

## Chapter 7

# America's Health Crisis and the Easterlin Paradox

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**The most striking fact** about happiness in America is the Easterlin Paradox: income per capita has more than doubled since 1972 while happiness (or subjective well-being, SWB) has remained roughly unchanged or has even declined (Figure 7.1). Many explanations for the Easterlin Paradox have been put forward, the most prominent being the decline of America's social capital. I wrote approvingly of that explanation in my short essay "Restoring America's Happiness" in the *World Happiness Report 2017*. In this article, I explore a complementary explanation: that America's subjective well-being is being systematically undermined by three interrelated epidemic diseases, notably obesity, substance abuse (especially opioid addiction), and depression.

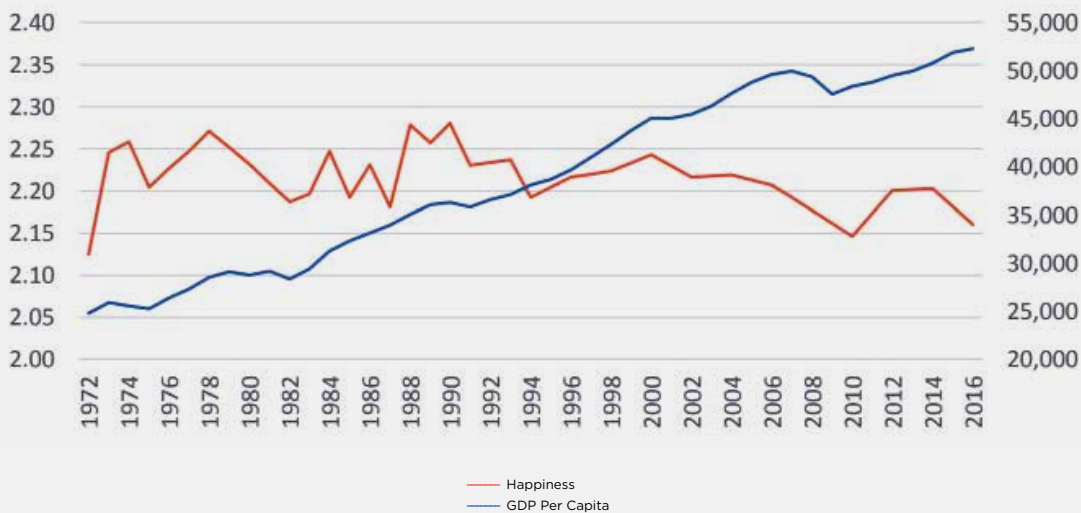
When Richard Easterlin first presented his famous paradox, he hypothesized that subjective well-being is affected mainly by relative income (one's relative position in the social pecking order) rather than by absolute income. If that is true, an overall rise in national income per person that leaves the distribution of income broadly unchanged will have little effect on well-being. Yet the view that only relative but not absolute income matters is hard to defend in the face of evidence that many countries are experiencing gains in well-being alongside their

economic growth, including high-income countries. The evidence broadly suggests that absolute income, not just relative income, matters for subjective well-being, albeit with a clearly declining marginal utility of income (the Cantril ladder score of SWB is roughly linear in the *logarithm* of per capita income).

The most likely explanation for the Easterlin Paradox, therefore, is that certain non-income determinants of U.S. happiness are worsening alongside the rise in U.S. per capita income, thereby offsetting the gains in SWB that would normally arise with economic growth. John Helliwell has identified five major variables other than per capita income that help to account for cross-country happiness: population health (measured by health-adjusted life expectancy, HALE); the strength of social support networks; personal freedom (measured by the perceived freedom of individuals to make key life decisions); social trust (measured by the public's perception of corruption in government and business); and generosity. To understand the Easterlin Paradox, we should look to the trends in these non-market causes of SWB.

Indeed, while America's income per capita has increased markedly during the past half century, several of the determinants of well-being have been in decline. Social support networks in the

**Figure 7.1: Average Happiness and GDP Per Capita, 1972-2016**



U.S. have weakened over time; perceptions of corruption in government and business have risen over time; and confidence in public institutions has waned. Since these various dimensions of social capital have all been shown to be important determinants of subjective well-being, it seems likely that gains in U.S. well-being that would have resulted from rising incomes have been offset by declines in social capital, as I have previously emphasized.

In addition to the loss of social capital, there is another possible culprit that has been less widely discussed in the context of the Easterlin Paradox. America's public health, as measured for example by HALE, has improved much less than in most other high-income countries, and in recent years, is experiencing an outright decline. The U.S. life expectancy actually fell by 0.1 years from 2014 to 2015, and then by another 0.1 years from 2015 to 2016.

Table 7.1 shows the Health-Adjusted Life Expectancy for the OECD countries for the years 2000 and 2015. The U.S. fell from 26th in the OECD ranking in 2000 to 28th in 2015 and experienced the second smallest overall increase in HALE between 2000 and 2015, just 1.9 years, whereas more than half of the OECD countries enjoyed an increase of more than 3 years. In 2015, America's healthy life years were 4.3 years lower than the average of the top five countries (Japan, Korea, Switzerland, Italy, and Israel). We now know that the gap likely widened further in 2016 in view of the absolute decline in U.S. life expectancy.

The U.S. is suffering from three serious epidemics: obesity, substance abuse, and depression. Each of these constitutes a significant burden of disease, and each is likely to be causing a significant decrement to U.S. subjective well-being. Each could be ameliorated through public policies that would contribute measurably to U.S. well-being.

## The Obesity Epidemic

Obesity is now a global epidemic, and America's obesity epidemic is extreme in comparison with other countries. As shown in Figure 7.2, America's rate of adult obesity is by far the highest of the OECD countries, standing at an estimated 38.2 percent in 2015. Of the next six countries, second-ranked Mexico (32 percent) is next door to the U.S., and four of the six are English-speaking

countries with close business and advertising linkages with the U.S., including Canada, UK, Australia, and New Zealand.

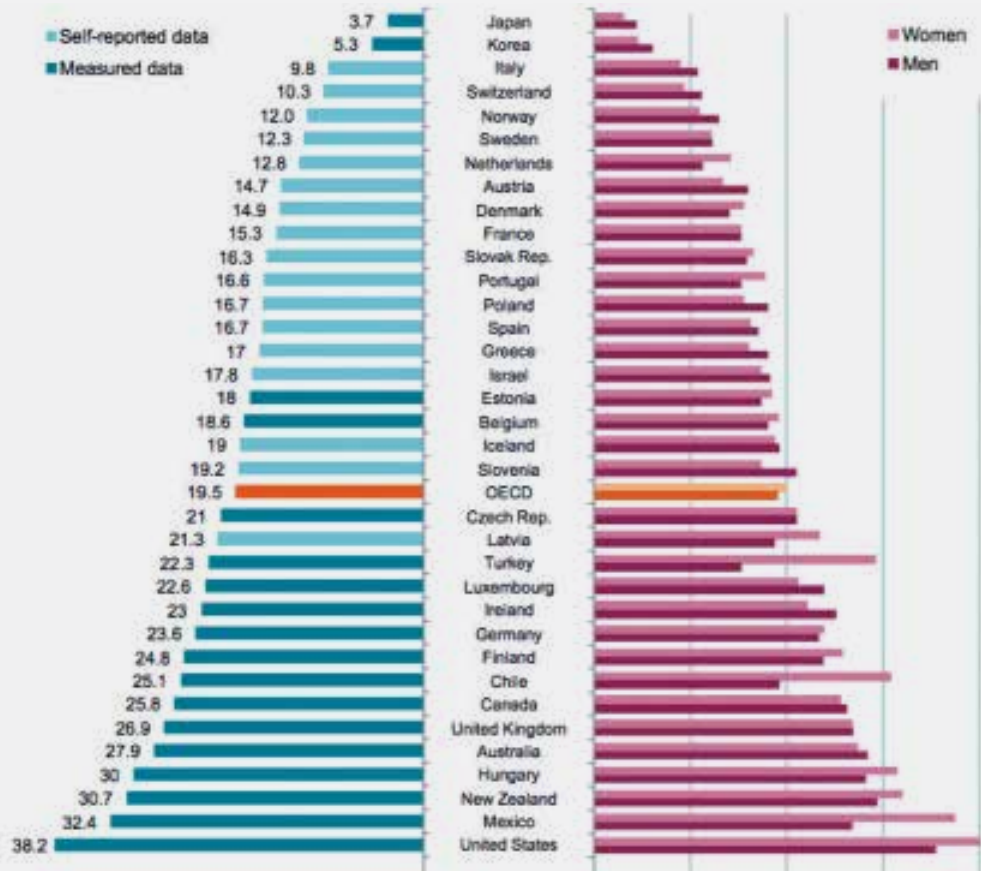
America's obesity epidemic rose gradually in the 1960s and 1970s, and then soared in the 1980s onward, as shown in Figure 7.3. There is a vast literature trying to account for the epidemic.

**Table 7.1: Health-Adjusted Life Expectancy (HALE), 2000 and 2015, OECD Countries**

Country	2000	2015	Change
Japan	72.7	74.9	2.2
Iceland	70.3	72.7	2.4
Italy	70.0	72.8	2.8
Switzerland	69.9	73.1	3.2
Canada	69.8	72.3	2.5
Israel	69.7	72.8	3.1
France	69.7	72.6	2.9
Sweden	69.7	72.0	2.3
Greece	69.5	71.9	2.4
Norway	69.3	72.0	2.7
Australia	69.3	71.9	2.6
Spain	69.2	72.4	3.2
Netherlands	69.2	72.2	3.0
New Zealand	69.1	71.6	2.5
Austria	69.0	72.0	3.0
Germany	68.7	71.3	2.6
United Kingdom	68.6	71.4	2.8
Luxembourg	68.5	71.8	3.3
South Korea	68.1	73.2	5.1
Belgium	68.0	71.1	3.1
Denmark	67.9	71.2	3.3
Finland	67.9	71.0	3.1
Chile	67.7	70.5	2.8
Portugal	67.6	71.4	3.8
Ireland	67.4	71.5	4.1
United States	67.2	69.1	1.9
Slovenia	66.8	71.1	4.3
Czechia	65.8	69.4	3.6
Mexico	65.6	67.4	1.8
Poland	65.3	68.7	3.4
Slovakia	64.9	68.1	3.2
Hungary	63.7	67.4	3.7
Estonia	63.1	69.0	5.9
Latvia	63.0	67.1	4.1
Turkey	61.6	66.2	4.6

Source: World Health Organization

Figure 7.2: Obesity Among Adults, 2015 or Nearest Year



Source: OECD Health Statistics

The evidence points strongly to the change in the American diet after mid-century, with a massive shift toward sugar additives, processed foods, and snack foods. The intake of energy from snack foods soared between 1977 and 2012, according to recent data. Diets with high sugar intake and high glycemic loads are obesogenic (tending to cause obesity) and also raise the risk of metabolic diseases such as adult-onset diabetes. Cross-national data show that average per capita sugar consumption by country is correlated with national obesity prevalence.

Dietary sugar (sucrose, a disaccharide of glucose and fructose) was added both for taste and for increased shelf-life (such as for baked goods). The industrial process to produce High-Fructose Corn Syrup (HFCS, also roughly half glucose and half fructose) was improved in the 1960s, and the

FDA approved HFCS as “generally recognized as safe” (GRAS) in 1976. Thereafter the use of HFCS as a low-cost sweetener soared, as did overall sugar consumption, until peaking around 2000 and declining somewhat thereafter. Coffee consumption also gave way to sugary soda consumption (Figure 7.4).

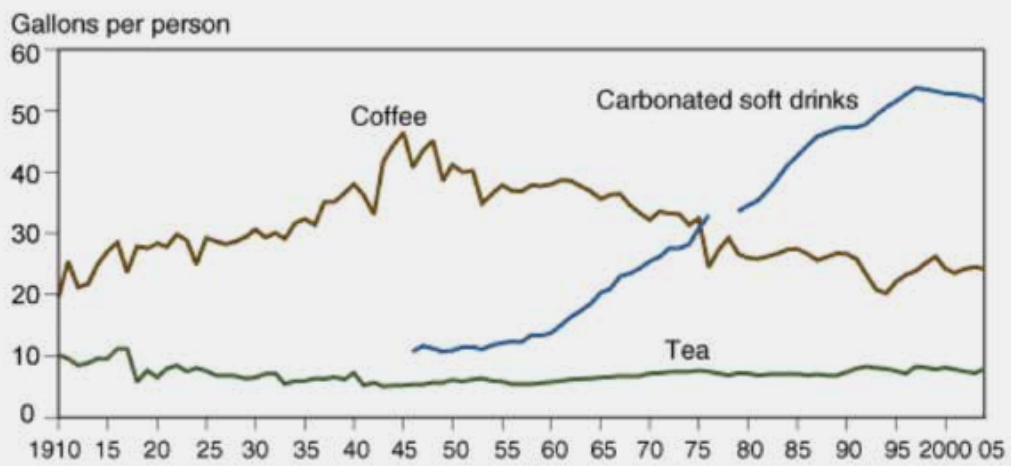
The results have been disastrous for obesity and closely related metabolic diseases such as adult-onset (type-II) diabetes. As explained by Lustig and colleagues, fructose metabolism leads directly to fatty deposits in the liver (de novo lipogenesis), which in turn causes insulin resistance and other metabolic disorders. Highly processed foods are characterized by a high glycemic load, meaning that they lead to a spike in blood glucose that in turn provokes a spike in insulin. This, in turn, may lead to insulin resistance

**Figure 7.3: Rate of Adult Obesity in the United States, Various Periods, 1960–2015**



Source: OECD Health Statistics

**Figure 7.4: Coffee Availability in the United States Peaked in 1946**



Sources: USDA, Economic Research Service using data on carbonated soft drinks from the Bureau of the Census for 1947-77 and the Beverage Marketing Corporation for 1980-2005.

Source: USDA ERS



as well, and metabolic disease. Thus, both high sugar intake and highly processed foods are culprits of the obesity epidemic and the accompanying epidemic of metabolic disorders.

According to a recent estimate by Euromonitor International, the U.S. tops the world in the amount of sugar in purchases of packaged foods and beverages, with an average of 126 grams per person per day compared with a global average at 34 grams per person per day. Of the 126 grams, a remarkable 50 grams comes from soft drinks alone. Some causes of America's very high sugar consumption include: (1) the relatively low cost per calorie of sugar additives and high glycemic-load foods compared with foods with lower glycemic loads such as fruits and vegetables; (2) the U.S. federal government's relentless promotion of corn production from the 1970s onward, which in turn lowered the cost of high-fructose corn syrup as a major food additive; (3) unregulated advertising by the U.S. fast-food industry to promote prepared, frozen, and take-out foods with higher sugar content; and (4) the addictive properties of sugar, leading to habituation and chronic over-consumption.

Many studies show that obese individuals have significantly poorer health and lower subjective well-being. The lower SWB may result both from the direct health consequences of obesity as well as the social stigma associated with obesity. The adverse health consequences are extensive. The U.S. Centers for Disease Control (CDC) lists the following adverse disease burdens: all-causes of death (mortality); high blood pressure (hypertension); high LDL cholesterol, low HDL cholesterol, or high levels of triglycerides (dyslipidemia); type II diabetes; coronary heart disease; stroke; gallbladder disease; osteoarthritis (a breakdown of cartilage and bone within a joint); sleep apnea and breathing problems; some cancers (endometrial, breast, colon, kidney, gallbladder, and liver); low quality of life; mental illness such as clinical depression, anxiety, and other mental disorders; and body pain and difficulty with physical functioning.

According to obesity expert Dr. Robert Lustig, excessive sugar consumption has direct adverse effects on mental well-being by disrupting the dopamine-EOP "reward" pathway, causing an addictive craving for sugar with the classic hallmarks of addiction (including tolerance, withdrawal,

craving, and continued use despite negative consequences). Sugar addiction also disrupts the serotonin pathway that is responsible for the psychological sense of contentment. In essence, according to Lustig, sugar is a toxic and addictive substance that has been dangerously foisted on an unsuspecting and poorly informed public by the U.S. government and the fast-food industry.

Studies have found that obesity is a significant predictive factor for subsequent depression, while depression is a predictive factor for subsequent obesity. A meta-analysis of longitudinal studies of depression and obesity in the U.S. and Europe reached the following conclusion: "Obesity was found to increase the risk of depression, most pronounced among Americans and for clinically diagnosed depression. In addition, depression was found to be predictive of developing obesity." Lustig describes how interactions between the dopamine ("reward") pathways and the serotonin ("happiness" or "mood") pathways may account for this bi-directional linkage between obesity and depression.

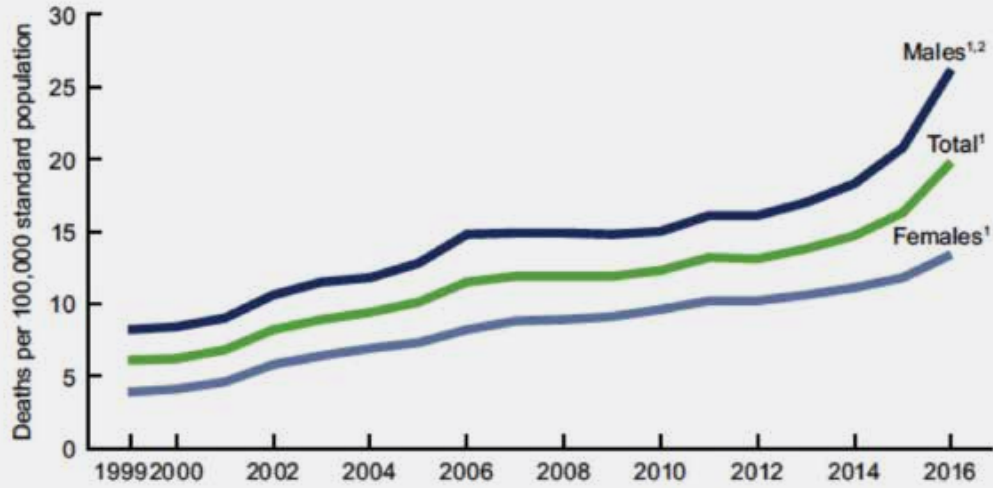
## The Opioid Epidemic

In December 2017, the U.S. Centers for Disease Control announced that U.S. life expectancy had declined for the second straight year, declining 0.1 years between 2015 to 2016 following a decline of the same magnitude between 2014 and 2015. This reversal in the upward trend of life expectancy is shocking and almost unprecedented for a rich country in recent decades. The CDC emphasized the role of rising substance abuse, and especially the modern opioid epidemic, in the reversal. The CDC counted 63,000 deaths from drug overdoses in 2016, marking an increase in the age-specific mortality rate from 6.1 per 100,000 in 1999 to 19.8 per 100,000 in 2016, as shown in Figure 7.5.

While many socioeconomic factors and substances are involved in this epidemic, one major culprit is the class of opioids. Causes of increased opioid deaths include the introduction in the 1990s of new prescription opioids such as OxyContin, the update of new powerful synthetic opioids such as Fentanyl, and the increased use of heroin, with trends shown in Figure 7.6.

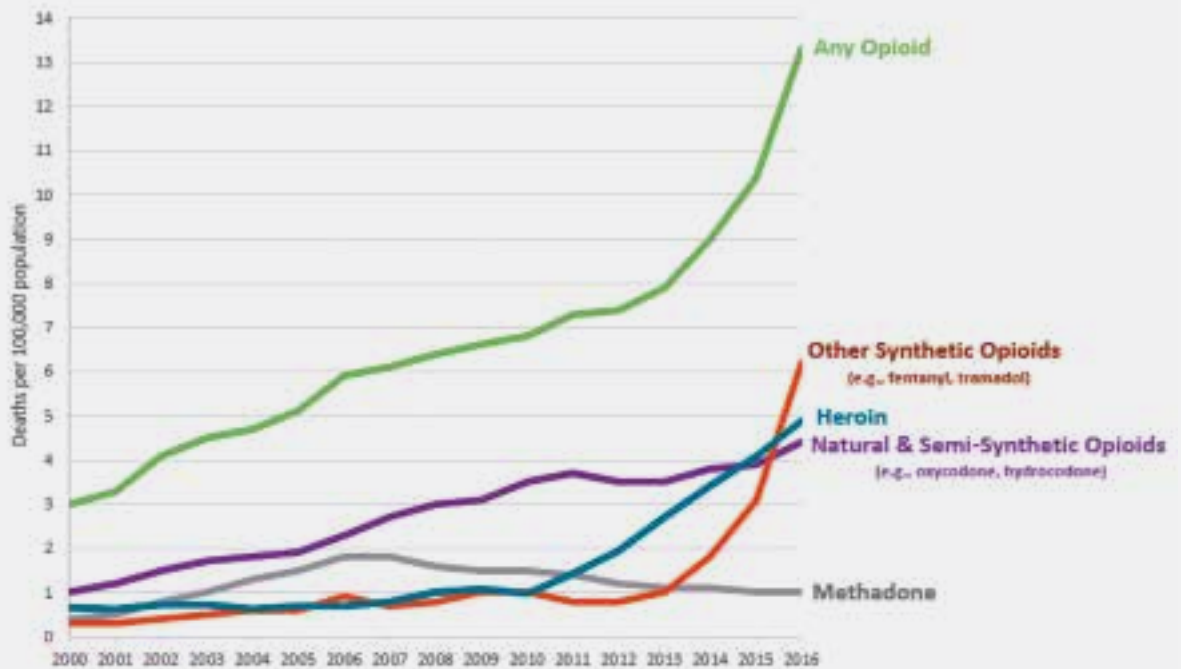
Roughly 20 years after the onset of the opioid prescription-drug epidemic, it is becoming

Figure 7.5: Age-adjusted Drug Overdose Death Rates: U.S., 1999–2016



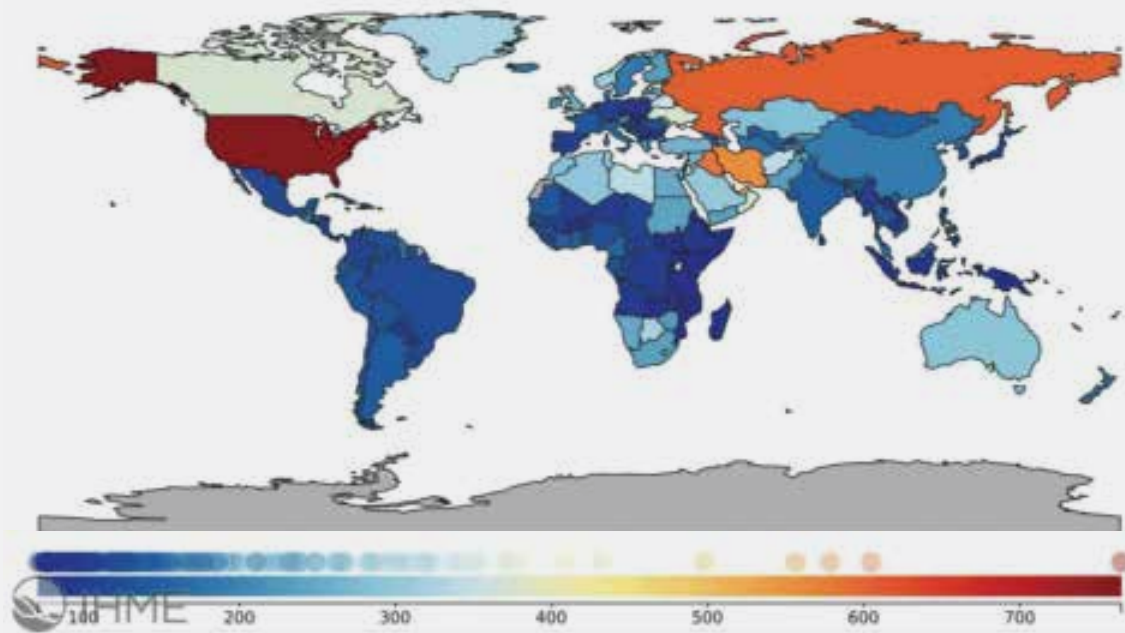
Source: CDC

Figure 7.6: Overdose Deaths Involving Opioids, by Type of Opioid, United States, 2000–2015



Source: CDC

**Figure 7.7: Opioid Use Disorders, DALYs per 100,000, 2016 (both sexes, all ages)**



Source: IHME

increasingly clear that pharmaceutical companies, notably Purdue Pharma (the manufacturer of OxyContin), engaged in aggressive marketing of the opioid prescription drugs despite growing evidence that a dangerous epidemic was getting underway.

No doubt because the U.S. is the epicenter of opioid drug manufacturing and prescription, it is also the epicenter of the global opioid epidemic. Estimates of the Disability-Adjusted Life years (DALYs) per 100,000 population for opioid use disorders is shown in the map in Figure 7.7. The U.S. shows appears bright red, the world's most intense hotspot, with 764 DALYs per 100,000, followed by Russia (605), Iraq (578), and Iran (556).

### The Depression Epidemic

There is significant evidence of a major, long-term, and continuing epidemic of clinical depression (including Major Depression Disorder, MDD, and Major Depressive Episodes, MDEs) and other psychopathologies including psychopathic deviation, paranoia, and hypomania. Twenge et al. report the following:

Two cross-temporal meta-analyses find large generational increases in psychopathology among American college students (N=63,706) between 1938 and 2007 on the MMPI [Minnesota Multiphasic Personality Inventory] and MMPI-2 and high school students (N=13,870) between 1951 and 2002 on the MMPI-A ... The results best fit a model citing cultural shifts toward extrinsic goals, such as materialism and status and away from intrinsic goals, such as community, meaning in life, and affiliation.

New research supports this conclusion for more recent years. Mojtabai et al. examined national trends in the prevalence of major



depressive episodes (MDEs) in adolescents and young adults between 2005 and 2014, with the following conclusions:

The 12-month prevalence of MDEs increased from 8.7% in 2005 to 11.3% in 2014 in adolescents and from 8.8% to 9.6% in young adults (both  $P < .001$ ). The increase was larger and statistically significant only in the age range of 12 to 20 years. The trends remained significant after adjustment for substance use disorders and sociodemographic factors ... In the context of little change in mental health treatments, trends in prevalence translate into a growing number of young people with untreated depression.

Another study this past year reaches a very similar conclusion:

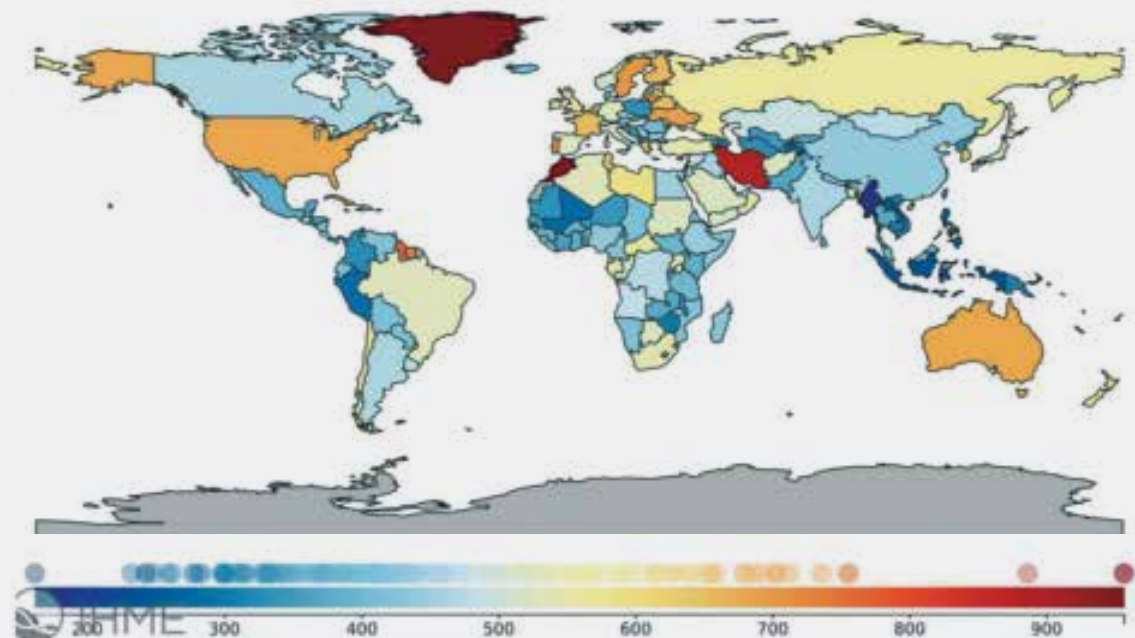
The current study estimated trends in the prevalence of major depression in the U.S. population from 2005 to 2015 overall and by demographic subgroups. Data were drawn from the National Survey on Drug Use and Health (NSDUH), an annual cross-sectional

study of U.S. persons ages 12 and over (total analytic sample  $N = 607,520$ ). Depression prevalence increased significantly in the U.S. from 2005 to 2015, before and after controlling for demographics. Increases in depression were significant for the youngest and oldest age groups, men, and women, Non-Hispanic White persons, the lowest income group, and the highest education and income groups.

The causes of the MDD epidemic are not definitively established. They may include sociological factors (decline in social support systems, more loneliness), economic factors (rising inequality of income, financial crisis, economic stress), shifting cultural norms (more materialism), biophysical factors (declining physical activity, sugar addiction and other dietary changes, obesity, less time spent in open sunlight), technological facts (time spent on social media and electronic devices such as smartphones), or other causes still to be identified.

As with obesity and opioid abuse, the U.S. stands out among the world's nations as having one of the highest burdens of disease from major

**Figure 7.8: Major Depressive Disorder (MDD), DALYs per 100,000, 2016 (both sexes, all ages)**



Source: IHME

**Figure 7.9: Percentage Fall in Misery if Various Problems Could Be Eliminated**

Source: Clark et al. (2017)

depressive disorder. The estimates of DALYs per capita for the world, estimated by the IHME, are shown in Figure 7.8. The highest burdens per capita are estimated to be in Morocco (956 DALYs per 100,000). Among the OECD countries, the U.S. ranks third (679), behind Portugal (702) and Sweden (702).

As reported by Twenge and colleagues, the evidence suggests a significant rise in adolescent depressive symptoms and suicide rates between 2010 and 2015. There is evidence, moreover, that the rising rates of adolescent depression are correlated with the use of new screen technologies (smartphones, video games) and social media. Causation may run in both directions, from depressive syndromes toward screen time (as a kind of “self-medication”) and from screen time toward depressive symptoms, for example, through the development of addictive behaviors to the new technologies, and other depression-inducing conditions such

as increased loneliness and feelings of alienation resulting from online rather than interpersonal interactions. Video games, for example, seem to have six attributes of addiction: salience, mood modification (“self-medication”), tolerance, withdrawal, conflict, and relapse. See also Shakya and Christakis for evidence that Facebook use is associated with lower self-reported mental health.

Without question, the burden of mental illness on SWB in the U.S. is enormous, and according to Layard and colleagues, depression is the single largest determinant of SWB in a cross-section of individuals within the U.S. Indeed, Layard and colleagues find that mental illness is the single largest determinant of well-being across individuals in four countries studied: the U.S., Australia, Britain, and Indonesia. The importance of mental illness in the variation of SWB across individuals in the population is illustrated by Clark et al. in Figure 7.9.

## Discussion

The U.S. is in the midst of a complex and worsening public-health crisis, involving epidemics of obesity, opioid addiction, and major depressive disorder that are all remarkable by global standards. The cumulative effect of these epidemics is the remarkable recent fall in overall life expectancy at birth (LEB), an event that is nearly unprecedented for a high-income country in peacetime. Even before the national LEB began to decline in 2015, age-specific all-cause mortality rates were already on the rise between 1999 and 2013 for white, non-Hispanic, working-class, midlife adults (aged 45-54), notably those without a college degree, as documented by Case and Deaton. The major causes of the rising death rates noted by Case and Deaton were drug overdoses, suicides, and alcohol-related liver mortality, consistent with the rising prevalence of substance abuse (including opioids) and mental illness.

The quantitative implications of these epidemics for America's overall SWB is hard to assess without more granular data linking individual SWB with individual conditions of obesity, opioid dependence, and depression. Yet we are justified to suspect that the implications are very large. America's HALE is now around 4.3 years behind the five leading countries, and America's obesity prevalence, opioid misuse, and MDD prevalence are among the very highest in the world. As Layard has recently reminded us:

Mental illness is one of the main causes of unhappiness in the world. It produces nearly as much of the misery that exists as poverty does, and more than is caused by physical illness. Treating it should be a top priority for every government, as should the promotion of good mental health ... This would save billions because mental illness is a major block on the economy. It is the main illness among people of working age. It reduces national income per head by some 5 per cent—through non-employment, absenteeism, lowered productivity, and extra physical healthcare costs. Mental illness accounts for a third of disability worldwide.

Why has the United States performed more poorly than other high-income countries on public health generally, and on these three

epidemics specifically? I would suggest the following four hypotheses.

First, the U.S. sociopolitical system produces higher levels of income inequality than in the other OECD high-income countries. High U.S. inequality, and especially the persistent absolute and relative poverty of a significant portion of the U.S. population, are risk factors for all three epidemics. The evidence is clear that low socioeconomic status is a major risk factor for poor mental and physical health. As Everson et al. concluded:

Many of the leading causes of death and disability in the United States and other countries are associated with socioeconomic position. The least well-off suffer a disproportionate share of the burden of disease, including depression, obesity, and diabetes ... Data from these studies demonstrate that the effects of economic disadvantage are cumulative, with the greatest risk of poor mental and physical health seen among those who experienced sustained hardship over time.

Second, the three epidemics are mostly likely mutually reinforcing. Obesity causes depression and depression can lead to obesity. Depression and substance abuse are also bi-causal.

Third, the U.S. healthcare system is woefully inadequate to face these epidemics. U.S. healthcare is the most expensive in the world by far. Coverage rates of the poor are the lowest among the high-income countries. The emphasis is on treatment rather than prevention. And healthcare for depression is notably deficient. According to Dr. Renee Goodwin, "A growing number of Americans, especially socioeconomically vulnerable individuals and young persons, are suffering from untreated depression."

Fourth, America's culture and politics of corporate deregulation is partly responsible. The obesity epidemic can be linked directly to the fast-food industry, especially the aggressive use and promotion of sugar additives and other obesogenic processed foods. The opioid epidemic can be traced in part to the lobbying and direct marketing of major pharmaceutical companies. The extraordinarily high cost, and therefore under-coverage, of the U.S. healthcare system, including for mental illnesses, is the result in part

of corporate lobbying for the freedom of private healthcare providers to set exorbitant prices despite the evidence of very limited and inadequate market competition over prices.

Fifth, the U.S. may be among the leading countries experiencing depressive syndromes associated with the new social media and with increasing screen times on the new ICTs. As indicated earlier, the correlation of depression and new media is likely to be bi-causal. Depressive tendencies may lead to excessive use of new technologies, while screen time may itself be addictive and/or linked to increased loneliness and alienation.

The disease epidemics, in short, most likely have a similar etiology to the decline in social capital that I addressed in my analysis in last year's *World Happiness Report*. In both cases, inequality, corporate power, and disruptions of social-support networks, are major factors in America's social crisis. The result is a decline in trust, a rise in perceptions of corruption, and a population that is suffering from pain, suffering, and premature mortality.

Practical policies exist to reverse all three of the epidemics. Obesity can be reduced through regulations limiting sugar additives in store-bought products; corrective taxes on soda beverages; the elimination of subsidies on corn (and therefore on high-fructose corn syrup); limits on food advertising, especially to young children; and the promotion of public awareness regarding the causes of obesity and solution through more healthful diets. Mental health can be improved through preventative medicine, measures to strengthen social support systems for vulnerable groups, steps to combat addictions to the new social media and technologies, and greatly improved access to mental health services. The opioid epidemic could be radically reduced by ending the direct marketing of addictive drugs to patients as well as banning the implicit and explicit kickbacks to doctors who (over-)prescribe these dangerous products.

These are important "top-down" policy changes. At the same time, "bottom-up" programs of positive psychology and wellness at schools, workplaces, and in the community can help individuals to change their own behaviours, overcome addictions, and pursue life strategies

(such as meditation) to bolster their personal well-being and the well-being of friends, family, and community. The evidence is large and growing that such life-change strategies can be highly effective. This year's *Global Happiness Policy Report* contains detailed surveys on best practices in education, the workplace, and personal, family, and community well-being.

The main issue for the U.S. is not the lack of means to address the crises of public health and declining well-being. Rather, perhaps the major practical barrier is corporate lobbying that keeps dangerous corporate practices in place and imposes untold burdens on the poor and vulnerable parts of the U.S. population, coupled with the failure of the American political system to address and understand America's growing social crisis. The challenge of well-being is a matter both of high politics and economics and the sum of individual and community-based efforts.

## Endnotes

- 1 Helliwell, Layard, & Sachs (2017).
- 2 Easterlin (1974).
- 3 Sachs (2017).
- 4 Dunford & Popkin (2017); Lustig (2017).
- 5 Willett (2011); Lustig (2017).
- 6 Siervo et al. (2014).
- 7 Lim (2010).
- 8 Euromonitor International (2015).
- 9 Lustig (2017).
- 10 Luppino et al. (2010).
- 11 Lustig (2017).
- 12 Keefe (2017).
- 13 Twenge et al. (2010).
- 14 Weinberger et al. (2017).
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- 17 Andreassen et al. (2015).
- 18 Shakya & Christakis (2017).
- 19 Clark et al. (2017).
- 20 Case & Deaton (2015, 2017).
- 21 Layard (2018).
- 22 Everson et al. (2002).
- 23 Co-author of Weinberger et al. (2017).
- 24 Helliwell, Layard, & Sachs (2017).
- 25 Lai et al. (2017).
- 26 Willett (2011); Lustig (2017).
- 27 Layard (2018).
- 28 Global Happiness Council (2018).

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