

# BMJ Open Trends and geographical variation in population thriving, struggling and suffering across the USA, 2008–2017: a retrospective repeated cross-sectional study

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## ABSTRACT

**Objectives** Well-being is a holistic, positively framed conception of health, integrating physical, emotional, social, financial, community and spiritual aspects of life. High well-being is an intrinsically worthy goal for individuals, communities and nations. Multiple measures of well-being exist, yet we lack information to identify benchmarks, geographical disparities and targets for intervention to improve population life evaluation in the USA.

**Design** Using data from the Gallup National Health and Well-Being Index, we conducted retrospective analyses of a series of cross-sectional samples.

**Setting/participants** We summarised select well-being outcomes nationally for each year, and by county (n=599) over two time periods, 2008–2012 and 2013–2017.

**Main outcome measures** We report percentages of people thriving, struggling and suffering using the Cantril Self-Anchoring Scale, percentages reporting high or low current life satisfaction, percentages reporting high or low future life optimism, and changes in these percentages over time.

**Results** Nationally, the percentage of people that report thriving increased from 48.9% in 2008 to 56.3% in 2017 ( $p<0.05$ ). The percentage suffering was not significantly different over time, ranging from 4.4% to 3.2%. In 2013–2017, counties with the highest life evaluation had a mean 63.6% thriving and 2.3% suffering while counties with the lowest life evaluation had a mean 49.5% thriving and 6.5% suffering, with counties experiencing up to 10% suffering, threefold the national average. Changes in county-level life evaluation also varied. While counties with the greatest improvements experienced 10%–15% increase in the absolute percentage thriving or 3%–5% decrease in absolute percentage suffering, most counties experienced no change and some experienced declines in life evaluation.

**Conclusions** The percentage of the US population thriving increased from 2008 to 2017 while the percentage suffering remained unchanged. Marked geographical variation exists indicating priority areas for intervention.

## Strengths and limitations of this study

- Using the largest longitudinal dataset on well-being of the US population, this study provides the first comprehensive report on national and county-level trends in thriving, struggling and suffering in the USA.
- The study assesses change over time at national and county levels as well as county-level variation in multiple measures of well-being from 2008 through 2017.
- Because non-response bias could threaten the representativeness of the data, Gallup applied sampling and weighting methods to manage non-response bias and produce data representative of the populations included in the study.
- While the outcomes are subjective, self-reported outcomes, leaving the potential for responses to change over time in a way that is unrelated to underlying life evaluation, the measure employed, Cantril Self-Anchoring Scale, has been thoroughly tested for reliability and validity.
- The county-level data are reported as 5-year aggregates for counties with at least 300 respondents in 5 years so that the results provide reliable estimates within the confines of each reporting period; of note, the counties included are home to more than three-quarters of the US population.

## INTRODUCTION

Well-being is a holistic assessment of life that integrates the physical, emotional, social, financial, community and spiritual aspects of life. High well-being is an intrinsically worthy goal for individuals, workplaces, communities and nations.<sup>1–5</sup> Higher well-being is also associated with many desirable health and healthcare outcomes, such as longer life expectancy, better cardiovascular health, reduced risk of preterm delivery, lower acute care utilisation and healthcare spending.<sup>6–12</sup>

Higher well-being is also associated with better mental and emotional health.<sup>13 14</sup>

In recent years, increasing numbers of governments, health systems, workplaces and communities are targeting higher well-being as a priority outcome.<sup>15–24</sup> In recent months, the COVID-19 pandemic and its social and economic consequences have additionally underscored the need for and value of a holistic approach to population health and well-being, as governments consider the public health and economic implications of their responses.<sup>21</sup> In addition, there is early evidence that the pandemic has been associated with increases in worry and stress as well as dramatic decreases in thriving.<sup>25 26</sup> As such, there is growing concern about the consequences of low or declining life evaluation, with recent evidence from the USA pointing to substantial population health ramifications that began prior to the COVID-19 pandemic. For example, poorer emotional health and lower rates of thriving have been shown to be associated with higher rates of depression and mortality from overdose and suicide.<sup>14 27</sup> The current global public health crisis and its sequelae exacerbate these risks, and makes a national measure of well-being particularly relevant to understanding how people in the USA are faring as policies that influence tradeoffs between health and other aspects of life are enacted.

Despite the growing interest in and concern for well-being across the USA, we lack the information necessary for identifying benchmarks, geographical disparities and targets for intervention. As the nation and its communities strive for recovery, knowing the recent trends and variation in well-being outcomes that preceded the pandemic could provide insights into what the nation has been able to achieve, where lower well-being and inequities in well-being already existed, and where improvement efforts may be focused. Multiple measures of well-being exist, with life evaluation and its categories of thriving, struggling and suffering being one of the most widely and frequently used. Accordingly, we report on one of the largest population level surveys of well-being over 10 years, using national data collected over a decade to describe the life evaluation of the US population from 2008 through 2017—categorised as thriving, struggling or suffering—and its components of current life satisfaction and future life optimism.<sup>3 28 29</sup>

## METHODS

### Data

We used data from the Gallup National Health and Well-Being Index (WBI) from January 2008 through December 2017. This index was named the Gallup-Healthways Well-Being Index from 2010 to 2015 and then the Gallup-Sharecare Well-Being Index in 2016–2017. For this study, we used data from the Life Evaluation Index of the WBI, which was administered over all 10 years.

Gallup interviewed 1000 US adults daily from 2008 to 12 and 500 daily from 2013 to 2017. Gallup surveyed

respondents from 50 states and the District of Columbia, using a dual-frame design, which included landline and cellphone numbers, with regional quotas set for each day/week.<sup>29</sup> They conducted sampling using random-digit-dial methods. A structured sampling design allowed up to three scheduled or stratified call-backs, maximising the probability that harder-to-reach respondents were included in each sample. Gallup chose landline respondents at random within each household based on which member had the most recent birthday, while assuming one respondent per cell phone line. Each sample of national adults included a minimum quota of landline and cellphone respondents, with additional minimum quotas by time zone within each region. In the 2008 data collection period, this percentage was 85% landline and 15% cellphone. By the 2017 data collection period, the cellphone percentage had grown to 70% of the daily sample, reflecting changes in US cellphone usage and the need to adequately represent cell-only users who are younger, more racially and ethnically diverse, lower income, more transient, and less likely to be married than their dual-use or landline-only counterparts. In any given year, about 35%–37% of all calls resulted in a live contact resulting in 26%–32% of candidates that agreed to be interviewed. Of those who agreed to be interviewed, full-interview completion rates ranged from 84% to 92%. Overall response rates averaged about 8%–13% over the full 10-year sampling period. Gallup conducted interviews in Spanish for respondents who are primarily Spanish-speaking, representing approximately one-third of all Hispanic respondents. Non-English or Spanish-speaking persons, those with significant hearing loss and those without a phone were all excluded from inclusion in the survey, resulting in estimates that were projectable to about 95%–96% of the US adult population over this period.

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 aged 18 and older US population, while phone status targets were based on the most recently available National Health Interview Survey.<sup>30 31</sup> Population density targets were based on the most recent US Census. County-level weighting targets for 2008–2012 were based on 2011 Claritas demographic statistics and weighting targets for 2013–2017 were based on 2017 Claritas demographic statistics.

Each respondent was assigned to a FIPS area (ie, a county or county equivalent) using their self-reported ZIP code. ZIP codes that crossed county lines were mapped based on plurality of the population residing in that ZIP code. We used the most recently available demographic data from the US Census to characterise counties.<sup>32</sup>

### Outcomes

#### Life evaluation

Life evaluation was measured using the Cantril Self-Anchoring Scale,<sup>33</sup> which consists of the following

prompt and questions: *Please imagine a ladder with steps numbered from zero 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.*<sup>1</sup> *On which step of the ladder would you say you personally feel you stand at this time?*<sup>2</sup> *On which step do you think you will stand about 5 years from now?* The first item measures current life satisfaction (CLS) and the second measures future life optimism (FLO).

Based on established practice, we categorised responses into three groups.<sup>34–36</sup> Respondents with positive views of their current life situation (CLS  $\geq 7$ ) and positive views of the next 5 years (FLO  $\geq 8$ ) were categorised as thriving. Respondents with negative views of their current life situation (CLS  $\leq 4$ ) and negative views of the future life (FLO  $\leq 4$ ) were categorised as suffering. All other respondents are categorised as struggling.

### Statistical analysis

We summarised outcomes nationally for each year from 2008 through 2017 and by county over two 5-year time periods, 2008–2012 and 2013–2017. We weighted each summary score to correct for unequal selection probability, non-response, and double coverage of landline and cellphone users in the two sampling frames. We also weighted samples to match the US population according to gender, age, race, Hispanic ethnicity, education, region, population density and phone status (cellphone only, landline only, both and cellphone mostly). All reported margins of sampling error include computed design effects for weighting.

To examine trends in national life evaluation, we included all respondents each year. We calculated monthly percentages of the population thriving, struggling and suffering. We then estimated for each outcome an ARIMA model which accounted for correlation of 1 and 12 months and moving average effects to estimate mean monthly change over this 10-year period.<sup>37</sup>

For reporting county-level scores, we combined years 2008–2012 and 2013–2017 and excluded counties with fewer than 300 respondents in either of the two time periods. For each of the two time periods and each retained county, we calculated the same outcomes as described previously. In addition, for each outcome we classified each county according to whether it significantly improved, worsened or remained unchanged depending on whether the 95% CI for the change from 2008 to 2012 to 2013–2017 was above, below or included zero. Changes in each outcome were graphed using US county-level maps. We plotted 2013–2017 scores against 2008–2012 scores to illustrate the distribution of changes over time. We also report the 10 counties with the highest and lowest percentages thriving and suffering, respectively, and with the most improvement in thriving and suffering.

### Patient and public involvement

This research was done without patient involvement. Patients were not invited to comment on the study

design and were not consulted to develop patient relevant outcomes or interpret the results. Patients were not invited to contribute to the writing or editing of this document for readability or accuracy.

The Yale University institutional review board exempted the study (Protocol no. 1502015410). All data are retrospective and deidentified. All analyses were performed using Stata V.16 (StataCorp, College Station, TX) and SPSS V.22.0.

## RESULTS

### Study sample

For national analyses, we included the 2 638 824 respondents who participated in the WBI from 2008 to 2017 (online supplemental table 1). For county-level analyses, we retained 599 counties with at least 300 respondents in each time period, an estimated 78% of the total US population (table 1).

### US national well-being

From 2008 to 2017, the percentage of the national population categorised as thriving increased from 48.9% to 56.3% ( $p < 0.05$ ). The percentage thriving increased from 2008 to 2010, decreased in 2011 and then mostly increased from 2011 to 2017. Over this same time period, the percentage categorised as struggling decreased from 46.7% to 40.5%, while the percentage suffering remained unchanged, although with a downward trend from 4.4% to 3.2% that did not meet statistical significance. The time-series models that accounted for month-to-month and yearly correlation confirmed these trends with estimated monthly percentage increase in thriving (0.065,  $p < 0.001$ ), decrease in struggling ( $-0.060$ ,  $p < 0.001$ ) and no statistically significant monthly change in suffering ( $-0.0059$ ,  $p = 0.506$ ) (figure 1).

From 2008 to 2017, the percentage of the national population with high CLS ( $\geq 7$ ) steadily increased from 63.6% to 66.5%, while the percentage with low CLS ( $\leq 4$ ) steadily decreased from 10.7% to 9.5%. The percentage of the national population with high FLO ( $\geq 8$ ) increased from 77.7% to 79.5%, while the percentage with low FLO ( $\leq 4$ ) decreased from 9.2% to 8.3% (figure 2). The corresponding time series models found only the change in low CLS to be significant ( $-0.020$ ,  $p = 0.018$ ).

### US county well-being

#### Thriving, struggling and suffering

For the 2013–2017 time period, counties in the top decile for thriving had a mean of 63.6% of the population thriving with range from 61.1% to 69.6% (figure 3). These counties had mean percentage suffering of 2.3%, with a range of 0.6% to 5.3%. Counties in the top decile for suffering had a mean 6.5% of their population suffering, ranging from 5.4% to 10.6% suffering (figure 3). These counties had mean percentage thriving of 49.5%, with a range of 38.3% to 58.3%. The 10 counties with the highest percentage thriving and suffering,

**Table 1** Characteristics of US counties included and excluded from analyses

Characteristic	Included counties N=599	Excluded counties N=2544
Percentage of total US population	78.1%	21.9%
Census Division		
New England	33	34
Mid-Atlantic	82	68
East North Central	90	347
West North Central	41	577
South Atlantic	131	458
East South Central	41	323
West South Central	62	408
Mountain	47	234
Pacific	72	95
Metropolitan status		
Metropolitan	565	602
Nonmetropolitan	34	1942
Sex		
Female	50.9%	50.2%
Male	49.1%	49.8%
Age (years)		
Under 5	6.4%	6.1%
5 to 9	6.5%	6.3%
10 to 14	6.6%	6.6%
15 to 19	7.2%	6.9%
20 to 24	7.3%	5.9%
25 to 34	13.0%	11.1%
35 to 44	13.1%	12.1%
45 to 54	14.4%	14.8%
55 to 59	6.5%	7.1%
60 to 64	5.6%	6.4%
65 to 74	7.3%	9.1%
75 to 84	4.3%	5.4%
85 and over	1.8%	2.2%
Race		
American Indian and Alaskan Native	1.7%	3.2%
Asian	4.1%	0.9%
Black or African American	12.1%	9.0%
Native Hawaiian and Other Pacific Islander	0.4%	0.1%
White	81.1%	86.8%
Some other race	3.6%	1.9%
Two or more races	2.7%	1.9%
Ethnicity		

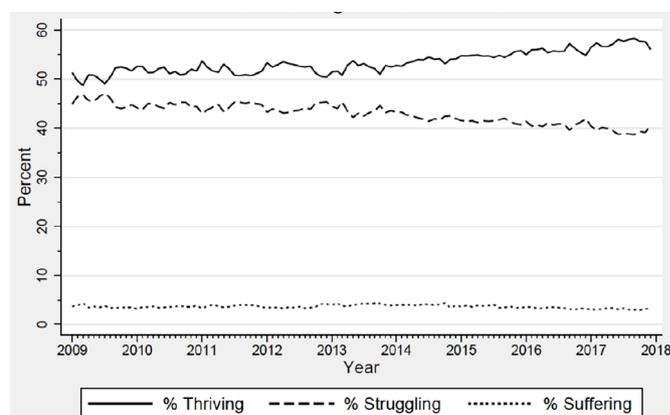
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**Table 1** Continued

Characteristic	Included counties N=599	Excluded counties N=2544
Hispanic or Latinx	11.9%	7.5%
Education		
Less than high school graduate	12.6%	17.1%
High school graduate	28.7%	36.3%
Some college or associate's degree	32.7%	30.7%
Bachelor's degree	16.9%	10.8%
Graduate or professional degree	9.2%	5.0%
Income (US\$)		
Less than 10 000	6.8%	8.7%
10 000 to 14 999	5.2%	7.2%
15 000 to 24 999	10.4%	13.5%
25 000 to 34 999	10.3%	12.3%
35 000 to 49 999	13.9%	15.4%
50 000 to 74 999	18.6%	18.8%
75 000 to 99 999	12.7%	11.2%
100 000 to 149 000	13.1%	8.8%
150 000 to 199 999	4.7%	2.3%
200 000 or more	4.2%	1.8%

and the 10 counties with the lowest percentage thriving and suffering in 2013–2017 are listed in [table 2](#).

From the 2008–2012 time period to the 2013–2017 time period, 145 counties (24.2%) experienced a statistically significant ( $p < 0.05$ ) increase in percentage thriving, and 6 (1.0%) experienced a decrease in the percentage thriving ([figure 4](#)). From the first to second time periods, 35 counties (5.8%) experienced a decrease in percentage suffering, and 16 counties (2.7%) experienced an increase in percentage suffering ([figure 4](#)). The 10 counties with the most improvement in thriving and the 10

**Figure 1** US national population thriving, struggling and suffering, 2009–2017.

counties with the most improvement in suffering from 2008 to 2012 to 2013–2017 are included in [table 3](#).

### Current life satisfaction

For the 2013 to 2017 time period, counties in the top decile for high CLS had a mean of 74.8% of the population with high CLS and 5.9% with low CLS. Counties in the bottom decile for high CLS had a mean of 59.4% of the population with high CLS and 13.9% with low CLS.

From the first to second time periods, 173 counties (28.9%) experienced an increase in the percentage of the population with high CLS, and 2 (0.3%) experienced a decrease in the percentage with high CLS ([figure 4](#)). From the first to the second time periods, 90 counties (15.0%) experienced a decrease in the percentage of the population with low CLS, and seven counties (1.2%) experienced an increase in the percentage with low CLS.

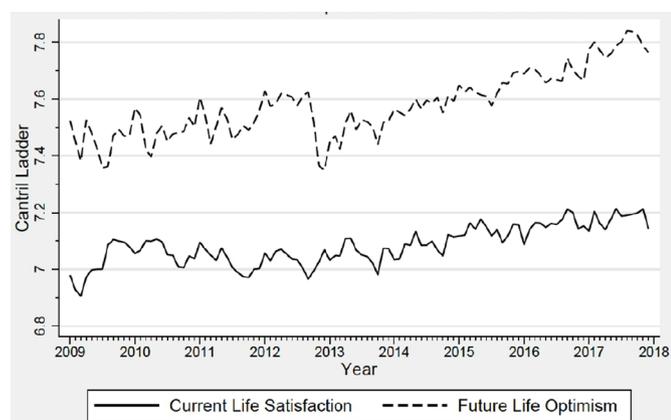
### Future life optimism

For the 2013–2017 time period, counties in the top decile for high FLO had a mean of 85.2% of the population with high FLO and 5.1% with low FLO. Counties in the bottom decile for high FLO had a mean of 71.5% of the population with high FLO and 13.1% with low FLO.

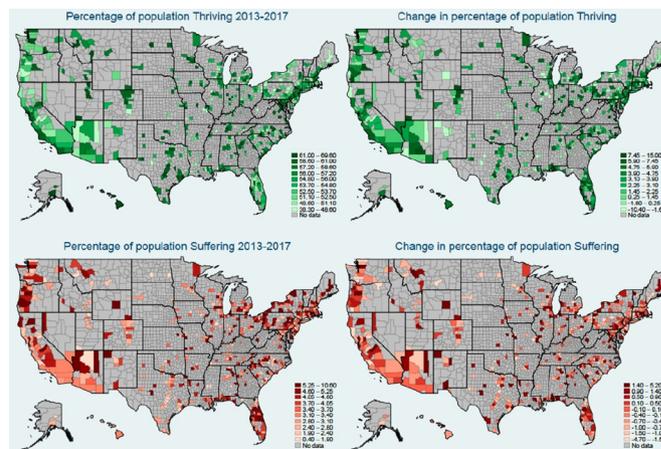
Overall, FLO demonstrated less improvement from the first to second time period than CLS. From the first to second time periods, 51 counties (8.5%) experienced an increase in the percentage of the population with high FLO, and 5 (0.8%) experienced a decrease in the percentage with high FLO ([figure 4](#)). From the first to the second time periods, 31 counties (5.2%) experienced a decrease in the percentage of the population with low FLO, and 3 counties (0.5%) experienced an increase in the percentage with low FLO.

## DISCUSSION

Using the largest longitudinal dataset on well-being of the US population, this is the first comprehensive report on US national and county-level trends in thriving, struggling and suffering. In 2017, 56.3% of the total US population was thriving and 3.2% suffering. Across the



**Figure 2** US national average current life satisfaction and future life optimism, 2009–2017.



**Figure 3** Thriving and suffering in US counties, 2013–2017 vs 2008–2012.

preceding 10-year period, an increasing percentage of the total US population reported to be thriving, while a decreasing percentage was struggling with no statistically significant change in percentage suffering. However, marked geographical variations in life evaluation, its components and their trends existed across counties. In the most recent time period, counties with the highest life evaluation had percentages thriving that were 30% greater on average than those in the lowest life evaluation counties. These lowest life evaluation counties also had percentages suffering that were nearly threefold the percentages suffering in the highest life evaluation counties. To further underscore the high degree of variation that existed, there was a more than 10-fold difference in suffering between the highest and lowest performing counties. Over these 10 years, while counties with the greatest improvements experienced 10%–15% increases in absolute percentages thriving or 3%–5% decreases in absolute percentages suffering, most counties experienced no change and some experienced declines in these metrics.

The increases in percentage thriving and percentage reporting high current life satisfaction for the nation merit attention.<sup>38</sup> In studying cross-national variation, a recent international report on CLS noted six factors explained nearly three-quarters of variation in national CLS: gross domestic product per capita, social support, healthy life expectancy, freedom to make life choices, generosity and freedom from corruption.<sup>39</sup> Indeed, trends in percentage thriving paralleled economic trends across our 10-year study period, as the national percentage thriving declined from late 2008 to mid-2009, concomitant with the most detrimental period of the Great Recession and consistently improved thereafter.<sup>40–42</sup> However, this association between economic vitality and population thriving likely results from complex mechanisms among multiple factors, including the social determinants of well-being. These mechanisms likely contributed to recent declines in well-being observed in the US during the global pandemic, as social support, healthy life expectancy and freedom

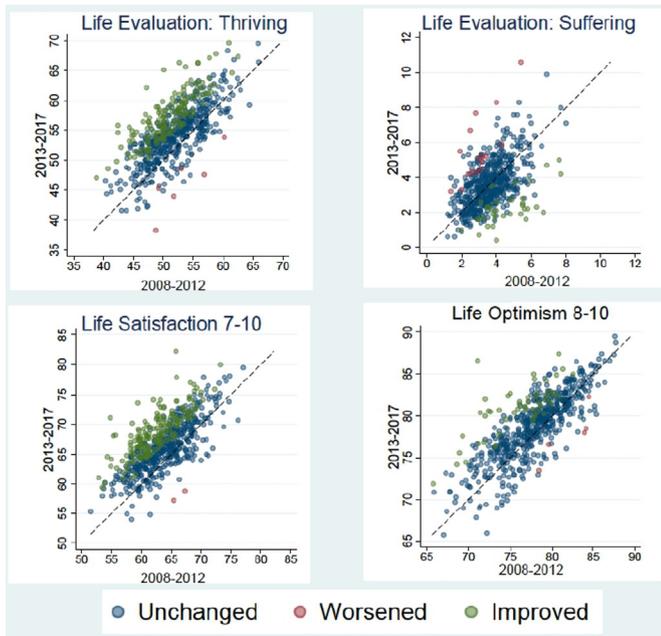
to make life choices have been negatively impacted by public health precautions associated with the pandemic. A recent publication from Gallup reported that during the first months of the pandemic, March through April 2020, the percentage of the US population thriving has decreased by nearly nine points since the start of 2020, from 55.3% to 46.4%, equivalent to the lowest point of the Great Recession in 2008.<sup>26</sup> Further study assessing trends over this period of time in determinants of well-being, such as social support and healthy life expectancy, may shed additional light on factors that influence population well-being.

Prior to the pandemic, important disparities in well-being outcomes existed, despite the increasing percentage thriving for the nation as a whole. In 2017, nearly 44% of the adult US population was still not thriving, leaving substantial room for continued improvement. The geographical variation in percentage thriving likewise points to key equity gaps that require attention. While variation in local economies likely contributes to some of the observed variation in life evaluation, factors outside of the economy are also likely contributors to the existing gaps in who is and who is not thriving.<sup>43</sup> Critically, multiple factors beyond the economy, including social, cultural, environmental and political factors, working at different levels from local to national, are known determinants of life evaluation and related measures of well-being.<sup>44–48</sup> Social factors, including social support, volunteering, social trust, generosity and the degree of inequality in life satisfaction, are vital contributors to thriving. Variation in these factors likely underlie some of the observed variation in this study's outcomes and more research is needed to identify which factor or factors are most predictive of population well-being.<sup>39 49–57</sup>

The difference in trends between CLS and FLO may provide further valuable information regarding the state of well-being across the USA. From the first to second time periods, counties demonstrated less improvement in their outlook for the future than their CLS, potentially pointing to worsening emotional and psychological well-being. These findings may complement the growing literature seeking to understand the causes underlying recent declines in US life expectancy and increases in mortality among middle-aged adults.<sup>13</sup> For example, in a recent study examining the association between measures of well-being and mortality, Graham and Pinto reported that indicators of well-being, including hopefulness, aligned with trends in premature mortality.<sup>14</sup> Their study found that lack of hope among whites with less than college education matched trends in premature mortality among Americans 35 to 64 years old. They additionally found that pain, reliance on disability insurance, low participation in the labour force, and differences in resilience across races mediated associations between lack of hope and mortality. Altogether, these results underscore the public health importance of tracking and responding to trends in hopefulness that could signal an urgent call to

**Table 2** Ten US counties with highest percentages of population thriving, lowest percentages of population thriving, lowest percentages of population suffering and highest percentages of population suffering, 2013–2017

County	Percentage of population thriving
<b>Ten counties with highest percentage thriving</b>	
Douglas, CO	69.6
Arlington, VA	69.5
Fayette, GA	68.3
Maui, HI	67.8
Utah, UT	67.3
Delaware, OH	67.1
Hamilton, IN	66.8
Gallatin, MT	66.4
Wright, MN	66.3
Forsyth, GA	66.3
<b>Ten counties with lowest percentage thriving</b>	
Navajo, AZ	38.3
Sullivan, TN	41.6
Randolph, NC	41.6
Wayne, NY	41.9
Coos, OR	42.2
Crawford, PA	42.4
Rock, WI	43
Etowah, AL	43.3
Windham, CT	43.6
Franklin, PA	44
<b>Ten counties with lowest percentage suffering</b>	
Guadalupe, TX	0.4
McLean, IL	0.6
Arlington, VA	0.6
Sumter, FL	0.7
Orange, NC	0.9
Fairfax, VA	1
Douglas, CO	1
Moore, NC	1.2
Johnson, IA	1.2
Cass, ND	1.2
<b>Ten counties with highest percentage suffering</b>	
Pickens, SC	10.6
Marshall, AL	9.9
Lebanon, PA	8.3
Walworth, WI	8.3
Steuben, NY	8
Carroll, GA	7.7
Navajo, AZ	7.6
Crawford, PA	7.6
Lawrence, PA	7.6
Windham, CT	7.4



**Figure 4** US county-level shifts in thriving and suffering from 2008 to 2012 to 2013–2017.

action for the health and well-being of the nation, likely now more than ever.

Multiple methods of assessing well-being exist, including multiple subjective or psychological measures that seek to measure how people feel about their lives<sup>58</sup> as well as multiple sets of objective or traditional neoclassic measures of determinants of well-being such as income, gross domestic product, life expectancy and poverty rates. Various self-report measures of subjective well-being are employed across the globe, including a measure of life satisfaction in the OECD Better Life Initiative<sup>59</sup> and in the Gallup World Poll,<sup>60</sup> which also includes measures of emotional well-being. Of note, the subjective well-being measure of life evaluation reported in this study is distinct from the measure of life satisfaction used in other efforts. Although distinct, these two measures are highly correlated,<sup>61</sup> and both measures capture and elevate a person-centred assessment of well-being. In addition, multiple sets of objective measures to assess well-being and the determinants of well-being exist. The United Nations Sustainable Development Goals (SDGs), a widely adopted set of objective measures, includes 17 goals across targets related to poverty, hunger and disease. All United Nations Member States have agreed to work towards these goals in an effort to achieve better health and well-being for all ages.<sup>62</sup> In the USA, Healthy People 2030 set the data-driven national objectives to improve health and well-being between 2020 and 2030.<sup>20</sup> These objectives include 23 Leading Health Indicators and 8 Overall Health and Well-being Measures. Importantly, these measures include both subjective measures of health and well-being, such as life satisfaction, and objective measures of health, well-being and equity that are consistent with SDGs. The inclusion of a subjective measure of well-being in the national

**Table 3** Ten US counties with the greatest increases in percentages of population thriving and greatest decreases in percentages of population suffering, from 2008 to 2012 to 2013–2017

County	Change in thriving (percentage points)
<b>Ten counties with greatest improvement in thriving</b>	
Sumter, FL	+15.0
Moore, NC	+14.9
Wright, MN	+13.6
St Clair, MI	+13.4
Josephine, OR	+12.2
Comal, TX	+11.9
St Lucie, FL	+11.2
Tangipahoa, LA	+10.7
Forsyth, GA	+10.5
Olmsted, MN	+10.4
<b>Ten counties with greatest improvement in suffering</b>	
Harnett, NC	-4.7
Nevada, CA	-4.1
Clay, FL	-4.0
Guadalupe, TX	-3.6
Boone, KY	-3.6
Mendocino, CA	-3.5
Citrus, FL	-3.5
Fairfield, OH	-3.4
Cowlitz, WA	-3.1
Jefferson, NY	-3.0

objectives for the first time in the USA signals a new prioritisation of person-reported measurement of this highly important, holistic, and positively framed outcome.

Any effort to improve subjective well-being requires its measurement. Such measurement has been lacking across the US outside of the WBI itself. Consistent measurement of the determinants of life evaluation is also essential. To drive necessary improvement at national and county levels, percentage of the population thriving should become a key performance indicator<sup>20 45 63</sup> that is tracked, monitored and prioritised.<sup>20 64</sup> Such action, now signalled by Healthy People 2030, will add in important ways to our understanding of well-being and its distribution in the USA, support efforts to understand the relationship between thriving, struggling and suffering and other key determinants and outcomes, and allow comparison across other nations.

## LIMITATIONS

This study has limitations. First, as with any survey-based study, non-response bias could threaten the representativeness of the data. Gallup applied sampling and



weighting methods to manage non-response bias and produce data representative of the populations included in the study. Of note, response rates<sup>65</sup> eroded over the course of the 10-year measurement period from 15% to 10%, reflecting in part a methodologically requisite increase in the percentage of cellphone-based interviews each polling day from 15% in 2008 to 70% in 2017. As contact rates and cooperation rates are lower among cell phone users, the increase in the cell apportionment of the sampling frame contributed to the deterioration in overall response rates relative to earlier years. Despite this erosion, however, state-level results for many shared metrics, such as obesity rates, have been cross validated with high response rate government-sponsored health surveys including the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System (BRFSS), revealing highly convergent results and demonstrating the underlying efficacy of the WBI weighting algorithms in overcoming non-response bias and other related issues associated with data collected with lower response rates. For example, recent comparisons of WBI and BRFSS state obesity estimates from the same measurement year (2017) yielded a correlation of 0.940, and state obesity ranks yielded a correlation of 0.947. A second limitation is that these outcomes are subjective, self-reported outcomes, leaving the potential for responses to change over time in a way that is unrelated to underlying life evaluation. However, the Cantril Self-Anchoring Scale has been thoroughly tested for reliability and validity.<sup>66</sup> Third, the county-level data are only reported as 5-year aggregates for counties with at least 300 respondents in 5 years; the report cannot demonstrate annual trends for counties within those 5-year time frames, nor provide insights into smaller and less densely populated counties. Still, the 5-year aggregate results provide reliable estimates within the confines of each reporting period, and the counties included are home to more than three-quarters of the US population.

## CONCLUSIONS

While a larger percentage of the US population reported thriving in 2017 compared with 2008, 44% of the population was not thriving in 2017, with marked geographical variations at the county level. Moreover, stagnation or decline in life evaluation and its components was observed for many counties. These results should prompt further study and action, informing national and local priorities for research and policy to improve thriving, struggling and suffering, and related equity gaps across the US.

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