

Trends in Extreme Distress in the United States, 1993–2019

David G. Blanchflower, PhD, and Andrew J. Oswald, DPhil

Objectives. To investigate changes from 1993 to 2019 in the percentage of US citizens suffering extreme distress.

Methods. Using data on 8.1 million randomly sampled US citizens, we created a new proxy measure for exceptional distress (the percentage who reported major mental and emotional problems in all 30 of the last 30 days). We examined time trends for different groups and predictors of distress.

Results. The proportion of the US population in extreme distress rose from 3.6% in 1993 to 6.4% in 2019. Among low-education midlife White persons, the percentage more than doubled, from 4.8% to 11.5%. Regression analysis revealed that (1) at the personal level, the strongest statistical predictor of extreme distress was “I am unable to work,” and (2) at the state level, a decline in the share of manufacturing jobs was a predictor of greater distress.

Conclusions. Increasing numbers of US citizens report extreme levels of mental distress. This links to poor labor-market prospects. Inequality of distress has also widened.

Public Health Implications. Policymakers need to recognize the crisis of an ever-growing group of US citizens in extreme distress. (*Am J Public Health*. Published online ahead of print August 20, 2020: e1–e7. doi:10.2105/AJPH.2020.305811)

In this article, we document evidence of rising levels of extreme distress in the United States between 1993 and 2019. We also demonstrate widening inequality of distress. The article builds upon previous research on ill-being in the United States^{1–9} and previous literature on mental health and happiness across time and age group.^{10–21} Some of this work can be traced back to Easterlin’s ideas^{15,16} on the weak connection in modern society between economic growth and human happiness. Most research has focused upon the representative citizen—that is, upon the mean level of well-being.

Stimulated particularly by the work of Case and Deaton, a new branch of research—one concerned explicitly with life and death among disadvantaged citizens—has recently emerged.^{12,13} This modern literature considers the possibility that there are increasing numbers of “deaths of despair” among midlife White US persons with low levels of educational attainment. Although it is accepted that premature mortality has gone up among

this segment of the population, what is still contested is the full explanation.⁹ The deaths-of-despair thesis is that some in the United States have become particularly unhappy with their lives and have reacted by committing suicide and taking dangerous quantities of opioids and alcohol. Consistent with aspects of this idea is work by Graham et al.^{18–21} Other social scientists and medical researchers have discussed complementary evidence, often focusing on the loss of lower-skill jobs in the United States and on citizens who are in midlife.^{22–25}

Yet is it actually true that extreme mental ill-being has become more common over recent decades in the United States? If so, has that happened particularly strongly among

White, low-education, midlife citizens?¹⁴ The later analysis is an attempt to address these questions. It connects to earlier-cited references and a range of modern writings on despair,^{26–28} midlife unhappiness,^{11,25,29,30} depression,³¹ and the possibility of midlife-crisis phenomena.^{32–34}

In this study, we could not in a literal sense examine “despair.” In our data, there was no way to measure that concept in a consistent way from the start of the 1990s—partly because a definition of despair arguably implies something subtle about expectations of the future. Even if the next generation of statistical surveys could ask an appropriate question (perhaps with a wording such as “how often would you say that you have moments of despair in everyday life?”), that would presumably still not make it possible to understand despair, in a genuinely retrospective sense, in US history.

We therefore pursued a different avenue. This article offers evidence that there was an apparently inexorable rise in a proxy for extreme distress within the US population. The proxy captures, if no doubt imperfectly, a sense of exceptional bleakness of life. We then inquired into a possible mechanism. We explored an economic-loss hypothesis—namely, that extreme distress among a generation of low-education White individuals in the United States has been triggered in part by those individuals observing the decline of manufacturing jobs in the area where they live. This type of hypothesis, emphasizing financial insecurity and disappointment, has been suggested in previous research.^{12(p15081)}

Even though we held a large number of independent variables constant in the later

ABOUT THE AUTHORS

David G. Blanchflower is with Dartmouth College, Hanover, NH. Andrew J. Oswald is with University of Warwick, Coventry, UK.

Correspondence should be sent to Andrew J. Oswald, Department of Economics, University of Warwick, Coventry CV4 7AL, United Kingdom (e-mail: andrew.oswald@warwick.ac.uk). Reprints can be ordered at <http://www.ajph.org> by clicking the “Reprints” link.

This article was accepted June 2, 2020.

doi: 10.2105/AJPH.2020.305811

empirical analysis, and we performed various statistical checks, this study used observational data and was not able to establish truly definitive cause-and-effect findings with the persuasiveness of a randomized trial. We hope that our article contributes toward that longer-run ideal.

METHODS

We used data from the Behavioral Risk Factor Surveillance System (BRFSS) from survey years 1993 to 2018. Information in the survey is collected monthly, by telephone, with a standardized questionnaire and with technical and methodologic assistance from the Centers for Disease Control and Prevention (CDC). The BRFSS collects state data about US residents regarding their health-related risk behaviors, chronic health conditions, and use of preventive services.

The data set provides information on more than 8 million US citizens, randomly sampled between 1993 and early 2019. One particular 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 exploited. We concentrated on, and classified as in extreme distress, those people who gave the highest answer feasible in the BRFSS survey (namely, 30 days out of 30) and who thus directly signaled, in a sense, that “every day of my life is a bad day.” To our knowledge, researchers have not previously focused on this extreme point on the BRFSS scale.

Established in 1984 with 15 states, BRFSS now collects data in all 50 states as well as the District of Columbia and 3 US territories. We made use of data files from 1993 because that is the year the key question on bad mental-health days was first asked. Sample sizes increased from around 100 000 in 1993 to 450 000 in 2018.

The 2011 survey saw a change in weighting methodology and the addition of cell phone-only respondents (see the Appendix material, such as Table G, available as a supplement to the online version of this article at <http://www.ajph.org>), because an increasing number of US citizens were known to be using cell phones. Evaluations conducted by CDC using

2010 and 2011 BRFSS data indicated that the addition of cell phone-only households improved survey coverage for certain population groups. For example, it was found that the proportion of interviews conducted with respondents with lower incomes, with lower educational levels, or who were in younger age groups increased, because these groups more often exclusively rely on cellular telephones for personal communications.

Case and Deaton¹³ reported, in their Figure 20, the proliferating levels of morbidity in the United States. They used the BRFSS up to 2013 and 2 other data sources for people aged 45 to 54 years, who were White and non-Hispanic. Case and Deaton also offered evidence from the National Health Interview Survey and the National Health and Nutrition Surveys. One concern, however, is that estimates for 2011 to 2013 may be biased upward by the alteration in sample design. For example, the authors found that the mean number of days that mental health was not good for 2011 to 2013 was 4.16, an increase of 1.06 from the mean for 1997 to 1999. They did not discuss sample design changes.

The BRFSS data files each year from 2011 were constructed by using information on landline and cell phones identified with the variable QSTVER. Values less than 20 indicate that the interview was conducted by landline phone, and 20 and higher indicate a cell phone interview. The incidence of extreme distress was higher among cell phone users, but the gap narrowed over time. Most of the sample are cell phone users at this point, as older persons are adopting cell phones in higher numbers. Cell phone use accounted for 14% of the sample in 2011 compared with 63% in 2018. In post-2011 regressions, we included a cell phone dummy, which came in positive and significant in extreme distress equations.

We also mapped in data on manufacturing jobs for the state*year cell from 1993 to 2019 using seasonally adjusted data on establishments from the Bureau of Labor Statistics from the current employment statistics (<https://www.bls.gov/data>). We downloaded nonfarm employment data by state and year, which allowed us to construct the proportion of nonfarm employment in manufacturing industry. We averaged the monthly data in each year. In 2019, we averaged the data from

January through July. There has been a decline in manufacturing employment in the United States since 1939. Manufacturing jobs were then at a high of 19.5 million and declined steadily to 11.5 million in March 2010 but picked up subsequently. Manufacturing employment as a percentage of nonfarm employment peaked at 38.7% in 1944; it has steadily declined since then and at the end of 2019 was 8.5%. The ratio defined as manufacturing to nonfarm employment rates show declines in every state. Rates more than halved, for example, in states as far apart as Florida and Massachusetts. Further details are in Table A (available as a supplement to the online version of this article at <http://www.ajph.org>).

States with high rates of extreme distress, such as West Virginia, have also recently had high suicide-by-overdose deaths. The Appendix, as in Figure F, shows percentage numbers in extreme distress by state, against poisonings, using CDC data from the following source: https://www.cdc.gov/nchs/pressroom/sosmap/drug_poisoning_mortality/drug_poisoning.htm.

We estimated linear least-squares regression equations. However, equivalent results, using a Probit estimator, are provided in the Appendix, as in Table B. The main dependent variable was the probability of reporting extreme distress as measured by saying “30 days out of 30” on the key BRFSS question. The Appendix gives background results for some other dependent variables, such as the probability of saying “I am unable to work.”

Later regression analysis allowed for a large set of covariates (e.g., adjusting for people’s demographic characteristics, employment type, educational characteristics) at the personal level and, in 1 case, at the state level. The estimates have standard errors that are corrected for clustering in a way equivalent to the use of multilevel modeling. As is well known, failing to recognize hierarchical structures would produce standard errors of parameter estimates that are likely to be underestimated, leading to overstatement of statistical significance.

We also included a full set of state dummy variables, of year dummies, and of age dummies in later regression equations. These adjust for any deep unchanging differences (such as climate) across different US states, for any US-wide annual influences (such as

movements in the value of the dollar against other currencies), and for any effects from biological age.

RESULTS

The first finding is shown in Table 1. It is that the aggregate level of the study's extreme-distress proxy—effectively “every day of my life is a bad day”—has trended upward since the early 1990s. In 1993, the proportion of US adults with a reported level of distress this severe was 3.6%. In 2019,

that proportion had increased to 6.4% of US adults.

Figure 1 provides an illustration by gender. There was a fairly smooth time trend, both for men and women, among the adult population. Table 1 gives exact numbers for every year and subgroup. Each column of Table 1 reveals a similar picture of increasing levels of extreme distress. As commonly found in psychological distress research, women exhibited greater levels, even though men were more prone to convert distress into the physical act of suicide.^{11,17}

A further result emerges from Table 1. Importantly, the growth in extreme distress was only slightly faster than average among those US citizens who have low educational qualifications (from 4.5% being classified as in extreme distress using our proxy measure in the early 1990s and then expanding to 8.6% in 2019). Hence, the trend in aggregate extreme distress was not driven solely by the disadvantaged portion of the US population.

However, 1 pattern stands out. In Figure 2 there is evidence of a marked increase in the extreme-distress proxy among White

TABLE 1—US Rates of Extreme Distress, by Gender, Race, Age, and Education: 1993–2019

	All (n = 8 119 700), %	Male (n = 3 292 605), %	Female (n = 4 825 734), %	≤ High-School Graduate (n = 3 189 681), %	Age 35–54 Years, %	
					White (n = 2 067 495),	Non-White (n = 647 394)
1993	3.6	3.2	4.1	4.5	3.9	4.9
1994	4.0	3.4	4.6	5.0	4.2	5.9
1995	4.3	3.4	5.1	5.0	4.6	6.1
1996	4.2	3.4	4.9	5.1	4.4	5.2
1997	4.3	3.6	5.0	5.5	4.7	5.5
1998	4.4	3.4	5.3	5.7	4.5	5.7
1999	4.4	3.8	4.9	5.5	4.8	5.9
2000	4.4	3.4	5.4	5.6	5.0	5.3
2001	4.9	4.0	5.6	6.3	5.3	6.0
2002	4.6	3.7	5.3	6.2	5.0	6.3
2003	4.9	4.1	5.7	6.4	5.2	5.8
2004	5.0	4.1	5.8	6.6	5.3	6.0
2005	4.7	3.8	5.5	6.1	5.3	5.6
2006	4.9	3.9	5.8	6.5	4.9	5.5
2007	4.9	4.2	5.5	6.5	5.2	5.6
2008	5.0	4.1	5.8	6.6	5.6	6.1
2009	5.1	4.3	5.9	6.9	5.5	6.6
2010	5.1	4.4	5.8	6.9	5.4	6.0
2011	5.7	5.0	6.3	7.4	6.5	6.7
2012	5.8	5.1	6.5	7.7	6.4	6.9
2013	5.6	4.8	6.4	7.4	6.1	6.4
2014	5.6	4.8	6.4	7.3	6.3	6.3
2015	5.5	4.8	6.1	7.1	6.5	6.1
2016	5.7	4.8	6.5	7.5	6.5	6.0
2017	5.9	5.1	6.7	7.7	6.9	5.5
2018	6.2	4.5	7.3	8.1	6.8	5.7
2019	6.4	5.3	7.0	8.6	6.8	5.5

Note. Sampling weights are applied. The 2018 Behavioral Risk Factor Surveillance System (BRFSS) survey includes some information for 2019, which is why the numbers are able to go up to 2019. Extreme distress here is measured as those who gave 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?”

middle-aged US citizens who had no college education—from less than 5% of people in that subsample being in extreme distress in 1993 to more than 11% in 2019. There were increases in extreme distress among the other 3 midlife groups depicted in Figure 1 (those groups being Whites with at least some college, non-Whites with no college, and non-Whites with at least some college). Yet those 3 trend lines in Figure 2 are flatter. They imply only approximately a single percentage point extra over a quarter of a century. Therefore, 1 kind of inequality in distress had very noticeably accumulated. Something fundamental appears to have occurred among White, low-education, middle-aged citizens. It is important to record that Appendix Figure A shows that younger US citizens also exhibited growth in extreme distress, although somewhat less strongly than for midlife citizens.

From these data, the United States appears to have a problem of middle-aged extreme distress that stems, as a matter of statistical composition, disproportionately from within the White, low-education section of the US population. This finding seems consistent with the related work by Graham.¹⁸ Further graphs, for different subsamples, including

Figures A and B, are provided in the Appendix.

Table 2 provides regression equations. Here, the dependent variable was a measure of extreme distress (coded as 1 for those who reported 30 bad days out of 30, and zero for all those who did not). The sample size in Table 2 was approximately 8.1 million adults; this is for the full sample of observations. The mean of the dependent variable in, for example, the first column of Table 2 was approximately 0.05 (that is, 5% of people were classified by our proxy measure as being in extreme distress). Appendix Table C also gives a regression for low-education midlife adults, for Whites and non-Whites. Appendix Table E allowed for cohort dummies, and Appendix Table F gives the complete specification of Table 2's regression equation in the article.

Table 2 suggests that an influential role was being played by the labor market. At the personal level, for example, “unable to work” entered with the single largest parameter estimate (0.176, with a tightly defined 95% confidence interval). Two unemployment variables—1 for out of work for a year or less and 1 for out of work more than a year—also had large positive parameter estimates in an extreme-distress equation. These facts are

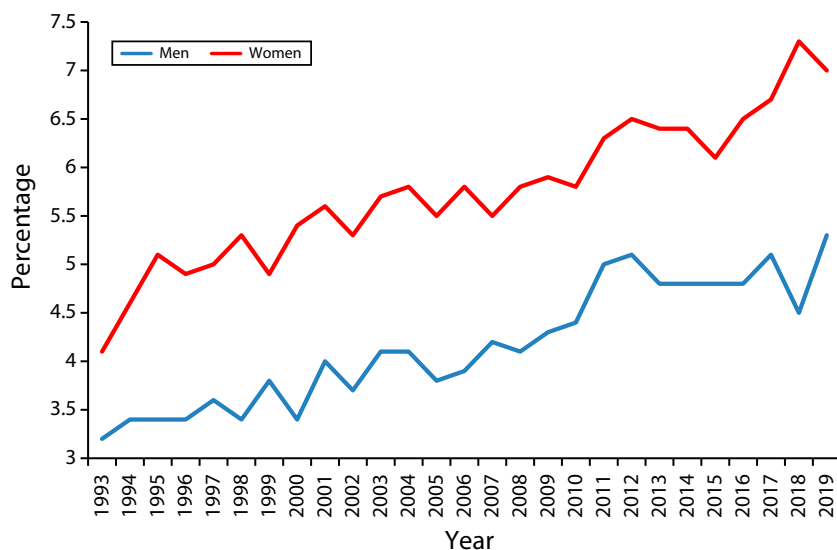
reminders of the potential importance of jobs as demonstrated in research by Krueger²² on the phenomenon of “disappearing” work and workers in the United States.

It might be conjectured that “unable to work” was not really about the labor market but was instead proxying some form of disability. On probing that, however, Appendix Table G reveals a strong role for “unable to work,” even after correcting for a large number of health conditions (for the limited subsample of time periods in which BRFSS data allow that to be done in a consistent way).

A range of other personal variables, especially for education and marital status, had statistically significant effects in Table 2. Non-White persons in the United States reported lower levels of extreme distress, *ceteris paribus*, than did Whites. It is not possible to be certain why this was, although a reviewer of this article pointed out that Black persons in the United States may, for long historical reasons, tend to have different expectations. Age dummies (and year dummies and state dummies) were included in the equations but not reported explicitly in Table 2. However, Table E in the Appendix reports the full specification for the extreme distress regression equation. It also gives the estimated hump-shaped age profile, which is reminiscent of a quadratic shape in general well-being discussed in other sources.^{10,11,21,29,32} Broadly similar patterns in personal-variable parameter estimates were found in the subsamples in Table 2.

What is the role of the external labor market in the geographical area where a person lives? Table 2 also includes 1 state-level variable: the share of workers in manufacturing industry in the state. It enters with a statistically significant parameter estimate. The size of the parameter estimate, of -0.044 in the first column, implies that a drop of approximately 10 percentage points in a state's share of manufacturing workers would be associated on average with slightly less than a 0.5-percentage-point increase in extreme distress in that state (from a mean level of approximately 5 percentage points). It should be emphasized that this is to be thought of as a state fixed-effects panel estimate; it is not an elementary cross-sectional pattern in the data.

Table 2 shows that there was a noticeable difference in the size of the parameter



Note. The sample size was approximately 8.1 million adults. The study's proxy measure of “extreme distress” is depicted on the vertical axis. It is the percentage of people who gave the maximum answer of 30 days in response to the Behavioral Risk Factor Surveillance System 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?”

FIGURE 1—The Rising Percentage of US Adults Reporting Extreme Levels of Distress by Gender: 1993–2019

estimates on the state manufacturing employment variable. For White workers, the parameter estimate was -0.066 , and the 95% confidence interval comfortably excluded the value of zero. However, for non-White workers in Table 2, it is not possible to reject the null hypothesis of zero on the state manufacturing variable, and the point estimate itself was positive. This asymmetry seems consistent with ideas proposed by Case and Deaton.^{12,13}

The Appendix, for example in Table C, gives further results for low-education midlife US citizens. Those imply (as in $b = -0.211$ in Table C) that a 10-percentage-point drop in the share of manufacturing jobs in a state would be associated with a 2-percentage-point increase in extreme distress among White, low-education, midlife US adults. We observed a somewhat weaker result of this sort for non-Whites (the sign in both cases was negative).

The statistical results in Table 2 should be kept in perspective. First, they cannot be viewed as causally definitive. They rest upon correlations in observational data. Second, the findings on the role of state-level manufacturing shares do not account for the majority of the aggregate increase in extreme

distress in the United States. The year dummies (not reported, although they are given in the Appendix, as in Table F) had large positive parameter estimates near the end of the 1993 to 2019 period. This means that much remains to be discovered.

DISCUSSION

This study was an attempt to decide whether exceptional levels of mental distress have become more common in the United States since the 1990s. We cannot, in a strict sense, adjudicate on the much-debated hypothesis that US “despair” has gone up. Nevertheless, this article proposes, and reports the patterns in, a new proxy measure for extreme distress (by examining the subsample of the population who in effect say “every day of my life is a bad day”). Since the early 1990s, the article’s proxy measure has increased. The growth in this extreme indicator of distress has occurred particularly noticeably among White, midlife, low-education men and women. The Appendix provides other kinds of subsample checks, such as in Figure A.

A natural possible concern remains to be considered: have US citizens simply changed

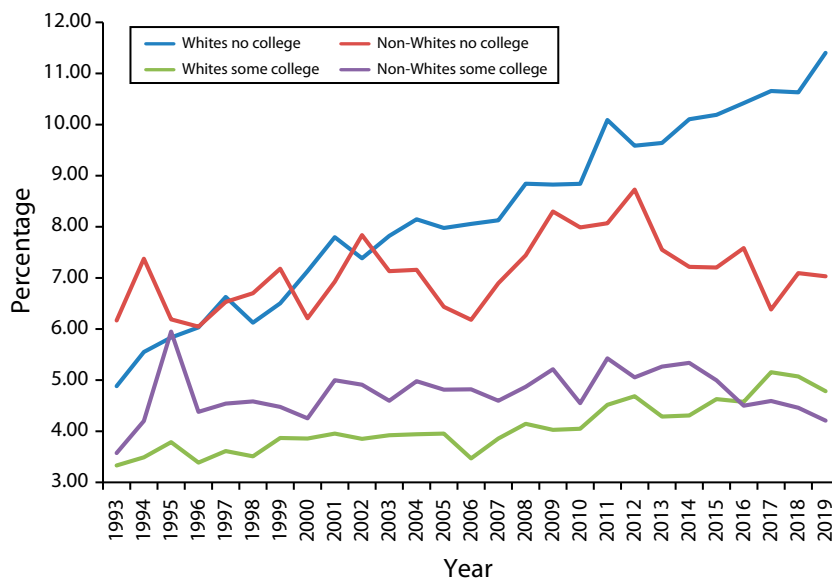
the way they use language, so that they merely “say” that they are more distressed since the 1990s? Because we studied reported human feelings, it is impossible to be certain that such an objection is misplaced. However, there is a related point, one that might be viewed as relevant and a potential counterobjection. This study demonstrated that some groups have had markedly faster growth in the measured level of extreme distress than others (this is true even after adjustment for cohort effects), which seems inconsistent with an explanation that relies on the idea that there has merely been a broad-based alteration in the use of English-language words.

One valuable study that does address a version of this article’s research question is by Goldman et al.² That study used 2 sweeps of the Midlife in the United States study data covering approximately 1995–1996 to 2011–2014. By using an interaction-test statistical structure, it produced the interesting finding that US citizens of lower socioeconomic status have had declining mental health and well-being relative to those of higher socioeconomic status. The size of sample was fairly small (approximately 4600) compared with the one used in the current article, but it is arguably one of the closest studies in the same spirit. A difficulty for the analysis of the broader debate is that the authors were unable to assess the role of racial/ethnic influences and, thus, could not make a ruling on whether trends were different for, say, White US citizens in midlife.

To probe the possible roots of the expansion in US distress, we considered an “economic-loss” hypothesis. In our analysis, we found evidence that the role of the labor market may be central to the growth of midlife extreme distress. We found that (1) at the personal level, the strongest statistical predictor of extreme distress was “I am unable to work,” and (2) at the state level, a decline in the share of manufacturing jobs is a predictor of increased extreme distress. These findings seem to mesh with other evidence on the psychological damage created by economic insecurity.^{10,15}

Limitations

This study could not say whether severe distress leads to death itself.^{9,12,13,26,34} However, it is to be hoped that the article’s evidence is of independent and complementary interest to



Note. The study’s proxy measure of “extreme distress” is depicted on the vertical axis. It is the percentage of people who gave the maximum answer of 30 days in response to the Behavioral Risk Factor Surveillance System 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?”

FIGURE 2—Rising Inequality of Extreme Distress Among Middle-Aged (35–54 Years) US Citizens by College vs Noncollege Subsamples: 1993–2019

TABLE 2—Extreme Distress Regression Equations: United States, 1993–2019

	All (n = 7 432 061), b (95% CI)	Whites (n = 5 901 896), b (95% CI)	Non-Whites (n = 1 455 077), b (95% CI)
State-level variable: state manufacturing %*100	-0.044 (-0.079, -0.008)	-0.066 (-0.103, -0.029)	0.031 (-0.026, 0.088)
Personal-level variables			
Unable to work	0.176 (0.174, 0.178)	0.189 (0.186, 0.190)	0.147 (0.144, 0.150)
Out of work > 1 y	0.085 (0.083, 0.087)	0.093 (0.090, 0.096)	0.065 (0.062, 0.068)
Out of work ≤ 1 y	0.057 (0.056, 0.059)	0.064 (0.061, 0.066)	0.043 (0.041, 0.046)
Male	-0.014 (-0.014, -0.013)	-0.014 (-0.015, -0.014)	-0.015 (-0.015, -0.014)
Self-employed	0.007 (0.006, 0.007)	0.007 (0.006, 0.008)	0.005 (0.004, 0.007)
Homemaker	0.016 (0.015, 0.017)	0.016 (0.015, 0.017)	0.014 (0.012, 0.015)
Student	0.011 (0.009, 0.012)	0.009 (0.007, 0.011)	0.011 (0.009, 0.013)
Retired	0.023 (0.023, 0.024)	0.022 (0.021, 0.023)	0.031 (0.029, 0.032)
Divorced	0.027 (0.026, 0.028)	0.027 (0.026, 0.027)	0.024 (0.023, 0.026)
Widowed	0.018 (0.017, 0.019)	0.018 (0.017, 0.019)	0.016 (0.015, 0.018)
Separated	0.059 (0.057, 0.061)	0.077 (0.074, 0.079)	0.034 (0.032, 0.037)
Never been married	0.011 (0.010, 0.012)	0.011 (0.010, 0.012)	0.009 (0.008, 0.010)
Member unmarried couple	0.013 (0.012, 0.014)	0.014 (0.013, 0.016)	0.008 (0.006, 0.010)
BMI*100	0.100 (0.001, 0.001)	0.103 (0.098, 0.107)	0.089 (0.081, 0.097)
Non-Hispanic Black	-0.016 (-0.017, -0.015)
Asian/Pacific Islander	-0.006 (-0.008, -0.005)	...	0.004 (0.002, 0.006)
Native American	0.007 (0.005, 0.009)	...	0.024 (0.022, 0.027)
Other races	0.020 (0.018, 0.022)	...	0.032 (0.030, 0.034)
Hispanic	-0.007 (-0.008, -0.006)	...	0.008 (0.007, 0.010)
Smoker	0.022 (0.022, 0.023)	0.020 (0.020, 0.020)	0.030 (0.029, 0.031)
Education grades 1–8	0.006 (0.001, 0.012)	0.018 (0.011, 0.025)	-0.007 (-0.015, 0.000)
Education grades 9–11	0.001 (-0.005, 0.006)	0.007 (0.000, 0.015)	-0.009 (-0.017, -0.001)
High-school graduate/GED	-0.015 (-0.021, -0.010)	-0.012 (-0.020, -0.005)	-0.020 (-0.028, -0.012)
1–3 y college	-0.017 (-0.022, -0.011)	-0.015 (-0.023, -0.008)	-0.016 (-0.024, -0.008)
≥ 4 y college	-0.029 (-0.034, -0.023)	-0.027 (-0.034, -0.020)	-0.028 (-0.036, -0.020)
Constant	0.0078	0.0082	-0.0097
R ²	0.0610	0.0650	0.0509

Note. BMI = body mass index; CI = confidence interval; GED = general educational development. The mean of the dependent variable in column 1 is 0.05. The regressions include a full set of age, year, and state dummies. Estimation uses clustered standard errors at state-year cell level. The “state manufacturing percent” variable is defined as the ratio of the number of manufacturing employees in the state relative to the number of all kinds of employees in the state. These are ordinary least squares equations. “Non-Whites” excludes those who did not report race (refused) and includes Blacks, Asians/Pacific Islanders, Hispanics, multiple races/ethnicities, and other races/ethnicities. In column 1, the base category is White, never attended school or kindergarten, employee, and married. Variables are also included for those who refused to answer on education, the marital and labor force status variables, and race. Those parameter estimates are not reported here but are given in Table F in the Appendix (available as a supplement to the online version of this article at <http://www.ajph.org>). Extreme distress here was measured as those who gave 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?”

Source. Behavioral Risk Factor Surveillance System (BRFSS), 1993–2019.

public health researchers, health economists, and other medical and social scientists.

Public Health Implications

This study revealed that the modern United States has an ever-rising percentage of citizens who report extreme levels of mental distress. Some groups have suffered particularly harshly. More than 11% of White, low-education, midlife US citizens now report that they had major mental and emotional problems in all 30 of the last 30 days.

The upward trend in exceptional distress shows no sign of slowing (see Figure 1, both for men and women). It demands policy-makers’ attention. *AJPH*

CONTRIBUTORS

The authors jointly originated the idea for the project. D. G. Blanchflower handled the data and estimated the regression equations. A. J. Oswald wrote the first draft. Both authors agreed on the final article.

ACKNOWLEDGMENTS

For support, A. J. Oswald is grateful to the Competitive Advantage in the Global Economy Research Centre,

funded by the UK Economic and Social Science Research Council.

CONFLICTS OF INTEREST

Neither author had a conflict of interest.

HUMAN PARTICIPANT PROTECTION

The data used in this study were from a publicly available data set.

REFERENCES

1. Braden JB, Edlund MJ, Sullivan MD. Suicide deaths with opioid poisoning in the United States: 1999–2014. *Am J Public Health*. 2017;107(3):421–426.

2. Goldman N, Gleib DA, Weinstein M. Declining mental health among disadvantaged Americans. *Proc Natl Acad Sci U S A*. 2018;115(28):7290–7295.
3. Riolo SA, Nguyen TA, Greden JF, King CA. Prevalence of depression by race/ethnicity: findings from the National Health and Nutrition Examination Survey III. *Am J Public Health*. 2005;95(6):998–1000.
4. Mossakowski KN. The influence of past unemployment duration on symptoms of depression among young women and men in the United States. *Am J Public Health*. 2009;99(10):1826–1832.
5. Gaydos L, Hummer RA, Hargrove TW, et al. The depths of despair among US adults entering midlife. *Am J Public Health*. 2019;109(5):774–780.
6. Erwin PC. Despair in the American heartland? A focus on rural health. *Am J Public Health*. 2017;107(10):1533–1534.
7. Gleib DA, Goldman N, Weinstein M. Perception has its own reality: subjective versus objective measures of economic distress. *Popul Dev Rev*. 2018;44(4):695–722.
8. Gleib DA, Weinstein M. Drug and alcohol abuse: the role of economic insecurity. *Am J Health Behav*. 2019;43(4):838–853.
9. Diez Roux AV. Despair as a cause of death: more complex than it first appears. *Am J Public Health*. 2017;107(10):1566–1567.
10. Blanchflower DG, Oswald AJ. Well-being over time in Britain and the USA. *J Public Econ*. 2004;88(7–8):1359–1386.
11. Blanchflower DG, Oswald AJ. Is well-being U-shaped over the life cycle? *Soc Sci Med*. 2008;66(8):1733–1749.
12. Case A, Deaton A. Rising morbidity and mortality in midlife among White non-Hispanic Americans in the 21st century. *Proc Natl Acad Sci U S A*. 2015;112(49):15078–15083.
13. Case A, Deaton A. Mortality and morbidity in the 21st century. *Brookings Pap Econ Act*. 2017;2017:397–476.
14. Cherlin AJ. Psychological health and socioeconomic status among non-Hispanic Whites. *Proc Natl Acad Sci U S A*. 2018;115(28):7176–7178.
15. Easterlin RA. Explaining happiness. *Proc Natl Acad Sci U S A*. 2003;100(19):11176–11183.
16. Easterlin RA. Life-cycle happiness and its sources: intersections of psychology, economics and demography. *J Econ Psychol*. 2006;27(4):463–482.
17. Frey BS, Stutzer A. *Happiness and Economics*. Princeton, NJ: Princeton University Press; 2002.
18. Graham C. *Happiness for All? Unequal Hopes and Lives in Pursuit of the American Dream*. Princeton, NJ: Princeton University Press; 2017.
19. Graham C, Laffan K, Pinto S. Well-being in metrics and policy. *Science*. 2018;362(6412):287–288.
20. Graham C, Pinto S. Unequal hopes and lives in the USA: optimism, race, place, and premature mortality. *J Popul Econ*. 2019;32(2):665–733.
21. Graham C, Pozuelo JR. Happiness, stress, and age: how the U curve varies across people and places. *J Popul Econ*. 2017;30(1):225–264.
22. Krueger AB. Where have all the workers gone? An inquiry into the decline of the US labor force participation rate. *Brookings Pap Econ Act*. Washington, DC: The Brookings Institution; 2017:1–87.
23. Meara E, Skinner J. Losing ground at midlife in America. *Proc Natl Acad Sci U S A*. 2015;112(49):15006–15007.
24. Muennig PA, Reynolds M, Fink DS, Zafari Z, Geronimus AT. America's declining wellbeing, health, and life expectancy: not just a White problem. *Am J Public Health*. 2018;108(12):1626–1631.
25. Schwandt H. Unmet aspirations as an explanation for the age U-shape in well-being. *J Econ Behav Organ*. 2016;122:75–87.
26. Shanahan L, Hill SN, Gaydos LM, et al. Does despair really kill? A roadmap for an evidence-based answer. *Am J Public Health*. 2019;109(6):854–858.
27. Stein EM, Gennuso KP, Ugboaja DC, Remington PL. The epidemic of despair among White Americans: trends in the leading causes of premature death, 1999–2015. *Am J Public Health*. 2017;107(10):1541–1547.
28. Stephens HM, Deskins J. Economic distress and labor market participation. *Am J Agric Econ*. 2018;100(5):1336–1356.
29. Stone AA, Schwartz JE, Broderick JE, Deaton A. A snapshot of the age distribution of psychological well-being in the United States. *Proc Natl Acad Sci U S A*. 2010;107(22):9985–9990.
30. Van Landeghem B. A test for the convexity of human well-being over the life cycle: longitudinal evidence from a 20-year panel. *J Econ Behav Organ*. 2012;81(2):571–582.
31. Weinberger AH, Gbedemah M, Martinez AM, Nash D, Galea S, Goodwin RD. Trends in depression prevalence in the USA from 2005 to 2015: widening disparities in vulnerable groups. *Psychol Med*. 2018;48(8):1308–1315.
32. Weiss A, King JE, Inoue-Murayama M, Matsuzawa T, Oswald AJ. Evidence for a midlife crisis in great apes consistent with the U-shape in human well-being. *Proc Natl Acad Sci U S A*. 2012;109(49):19949–19952.
33. Lachman ME. Mind the gap in the middle: a call to study midlife. *Res Hum Dev*. 2015;12(3–4):327–334.
34. Woolf SH, Chapman DA, Buchanich JM, Bobby KJ, Zimmerman EB, Blackburn SM. Changes in midlife death rates across racial and ethnic groups in the United States: systematic analysis of vital statistics. *BMJ*. 2018;362:k3096.