less than a high school diploma	19.7	10.5
High school graduates, no college	33.9	28.7
Some college or associate degree	29.6	26.4
Bachelor's degree and higher	16.7	34.5
Usual weekly earnings (full-time wage and salary workers)		
\$0-\$499	25.9	17.1

\$500–\$749	29.0	23.3
\$750–\$1,199	26.5	28.0
\$1,200 or more	18.7	31.6

Notes Employed full-time workers are defined as those people who usually work 35 hours or more per week. Employed part-time workers are defined as those who usually work less than 35 hours per week. Source: American Indians and Alaska Natives in the U.S. Labor force, BLS, November 2019,

<https://www.bls.gov/opub/mlr/2019/article/american-indians-and-alaska-natives-in-the-u-s-labor-force.htm>

Table A1c. Respondent Assessed health, 2018 (%)

	Excellent	Very good	Good	Fair or poor
One race	37	31	23	7
White	38	32	22	7
Black or African American	34	26	27	11
American Indian or Alaska Native	26	24	31	13
Asian	39	32	21	6
Native Hawaiian or Other Pacific Islander	29	26	33	11
Two or more races	34	29	25	13
Black or African American, white	29	31	26	14
American Indian or Alaska Native, white	28	31	26	16
Hispanic or Latino	34	28	26	12
Not Hispanic or Latino	38	32	22	9

Source: Summary Health Statistics; National Health Interview Survey

<https://www.cdc.gov/nchs/fastats/american-indian-health.htm>

Table A2. OLS Chronic-Distress Equations Over Time – BRFSS, 1993-2020

a) All	1993-2000	2001-2010	2011-2020	1993-2000	2001-2010	2011-2020
Natives	.0253 (13.57)	.0392 (36.42)	.0387 (41.98)	.0087 (4.71)	.0115 (10.97)	.0086 (9.58)
Other races	.0206 (7.78)	.0283 (17.44)	.0273 (18.92)	.0129 (4.96)	.0172 (10.92)	.0166 (11.81)
Multi races		.0392 (38.94)	.0407 (48.37)		.0199 (20.35)	.0222 (27.00)
Blacks	.0072 (9.02)	.0091 (18.41)	.0032 (7.33)	-.0087 (10.95)	-.0147 (29.83)	-.0194 (44.41)
Asians/PI	-.0127 (8.03)	-.0157 (15.94)	-.0212 (26.61)	-.0083 (5.33)	-.0099 (10.30)	-.0151 (19.38)
Hispanic	.0104 (11.58)	.0093 (17.01)	.0038 (7.92)	-.0022 (2.43)	-.0107 (19.31)	-.0133 (27.75)
Age	.0015 (23.62)	.0016 (49.59)	.0022 (62.62)	.0016 (8.76)	.0011 (30.03)	.0014 (40.54)
Age ² *100	-.0015 (23.68)	-.0018 (60.39)	-.0025 (76.62)	-.0018 (18.17)	-.0017 (50.69)	-.0021 (56.62)
Male	-.0157 (37.77)	-.0158 (61.63)	-.0146 (66.20)	-.0119 (27.55)	-.0106 (40.33)	.0047 (43.18)
Cell	n/a	n/a	.0058 (21.48)	n/a	n/a	.0048 (17.54)
Personal controls	No	No	No	Yes	Yes	Yes
Constant	.0153	-.0386	.0424	.0281	.0118	.0410
Adjusted R ²	.0063	.0072	.0079	.0378	.0580	.0592
N	1,053,725	3,234,443	4,106,199	1,053,699	3,233,095	4,098,113
Age maximum	50	44	44	44	32	33
b) Prime age 35-54	1993-2000	2001-2010	2011-2020	1993-2000	2001-2010	2011-2020
Natives	.0272 (9.15)	.0480 (26.90)	.0460 (26.69)	.0062 (2.13)	.0115 (6.56)	.0045 (2.71)
Other races	.0266 (6.03)	.0321 (11.34)	.0313 (11.01)	.0151 (4.98)	.0175 (6.42)	.0174 (6.37)
Multi races		.0502 (28.85)	.0480 (29.12)		.0229 (13.68)	.0209 (13.20)
Blacks	.0074 (5.60)	.0093 (10.99)	.0029 (3.36)	-.0139 (10.59)	-.0209 (25.38)	-.0254 (30.34)
Asians/PI	-.0147 (5.60)	-.0192 (12.00)	-.0248 (17.28)	-.0082 (3.21)	-.0095 (6.20)	-.0133 (9.60)
Hispanic	.0145 (9.31)	.0111 (12.08)	.0006 (0.75)	-.0008 (0.55)	-.0119 (12.97)	-.0174 (20.28)
Age*100	.0643 (10.60)	.0011 (28.07)	-.0209 (45.45)	-.0001 (2.03)	-.0002 (4.96)	-.0006 (16.24)
Male	-.0177 (25.79)	-.0208 (46.33)	-.0209 (49.28)	-.0141 (20.09)	-.0175 (39.17)	-.0169 (36.87)
Cell	n/a	n/a	.0115 (22.09)	n/a	n/a	.0072 (14.43)
Personal controls	No	No	No	Yes	Yes	Yes
Constant	.0314	-.0495	.0622	.0402	.0627	.0643
Adjusted R ²	.0076	.0085	.0087	.0565	.0856	.0895
N	422,707	1,201,038	1,172,708	422,701	1,200,595	1,170,174

T-statistics in parentheses. All equations include year and state dummies. Personal controls are for education, labor force and marital status. Equations also included race-refused category.

Table A3. Chronic distress equations for prime age and prime age less educated, 1993-2020

	Ages 35-54		Ages 35-54 No college	
Natives	.0447 (39.12)	.0079 (7.15)	.0312 (15.76)	-.0026 (1.35)
Other races	.0436 (43.75)	.0208 (21.69)	.0434 (21.13)	.0186 (9.10)
Blacks	.0063 (11.58)	-.0218 (40.61)	-.0094 (9.26)	-.0361 (35.79)
Asians/PI	-.0214 (21.73)	-.0110 (11.56)	-.0256 (9.55)	-.0219 (8.47)
Hispanic	.0062 (10.77)	-.0133 (22.93)	-.0222 (22.41)	-.0321 (31.51)
Male	-.0205 (70.15)	-.0167 (57.38)	-.0314 (53.71)	-.0249 (41.99)
Cell	.0113 (22.65)	.0075 (15.61)	.0120 (11.54)	.0117 (11.69)
Personal controls	No	Yes	No	Yes
Constant	.0668	.0351	.0877	.0424
Adjusted R ²	.0083	.0834	.0117	.0843
N	2,796,432	2,793,450	956,951	956,223

Note: equations also include state and year dummies and a full set of single year of age dummies.

Source: BRFSS

Table A4. Further Evidence: OLS Equations – US Gallup Daily Tracker, 2018 (age <70)

	Pain	Worry	Worry about money	Stress
Native Americans	.1057 (11.24)	.0383 (3.414)	.1827 (5.25)	.0390 (3.40)
Blacks	.0103 (1.73)	-.0318 (4.92)	.0265 (1.34)	-.0618 (9.31)
Asians	-.0266 (3.40)	.0272 (3.33)	-.1607 (6.07)	-.0397 (3.40)
Hispanic	.0026 (0.38)	.0160 (2.18)	.0293 (1.29)	-.0034 (0.44)
Native Hawaiians	.0465 (2.20)	.0256 (1.12)	.0951 (1.32)	.0425 (1.40)
Age	.0125 (13.21)	.0030 (0.49)	.0322 (10.05)	-.0041 (7.17)
Age ² * 100	-.0012 (11.79)	-.0044 (8.48)	-.0058 (17.14)	-.0025 (4.77)
Male	.0026 (0.24)	-.0367 (10.65)	-.1499 (13.95)	-.0473 (15.47)
Constant	.1114	.4692	2.7985	.5898
Adjusted R ²	.0750	.0374	.0655	.0492
N	77924	78,109	78,723	78,366

T-statistics in parentheses. All equations include year and state dummies plus personal controls for education, labor force and marital status. Excluded category is White. Also includes DK and refused dummies (not reported).

regr pain male age agesq i.educ i.marital st2-st51 race_black race_asian race_amindian race_ntvhawaiian hisp i.emp1

Q1. Did you experience physical pain/stress/worry yesterday?

Q2. In the last seven days you have worried about money – strongly disagree (1) to strongly agree disagree (5)

Table A5. OLS positive affect well-being equations – US Gallup Daily Tracker, 2018 age <70

	Cantril	Safe and secure	Like what you do	Standard living
American Indians	-.2578 (7.20)	-.1348 (5.69)	-.0882 (3.84)	-.0919 (9.59)
Blacks	-.0568 (2.69)	-.1378 (10.24)	.0263 (2.02)	-.0703 (12.92)
Asians	-.1031 (3.50)	-.0381 (2.11)	.0311 (1.78)	.0287 (3.93)
Hispanic	.1037 (4.11)	.0301 (1.95)	.0948 (8.87)	-.0110 (1.77)
Native Hawaiians	-.2351 (6.09)	-.1538 (3.36)	.0417 (0.94)	-.0220 (1.11)
Age	-.0621 (17.41)	-.0225 (10.30)	-.0395 (18.59)	-.0175 (19.74)
Age ² * 100	.0082 (22.02)	.0280(12.21)	.0500 (22.24)	.0021 (22.29)
Male	-.1289 (10.78)	.1124 (15.33)	-.0786 (11.05)	.0089 (3.022)
Constant	7.0322	3.4385	4.0686	.8465
Adjusted R ²	.1144	.0528	.0612	.0863
N	82,183	82,119	82,226	82,208

T-statistics in parentheses. All equations include year and state dummies plus personal controls for education, labor force and marital status. Excluded category is White. Also includes DK and refused dummies (not reported).

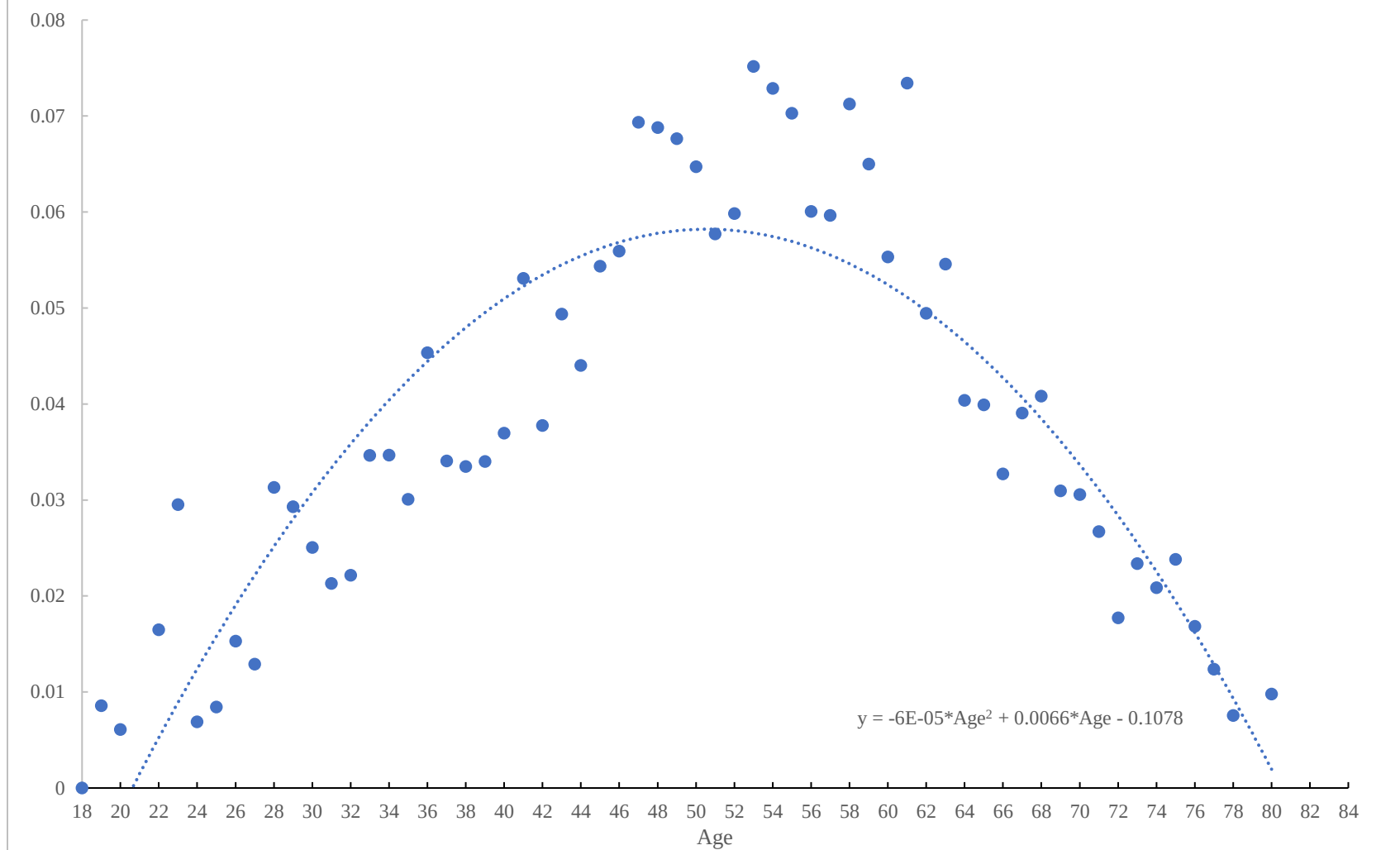
Q1. Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?

Q2. You always feel safe and secure – strongly disagree (1) to strongly agree disagree (5) (variable hwb23)

Q3. You like what you do every day – strongly disagree (1) to strongly agree disagree (5) (variable hwb1).

Q4. Are you are satisfied with your standard of living – agree (1) disagree (0)?

Figure A1. The Age Profile of Chronic Distress Among Native Americans, 1993-2020 (n=122,971)



Footnotes

The dots shown depict the coefficient estimates from a full set of age dummies in an extreme-distress equation. The fitted curve is a quadratic.

Extreme distress here is measured as those who give the answer 30 to the BRFSS question “Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?”