Trends and Variation in the Gap Between Current and Anticipated Life Satisfaction in the United States, 2008–2020

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See also Morey, p. 345.

Objectives. To describe national- and county-level trends and variation in a novel measure of hope.

Methods. Using data from the Gallup National Health and Well-Being Index (n = 2 766 728), we summarized the difference between anticipated life satisfaction (ALS) and current life satisfaction (CLS), measured by the Cantril Self-Anchoring Scale, for each year from 2008 to 2020 and by county over two 5-year periods in the United States.

Results. Across all years, there was a significant positive trend in the difference between ALS and CLS for the nation ($P = .024$), which remained positive but not significant when we excluded 2020. Maintenance of ALS with a decrease in CLS drove the 2020 increase. From 2008–2012 to 2013–2017, 14.5% of counties with 300 or more responses (n = 599) experienced an increase in the difference of more than 1 SD, whereas 13.9% experienced a more than 1 SD decrease. Fifty-two counties experienced decreases in ALS and CLS.

Conclusions. Responding to trends in the gap between ALS and CLS at national and local levels is essential for the collective well-being of our nation, especially as we navigate and emerge from crisis.
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Hope—a positive mental state that enables people to persist and proceed toward their goals and on their life paths[1]—is increasingly understood as vital to health and well-being.[2] At individual and population levels, greater levels of hope are correlated with better physical and mental health outcomes, health-related behaviors, emotional well-being, social relationships and support, life satisfaction, and quality of life.[3–9] Even before the onset of the COVID-19 pandemic, the national discourse about hope and related constructs was elevated by evidence suggesting that increased mortality from suicide, drug overdose, and alcohol-related conditions—identified as deaths of despair—underlay unprecedented and sustained declines in life expectancy for the United States.[10,11] The pandemic and its health, economic, and social consequences have further heightened concerns about hope, hope's role as a determinant of health and well-being, and potential consequences from population-level declines in hope.[12]

Promoting hope requires knowledge of how it is changing over time and how it varies across the country. Although measures of hope exist,[13] our nation currently lacks national data, trends, and benchmarks on hope over time. We, therefore, used national data collected almost daily for the Gallup National Health and Well-Being Index (WBI) to describe the level and patterns of a newly constructed measure using data available for the US population from 2008 through 2020.[14–16] This measure captures the common meaning of hope as the expectation that things will get better. We heard this sense of hope as an important and salient matter among communities we worked with aiming to improve their collective well-being. This definition also

builds on the work of others who have used Gallup data in recent years to examine how variation in stress, optimism, and hope relates to population health outcomes in the United States.[11,17] Accordingly, we defined hope as the difference between anticipated life satisfaction (ALS) 5 years hence and current life satisfaction (CLS) as reported at the time of the survey. We hypothesized that there would be geographic variation in this novel measure. We additionally hypothesized there would be a decrease in the gap between CLS and ALS for the nation as a whole in 2020.

METHODS

We used data from the WBI from January 2008 through September 2020. Of note, this index was named the "Gallup-Healthways Well-Being Index" from 2010 to 2016 and then the "Gallup-Sharecare Well-Being Index" from 2017 to 2018. The sampling strategy, described in detail in the supplementary file (available at http://www.ajph.org), resulted in estimates projectable to 95% to 96% of the US adult population. The execution of this data collection methodology coupled with the national and county-level iterative proportionate weighting applied by Gallup resulted in sampling that was adequately randomized and estimates that were generalizable to the larger populations from which they are derived.

We used data from the Cantril Self-Anchoring Striving Scale, which was administered across all years. This 2-item scale was designed to assess people's attitudes toward their current and future life on a continuum from worst to best, anchored by their own identified values.[18] We used the items of this scale to create the novel measure of hope in this study.

From 2008 through 2012, Gallup interviewed approximately 1000 US adults (aged ≥ 18 years) per day, for a total of approximately 353 000 US adults every year. From 2013 through 2016, Gallup interviewed approximately 500 US adults nearly every day, for a total of approximately 177 000 US adults every year. Near the end of 2017, Gallup moved to weekly sampling, completing more than 160 000 total interviews in 2017 and 115 929 in 2018. In 2018, the WBI moved to address-based sampling with a mail or Web mode of data collection and significantly reduced sample sizes compared with previous years. Smaller samples of 9645 and 2340 records were collected in 2019 and 2020, respectively. For more information about the sampling methods, see the online supplementary file.

Each respondent was assigned to a Federal Information Processing Standard area using their self-reported zip code. Each Federal Information Processing Standard code represents a US county or county equivalents (e.g., borough or parish). Zip codes that crossed county lines were mapped based on allocation to the county containing the majority of the population for that zip code. We used the most recently available demographic data from the US Census to characterize the populations of the counties.

Outcomes

We constructed our measure of hope using the components of the Cantril Self-Anchoring Striving Scale, which consists of the following prompt and 2 questions: Please imagine a ladder with steps numbered from 0 at the bottom to 10 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. (1) On which step of the ladder would you say you personally feel you stand at this time? (2) On which step do you think you will stand about 5 years from now?

The first question measured CLS and the second measured ALS. To assess population hope for a region (US or county) in a given period, we subtracted the mean CLS from the mean ALS for that population for that period.[19] A more positive difference between mean ALS and mean CLS indicated greater population hope. Our outcomes were population hope (high vs low, as described later) and change in population hope over time. We also examined how CLS and ALS change over time.

Statistical Analysis

We summarized population hope nationally for the United States for each year from 2008 through 2020. We weighted item responses to correct for unequal selection probability, nonresponse, and double coverage of landline and cell phone users in the 2 sampling frames. We also weighted samples to match the US population according to gender, age, race, Hispanic ethnicity, education, region, population density, and telephone status (cell phone only, landline only, both, and cell phone mostly). The online supplementary file provides more information on weighting methods. For each annual sample, demographic weighting targets for the US were uniquely based on the most recently available Current Population Survey Annual Social and Economic Supplement figures for the US population aged 18 years or older, whereas

phone status targets were based on the most recently available National Health Interview Survey. Population density targets were based on the most recent US Census. County-level weighting targets for 2008 through 2012 were based on 2011 Claritas demographic statistics, and weighting targets for 2013 through 2017 were based on 2017 Claritas demographic statistics. All reported margins of sampling error included computed design effects for weighting.

To examine national trends, we included all respondents each year. We performed a Cochrane–Armitage nonparametric trend test[20] to assess trends over this 10-year period and graphed national trends over time. We also examined trends in the components of the measure of hope: CLS and ALS.

To have adequate sample sizes for reporting county-level hope, we combined years 2008–2012 and 2013–2017. The last year with adequate numbers to make county-level estimates was 2017. The population size of 300 minimum threshold is a Gallup requirement for public reporting of large population samples that ensures stability of results and provides the weighting algorithm with sufficient records. We excluded counties with fewer than 300 respondents in either period. For each of the 2 periods and each retained county, we calculated the same outcomes previously described. Additionally, for each outcome, we classified each county according to whether it improved, remained unchanged, or worsened. Consistent with our previous work,[21] we classified counties as having a meaningful change in hope if the change was 1 SD above or below the average county change; this threshold ensured that high and low performers included a range of county characteristics. We report the number and percentage of counties in each of these categories.

To better understand whether changes in CLS or ALS drove change in hope, in each of the 3 larger groupings (i.e., above average, average, and below average change) we classified whether the changes in CLS and ALS were positive or negative. We plotted 2013 to 2017 scores against 2008 to 2012 scores to illustrate the distribution of changes in hope and its components between these 2 periods; we also plotted change in ALS against change in CLS. In addition, we report the 10 counties with the highest and lowest hope in 2013 to 2017, the 10 counties with the greatest improvement and greatest decline in hope between the 2 periods, and the corresponding ALS, CLS, and changes in ALS and CLS.

We performed all analyses using Stata version 16.1 (StataCorp LP, College Station, TX) and SPSS version 22.0 (SPSS, Armonk, NY). We used a critical value of α equal to 0.05 to assess statistical significance.

RESULTS

For national analyses, we included 2 766 728 respondents to the WBI from 2008 to 2020. For the county-level analysis, there were 599 counties with at least 300 respondents in each period, representing an estimated 78.1% of the total US population. Metropolitan counties were represented in the included sample disproportionately more than were nonmetropolitan counties, with 48.0% metropolitan counties included and 1.7% nonmetropolitan counties included. Counties included in the study had a younger age distribution, a lower percentage of White Americans (81.1% vs 86.8%) and Native Americans (1.7% vs 3.2%), higher percentages of Black Americans (12.1% vs 9.0%) and Asian Americans (4.1% vs 0.9%), a higher percentage of Hispanic Americans (11.9% vs 7.5%), higher median household income distribution, and higher educational attainment than did counties that were not included (Table A [available as a supplement to the online version of this article at http://www.ajph.org]).

National Trends and Variation in Hope

From 2008 to 2019, hope for the nation as a whole remained largely unchanged, ranging between +0.71 and +0.84, until it increased from +0.79 in 2019 to +0.92 in 2020 (Table 1). Across all years, there was a significant positive trend overall ($P = .024$); this trend was still positive but not significant when we excluded 2020. The increase in the difference between ALS and CLS in 2020 was driven by a decline in CLS (from 6.96 in 2019 to 6.84 in 2020; Table 1), whereas ALS remained unchanged (7.75 in 2019, 7.76 in 2020; Figure 1). These results are consistent with those found via the Gallup Panel[22]—a separate probability-based non–opt in panel of 120 000 panelists nationwide and one of the nation's few research panels that represent the entire US adult population—which saw a statistically significant decline in the percentage of respondents reporting a 7 or higher to CLS with little or no improvement to ALS over the course of the COVID-19 era.[23]

County Trends and Variation in Hope

For the 2013 to 2017 period, counties in the top decile for hope had a mean difference between ALS and CLS of +1.1, with a range from +1.0 to +1.5.

TABLE 1— CLS, ALS, and Difference Between ALS and CLS by Year: United States, 2008–2020

Year	Respondents	CLS, Mean[a]	ALS, Mean[a]	Difference Between ALS and CLS
2008	355 334	6.79	7.56	+0.77
2009	353 849	6.91	7.68	+0.77
2010	352 840	6.97	7.74	+0.77
2011	353 492	6.93	7.73	+0.80
2012	353 571	6.93	7.77	+0.84
2013	178 072	6.95	7.66	+0.71
2014	176 702	6.98	7.78	+0.80
2015	177 281	7.02	7.84	+0.82
2016	177 192	7.03	7.84	+0.81
2017	160 498	7.06	7.90	+0.84
2018	115 929	6.92	7.76	+0.84
2019	9 645	6.96	7.75	+0.79
2020	2 340	6.84	7.76	+0.92

Note. ALS = anticipated life satisfaction; CLS = current life satisfaction.

[a]ALS and CLS were scored from 0 to 10 based on the Cantril Self-Anchoring Striving Scale.

Counties in the bottom decile for hope had a mean difference between ALS and CLS of +0.4, with a range from −0.2 to +0.5. The 10 counties with the highest and the 10 counties with the lowest hope in 2013 to 2017 are reported in Table B (available as a supplement to the online version of this article at http://www.ajph.org).

From the first to the second period, 87 counties (14.5%) experienced an increase in hope greater in magnitude than 1 SD above the mean of the first period, and 83 (13.9%) experienced a decrease in hope greater in magnitude than 1 SD below the mean of the first period (Table C [available as a supplement to the online version of this article at http://www.ajph.org]; Figure 2). Increase in hope resulted primarily from an increase in ALS (Figure 3). Specifically, increased ALS led to increased hope with either a decrease in CLS (n = 27) or a lesser increase in CLS (n = 48), whereas a decrease in hope resulted primarily from an increase in CLS with either a decrease in ALS (n = 45) or a lesser increase in ALS (n = 36; Table D, available as a supplement to the online version of this article at http://ajph.org). Notably, 52 counties (8.9%) experienced decreases in both CLS and ALS from the first to second 5-year periods, although for 38 of these counties the difference between the 2 remained unchanged. The 10 counties with the greatest increases in hope and the 10 counties with the greatest decreases in hope from 2008–2012 to 2013–2017 are reported in Table D (available as a supplement to the online version of this article at http://www.ajph.org).

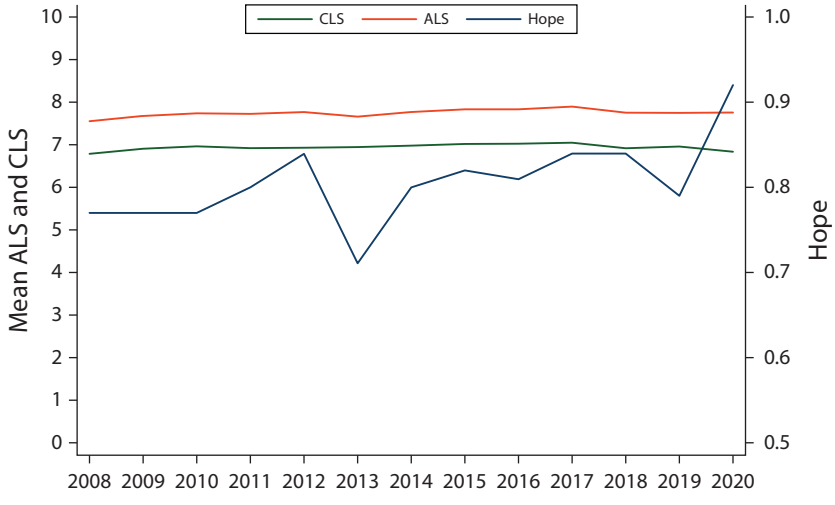

FIGURE 1— Current Life Satisfaction (CLS), Anticipated Life Satisfaction (ALS), and Hope for the United States: 2008–2020

Note. ALS and CLS were scored from 0 to 10 based on the Cantril Self-Anchoring Striving Scale.

DISCUSSION

Using the largest multiyear data set on life evaluation in the United States, this study provides the first, to our knowledge, comprehensive look at the gap between CLS and ALS. We found that this newly constructed measure remained largely unchanged at the national level year to year from 2008 through 2019, with a sharp increase in 2020, reflecting a distinct decline in CLS amid the COVID-19 pandemic, whereas ALS remained unchanged. Importantly, in the years before the pandemic,

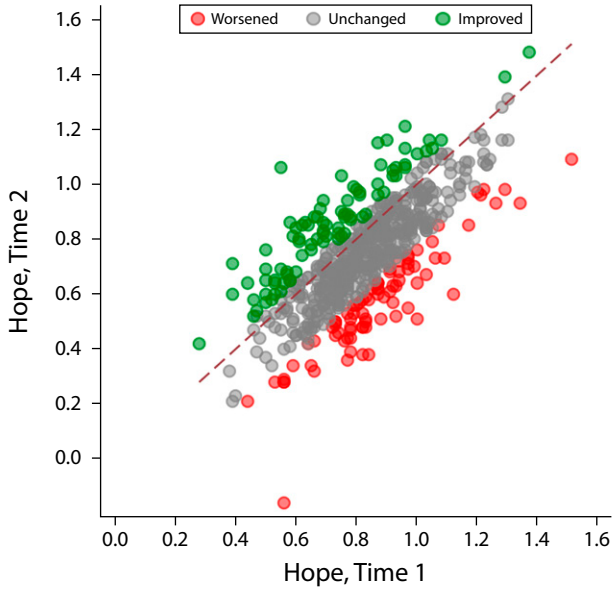

FIGURE 2— Change in Hope as Measured by the Difference Between Anticipated Life Satisfaction (ALS) and Current Life Satisfaction (CLS) for Included US Counties from 2008–2012 (Time 1) to 2013–2017 (Time 2)

Note. ALS and CLS were scored from 0 to 10 based on the Cantril Self-Anchoring Striving Scale.

despite the relative stability in this measure at the national level, marked geographic variation existed across counties. Most notably and concerningly, the difference between ALS and CLS declined in nearly 1 out of every 7 counties, whereas both CLS and ALS declined in nearly 1 out every 11 counties, even before the onset of the pandemic in late 2019. These findings suggest that declines in this novel measure of hope were concentrated in particular US counties.

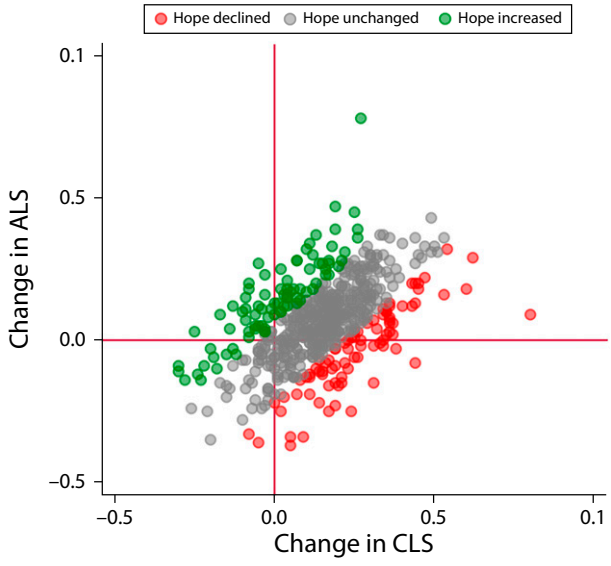

FIGURE 3— Change in Anticipated Life Satisfaction (ALS) and Current Life Satisfaction (CLS) for Included US Counties: 2008–2012 to 2013–2017

Note. ALS and CLS were scored from 0 to 10 based on the Cantril Self-Anchoring Striving Scale.

During a year marked by a global pandemic and its economic and social consequences, the finding that US adults maintained their ALS despite the decrease in their CLS is remarkable. These findings suggest that, on average, adults in the United States retained a sense of hope for their future, despite significant decline in their current lives amid the pandemic. This pattern of change suggests that the change in CLS may be transient, that the maintained sense of hope for the future is potentially an asset to be used, and that the decline in CLS if maintained or worsened could portend further declines in the future—perhaps depending on whether conditions persist and what actions are taken. These results also underscore the responsiveness of these measures and suggest an increased likelihood that tracking and monitoring efforts to improve them would be useful.

The proportion of counties that experienced a decline in hope combined with the additional number of counties that experienced declines in both CLS and ALS before the onset of the pandemic is worrisome. This finding is concerning in part because of the anticipated negative downstream effects that may occur on the health and well-being of the people in those counties and for the US population as a whole. Although a positive future outlook is associated with good physical and mental health, engagement in healthy behaviors, and emotional and social well-being, a negative future outlook is a risk factor for poor physical health outcomes (e.g., increased mortality, unhealthy and risky behaviors, mental health disorders such as anxiety and depression).[3–9]

If experienced widely enough or perhaps in high enough concentrations in populations, the effects of hope on health may lead to shifts in population health. As an example, recent studies have shown how unprecedented declines in US life expectancy in the years before the onset of the pandemic were attributed to increasing mortality rates from drug overdoses, suicides, and alcohol-related conditions, which have become collectively referred to as deaths of despair.[10,11] It has been suggested that the sustained negative effect on national life expectancy was a result of substantial declines in mental and physical health concentrated in particular US subpopulations. In their work studying hope and despair in the United States, Graham and Pinto[11] used measures of CLS and ALS, although not the difference between them, to examine the associations between hope and health inequities in US populations.[24,25] They identified how "markers of ill-being," including lack of hope, were correlated with increasing rates of premature mortality among less-educated White persons.[11] As we discuss later, it appears that hope—and lack of hope—and associated health outcomes may concentrate in certain communities.[11,26]

The concern about this trend in hope also arises, in part, from what it likely indicates about upstream factors at national and local levels. At the national level, the relative stability of hope for the decade before the pandemic followed by a nonintuitive increase in hope during the pandemic begs further examination of the conditions that contribute to national hope and the constructs that comprise this measure of hope. At the county level, the observed geographic variation in hope is not surprising, as place is a known contributor to the hope of a population.[11,27] As an example, hopelessness has been shown to cluster at the neighborhood level, which is associated with local characteristics related to socioeconomics, opportunity, and the physical environment, including factors such as higher unemployment rate and greater perceived disorder.[26] The decline in hope in 1 of every 7 counties, along with the decline in both CLS and ALS in other counties, even before the pandemic may point to geographic populations exposed to systemic or structural factors undermining hope. If modifiable local factors underlay observed trends, they may offer opportunities for intervention. It could also be that these first 100 counties serve as bellwether counties and signal the need for larger scale interventions beyond the local level.

Although our findings suggest a need to bolster hope for some people and places and rebuild hope for others, it is not yet evident how to accomplish this. Importantly, factors across multiple dimensions, including economic, social, and political, may contribute to population hope.[13,26–29] Snyder et al. suggests that group-level hope is fostered by prosocial norms and institutions that encourage citizenship through factors such as civility, tolerance, nurturance, and altruism.[13] Subsequently, Hirano et al. suggest that a sense of purpose and robust social networks are key factors to fostering hope in general urban populations in Japan.[28] More recently, a cross-national study of CLS identified 6 factors that explained nearly three quarters of the variation in national CLS: gross domestic product per capita, social support, healthy life expectancy, freedom to make life choices, generosity, and freedom from corruption.[30] Other studies have shown that factors across economic, social, cultural, environmental, and political domains influence population-level measures of well-being, although, to our knowledge, no researchers have studied hope directly or explicitly.[31–34] An extensive body of research has identified social factors, including social support, social trust, and generosity, as vital contributors to thriving, with complementary research suggesting their role in the production of hope in populations.[26,29,35–43]

As a key determinant of health and well-being, hope is a public health matter. Consequently, it would be prudent for our nation to invest time, effort, and resources into investigating how best to improve hope, both nationally and locally. Even before the current public health crisis, stagnation, variation, and decline in population hope signaled the need for intervention. Recent research suggests that we may need to intervene in well-known population targets, such as economic vitality, as well as novel population targets like sense of purpose, civic engagement, and quality of social relationships.[1] If structural factors (e.g., lack of economic opportunity, physical disorder, racism) are contributing to stagnation, variation, and declines in hope, then progress will require systemic transformation.[44,45] Moreover, the pandemic and recovery from it may be escalating this demand, making hope a necessary part of national and local strategies to navigate through and emerge from our current crisis. To drive improvement in population hope at national and county levels, it must be measured and tracked—something lacking in the United States outside the WBI—as well as prioritized and acted upon. In responding to CLS, ALS, and the difference between them for different populations and places, we must also learn the primary drivers for these

measures and the most effective means for modifying them.

Immediate next steps could include comparing this novel measure with established measures of hope. The Cantril Self-Anchoring Scale, which provides the basis for this measure, has been tested among diverse populations for reliability and validity for its original purpose, whereas this newly constructed measure has not yet been validated.[46] Validation of this study's measure against existing measures of hope, such as the Adult Hope Scales,[13,47,48] would be useful. Studies examining how the measure varies based on population sociodemographics, such as age, would also be helpful for interpreting results. Additionally, next steps should include conducting qualitative assessment of the measure and our findings, studying the actionable determinants of this novel measure of hope, and advancing the availability of timely data on hope at national and local levels.

Limitations

This study has limitations. First, nonresponse bias may have threatened the representativeness of the data. In collecting data for the largest data set on well-being in the United States, Gallup applied sampling and weighting methods to manage nonresponse bias and produce data representative of the populations included in the study. Of note, response rates[39] eroded over the 10-year measurement period from 15% to 10%, reflecting in part a methodologically requisite increase in the percentage of cell phone–based interviews each polling day from 15% in 2008 to 70% in 2017. As contact rates and cooperation rates were lower among cell phone users, the increase in the cell apportionment of the sampling frame contributed to deterioration in overall response rates relative to earlier years. Despite this erosion, state-level results for many shared metrics (e.g., obesity rates) were cross-validated with results from government-sponsored health surveys that have high response rates (e.g., the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System [BRFSS]), with highly convergent results. These results affirm the weighting algorithms used with the WBI to overcome nonresponse bias and other related issues associated with data collected with lower response rates. For example, recent comparisons[49] of the WBI and BRFSS show that obesity estimates from the same measurement year (2017) yielded a correlation of 0.940, and state obesity ranks yielded a correlation of 0.947.

Second, county-level data were reported as 5-year aggregates only for counties with at least 300 respondents in 5 years; this report cannot demonstrate annual trends for counties in those 5-year time frames or provide insights into smaller and less densely populated counties with the vast majority of nonmetropolitan counties excluded from the county-level analysis. Still, the aggregate results provided reliable estimates within the confines of each reporting period, and the included counties are home to 78% of the US population, although they are skewed to counties with populations that are younger, are more educated, and have higher incomes. The included counties also have proportionately more Black, Asian, and Hispanic Americans and proportionately fewer White and Native Americans.

Conclusions

From 2008 through 2017, the gap between CLS and ALS remained stable nationally. During this period, this measure remained unchanged in many counties, increased in some, and decreased in 1 of every 7 counties, with declines in CLS and ALS in additional counties. Then in 2020, in the context of the COVID-19 pandemic, this novel measure of hope increased nationally as a result of maintenance in optimism about the future despite lower CLS. Public health action to foster and rebuild hope are essential for the health and well-being of our nation. Tracking and responding to hope with national and local strategies may be essential for our collective health and well-being as we navigate through and emerge from our current crisis. AJPH

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CONTRIBUTORS

C. Riley and B. Roy conceptualized the study. C. Riley, J. Herrin, V. Lam, D. Liu, D. Witters, H. M. Krumholz, and B. Roy designed the study. J. Herrin, V. Lam, and D. Liu performed the analyses. All authors contributed to data interpretation,

drafting and revising the article, and its final approval, and are guarantors.

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CONFLICTS OF INTEREST

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HUMAN PARTICIPANT PROTECTION

The Yale University institutional review board exempted the study (protocol 1502015410) and informed consent was not required because the study was retrospective and used de-identified data.

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