# Teen Mental Health Is Plummeting, and Social Media is a Major Contributing Cause

**Testimony of Jonathan Haidt**
Professor of Ethical Leadership, New York University – Stern School of Business
Before the Senate Judiciary Committee, Subcommittee on Technology, Privacy, and the Law
May 4, 2022

I am a social psychologist who has been studying moral psychology and moral development since 1987. I began to notice something going wrong with the mental health and social behavior of college students around 2014, which led me to collaborate with Greg Lukianoff to write an Atlantic article in 2015 titled The Coddling of the American mind. We expanded our research and published a book with the same title in 2018. Since then I have worked with Jean Twenge (a professor of psychology at San Diego State University, and author of *iGen*) to aggregate the academic research on teen mental health and its relation to social media use in two large collaborative reviews, carried out in Google Docs open to other researchers. It is these two collaborative reviews that form the basis of my testimony today. They can be accessed here:

1) Adolescent mood disorders, self-harm, and suicide rates: A collaborative review
https://tinyurl.com/TeenMentalHealthReview

2) Social Media and Mental Health: A Collaborative Review
tinyurl.com/SocialMediaMentalHealthReview

I believe I can be most helpful to this committee by first summarizing the academic literature on the changes that have occurred in teen mental health since 2012, and then spending a bit more time explaining the research linking deteriorating teen mental health to the arrival and widespread adoption of social media, which transformed childhood activity, attention, social relationships, and consciousness in the years between 2009 and 2012. I will conclude with some specific recommendations for policies that I believe would have a substantial and positive impact on the crisis.

In the interest of time, I will focus my remarks on the effects of social media on teen mental health. I am also extremely concerned about the effects of social media on America's political dysfunction, which I have written about in a recent Atlantic article, titled: Why the past 10

years of American life have been uniquely stupid. My claims in that article are supported by a third open source collaborative review, titled: Social Media and Political Dysfunction: A Collaborative Review. I curate that Google Doc with professor Chris Bail of Duke University, the author of *Breaking the Social Media Prism*.

I will state my case in outline form in this document, with links to relevant sources. I will expand on this outline in my testimony, and I welcome questions and challenges from committee members.

## PART 1: THE SPECIFIC, GIGANTIC, SUDDEN, AND INTERNATIONAL MENTAL HEALTH CRISIS

(See the adolescent mood disorders Google Doc for supporting evidence)

**1.1. The crisis is specific to mood disorders** – those related to depression and anxiety. It is not a general across-the-board increase in other illnesses.

**1.2. The crisis is not a result of changes in the willingness of young people to self-diagnose**, nor in the willingness of clinicians to expand terms or over-diagnose. We know this because the same trends occurred, at the same time, and in roughly the same magnitudes, in behavioral manifestations of depression and anxiety, including hospital admissions for self-harm, and completed suicides. Figure 1, below, from a New York Times article (April 23, 2020), shows just how sharp and sudden the increase has been for hospital admissions for teen girls who had intentionally harmed themselves, mostly by cutting themselves.

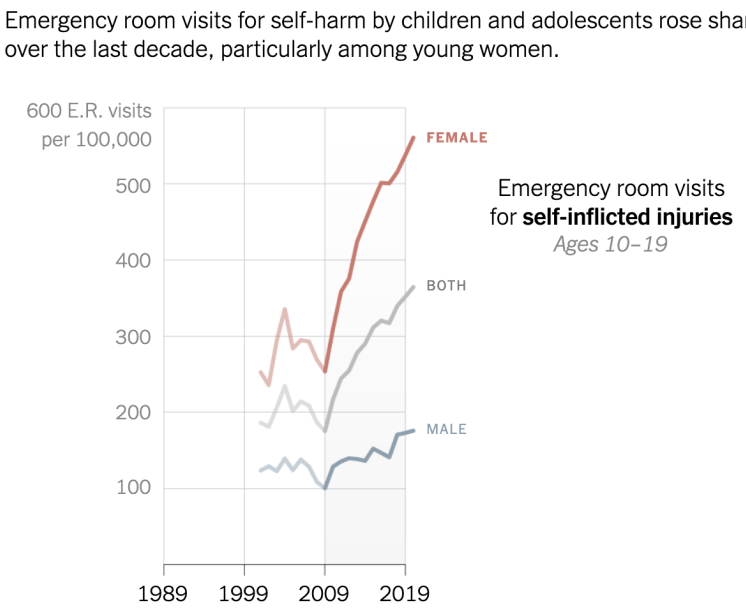


*Figure 1: Emergency room visits for self harm increased very rapidly among teen girls beginning in 2010*

**1.3 The crisis came on suddenly, in the early 2010s**.

The curves you can see in the Adolescent Mood Disorders Google Doc are not just the continuation of trends already in evidence for the Millennial generation (born 1982 through 2016). They are more like "hockey sticks," with a long relatively flat period before the early 2010s, and then a sharp upturn or elbow. This is rare in mental health data. It suggests that something changed in the lives of American teens around 2010.

**1.4 The increases in mental illness are very large**.

When you compare rates in 2009 –before most teens were daily users of social media—to 2019—the last full year before Covid made things even worse—the increases are generally between 50% and 150%, depending on the disorder, gender, and subgroup.

**1.5 The crisis is gendered.**

The collapse of mental health has hit both sexes, and on many measures, boys and girls are up by roughly similar percentages. However there are two important caveats: A) the base rate for mood disorders is always higher for girls than boys, particularly after puberty, which means that a doubling of the rate produces far more additional sick girls than boys, as you can see in Figure 2 below, and B) there are some disorders and age groups for which girls are up far more, especially for self-harm, which is a much more common way of manifesting anxiety in girls than in boys.

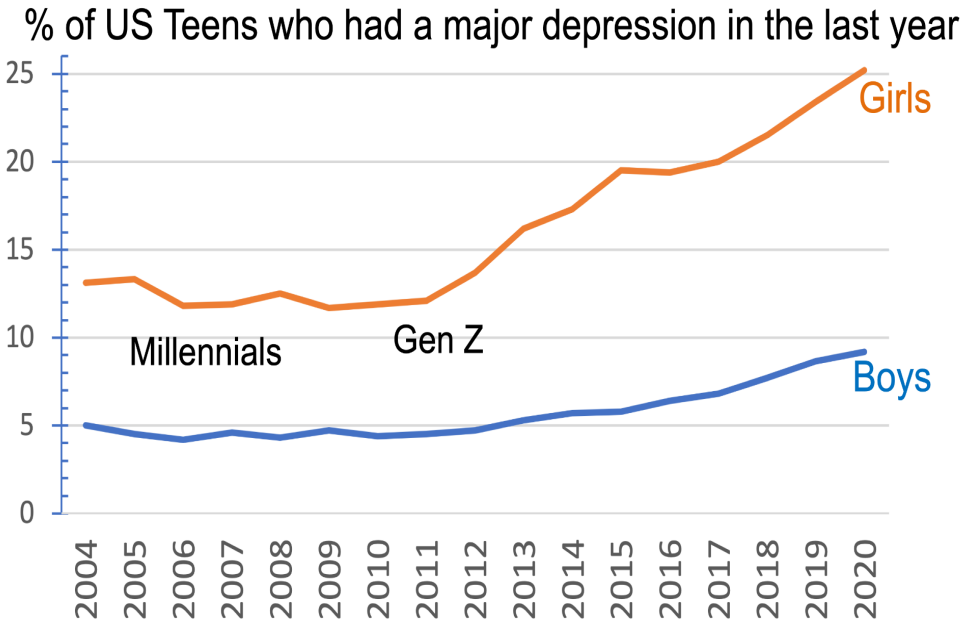


*Figure 2: rates of major depression roughly doubled, for boys and for girls, from 2010 to 2020.*

**1.6 The crisis has hit many countries, not just the USA**.

The patterns are nearly identical in the UK and Canada, and the trends are similar though not identical in Australia and New Zealand. We do not yet see signs of similar epidemics in continental Europe or in East Asia, although I have not yet found good data from those regions. Jean Twenge and analysed the PISA dataset – the one global survey given to adolescents around the world. The survey focuses on educational outcomes, but it contains seven questions related to loneliness at school. Sure enough, we found a sudden increase between 2012 and 2015 in all regions of the world. These patterns indicate that whatever happened to American teens was not uniquely caused by trends and events in the USA (e.g., a sudden fear of school shootings after the Newtown massacre of 2012). The cause is likely to be something that affected teens in many or all regions of the world at the same time. Figure 3 below is drawn from our New York Times op-ed about our academic essay:

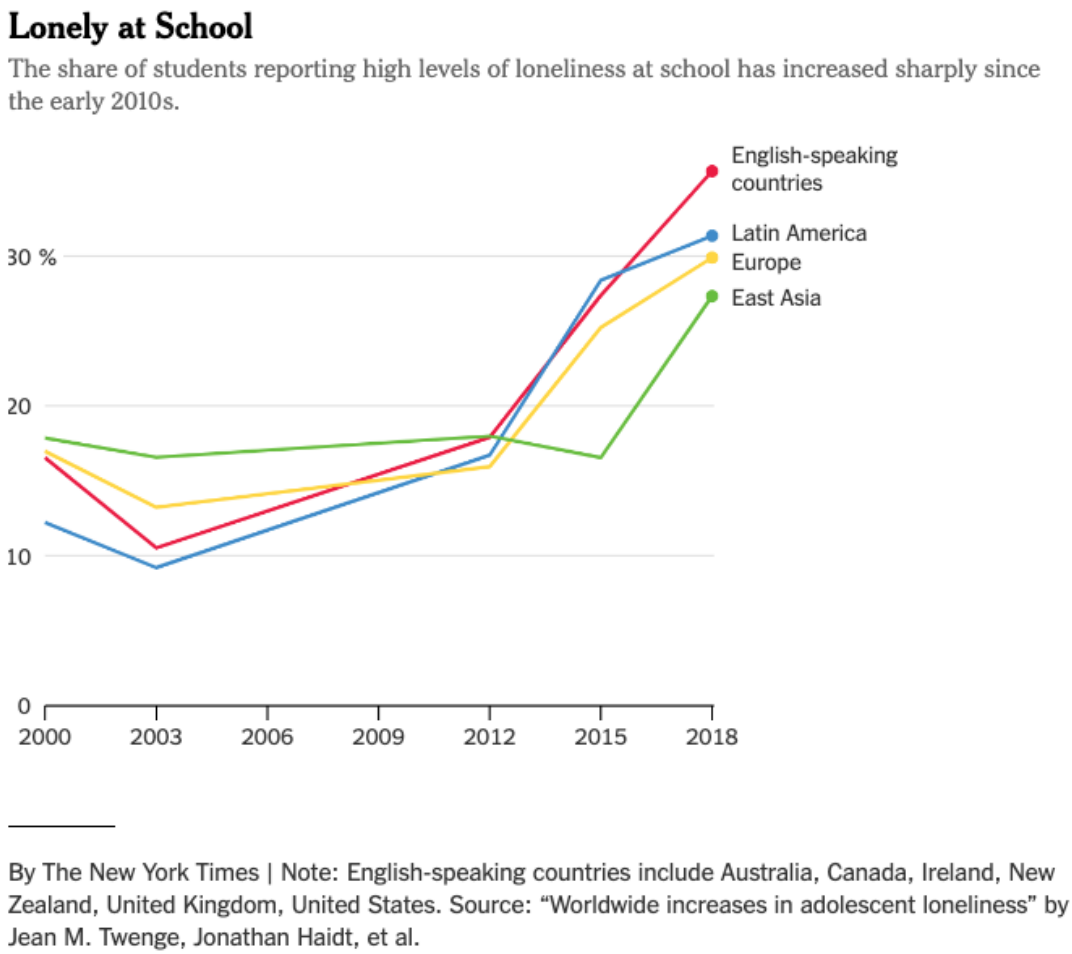


*Figure 3. Loneliness at school increased in all regions of the world after 2012.*

## PART 2: THE EVIDENCE THAT SOCIAL MEDIA IS A SUBSTANTIAL CONTRIBUTOR TO THE CRISIS

(See the Social Media and Mental Health collaborative review for supporting evidence)

**2.1 Correlational studies consistently show a link between heavy social media use and mood disorders, but the size of the relationship is disputed**.

See the studies in section 1.1 of the review. Nearly all studies find a correlation, and it is usually curvilinear. That is, moving from no social media use to one or two hours a day is often not associated with an increase in poor mental health, but as usage rises to 3 or 4 hours a day, the increases in mental illness often become quite sharp. You can see this pattern below in two studies, the first from the USA, the second from the UK.

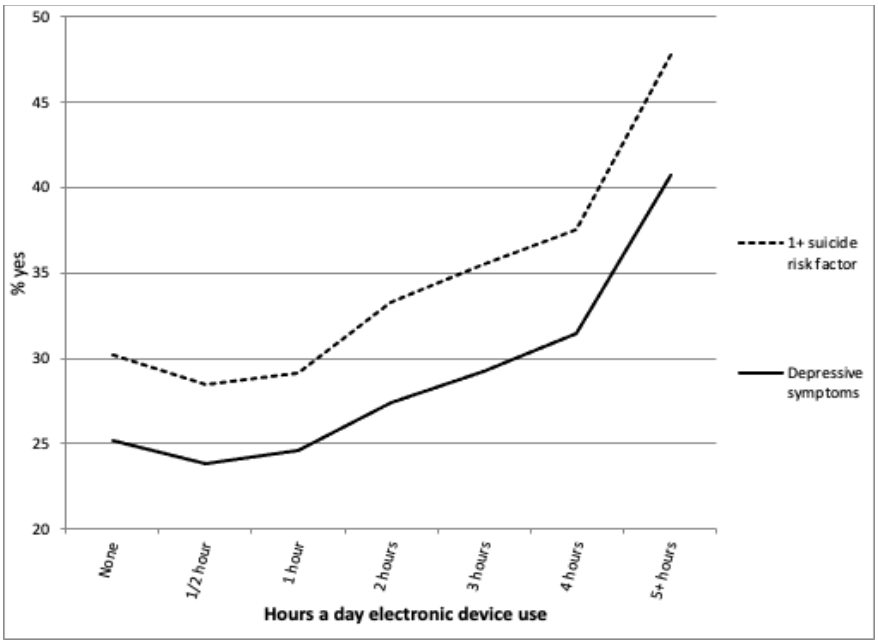


*Figure 4: Exposure-response relationship between electronic device use and a) having at least one suicide-related outcome/ risk factor or b) depressive symptoms (feeling sad or hopeless for two weeks or more in a row)*, U.S. 9–12th graders, Youth Risk Behavior Surveillance Survey (YRBSS), 2009–2015. Taken from: **1.1.3b** Twenge, Joiner, Rogers, & Martin (2020).

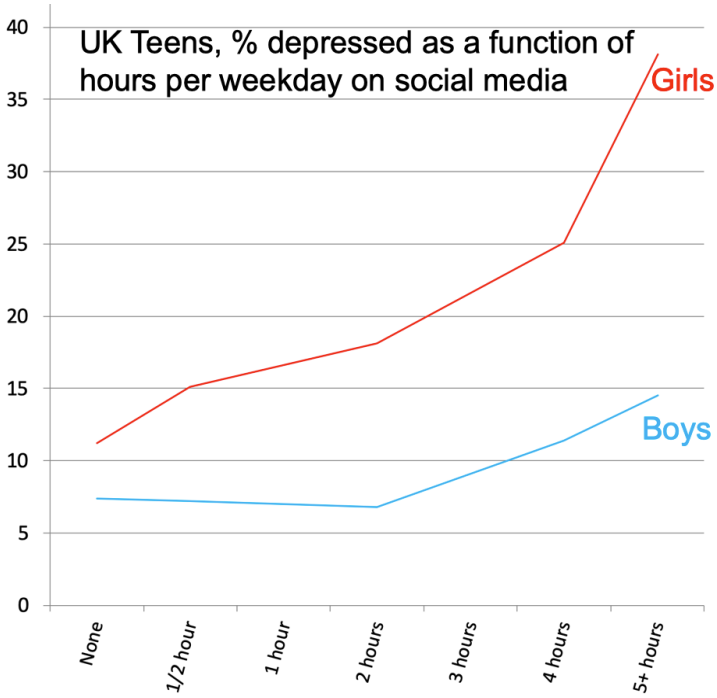


*Figure 5. Percent of UK adolescents with "clinically relevant depressive symptoms" by hours per weekday of social media use, including controls. Haidt and Twenge created this graph from the data given in Table 2 of Kelly, Zilanawala, Booker, & Sacker (2019), page 6.*

**2.2 The correlation is much larger than for "eating potatoes" or "wearing glasses**."
There is one academic publication that is more widely cited than any other in essays that are skeptical of a link between social media use and mental health: Orben & Przybylski (2019), titled: The association between adolescent well-being and digital technology use, published in the journal *Nature Human Behavior*. This study used an advanced statistical technique on three very large data sets in which teens in the US and UK reported their "digital media use" and answered questions related to mental health. Orben and Przybylski report that the average regression coefficient (using social media use to predict positive mental health) is negative but tiny, indicating a level of harmfulness so close to zero that it is roughly the same size as they find (in the same datasets) for the association of mental health with "eating potatoes" or "wearing eyeglasses." The relationships are equivalent to correlation coefficients less than r = .05. The authors conclude that "these effects are too small to warrant policy change."

How can this finding of a nearly-zero effect size be reconciled with the obviously larger relationships seen in figures 4 and 5? Jean Twenge and I argued in a published response paper in the same journal that Orben and Przybylski made 6 analytical choices, each one defensible, that collectively ended up reducing the statistical relationship and obscuring an association that is actually equivalent to a correlation coefficient of around r=.20. The first issue to note is that the "potatoes" comparison was what they reported for all "digital media use," not for social media use specifically. Digital media includes all screen based activities, including watching TV or Netflix videos with a sibling, which are not harmful activities. In their own published report, when you zoom in on "social media" only, the relationship is between 2 and 6 times larger than for "digital media." Also crucial is that Orben and Przybylski lumped together all teens (boys and girls), while many studies have found that the correlations with harm are larger for girls. So even if the association is weak for all kids using all screens, the association is much larger if you zoom in on girls using social media.

**2.3 There is an emerging consensus that the correlation is in the ballpark of r = .10 to r = .15.**
Orben and Przybylski obtained an unusually low numbers for the relationship between "digital media use" and mental illness, compared to other published studies. How large is the relationship when we just look at social media? Amy Orben herself conducted a "narrative review" of many other reviews of the academic literature (Orben, 2020). Her own conclusion is that "The associations between social media use and well-being therefore range from about r = − 0.15 to r = − 0.10." I agree with this assessment, for both sexes combined.

**2.4 The correlations are larger for girls.**

What would the correlation be if we could just look at girls? Several studies have found that it is substantially larger than for boys. See Kelly, Zilanawala, Booker, & Sacker (2019), Nesi & Prinstein (2015), and Twenge, J.M. (2020). I know of no study that has found a larger relationship for boys. A ballpark figure for the correlation just for girls is roughly r = .15 to r = .22.

**2.5. The effect size is even larger for girls going through puberty.**

A very recent study—Orben, Przybylski, Blakemore, & Kievit (2022)—found that the link between social media use and mental illness varies by age and sex. For girls, it is largest between the ages of 11 and 13 -- the years when they are in early puberty. For boys the most sensitive age is later (14-15), consistent with the fact that boys hit puberty later than girls. This means that zooming in on girls and social media is not enough. We must pay special attention to girls going through puberty while on social media. For them, the size of the correlation with poor mental health could be well above r = .20. This recent study points us to the urgency of getting social media out of middle schools, at the very least. That is where the harm seems to be greatest.

**2.6. Correlations between .15 and .20 are not "small."**

Many researchers learned in graduate school that a correlation coefficient of r=.5 and above is a "large" correlation, r=.3 and above is a "medium" sized correlation and r = .10 and above is a "small" correlation, with r < .10 being trivial, not even "small." But recently, psychologists have noted that these cutoffs make no sense; what counts as large or small varies by domain. The key paper here is Gotz, Gosling, and Rentfrow (2020), Small Effects: The Indispensable Foundation for a Cumulative Psychological Science. The authors note that in the domains of public health and education, many of the things that warrant public expenditure are correlated with outcomes in the ballpark of r = .05 to r = .15. For example, Gotz et al. note that the correlation of calcium intake and bone mass in pre-menopausal women is r = .08, which is enough to recommend that women take calcium supplements. The correlation of childhood lead exposure and adult IQ is r = .11, which is enough to justify a national campaign to remove lead from water supplies. These correlations are *smaller* than the links between mood disorders and social media use for girls. Gotz et al. note that such putatively "small" effects can have a very large impact on public health when we are examining "effects that accumulate over time and at scale", such as millions of teens spending 20 hours per week, every week for many years, trying to perfect their Instagram profiles while scrolling through the even-more-perfect profiles of other teens.

**2.7. The experimental evidence confirms the correlational findings.**

All social scientists know that "correlation does not imply causation." We generally give more weight to experimental studies that randomly assign individuals to a treatment or control condition. Some experiments require participants to reduce or eliminate social media use for a few days or weeks; some experiments randomly assigned participants to spend time on a social media platform (vs. some other activity). Section 3 of the social media collaborative review collects the abstracts of all the experiments we've been able to find that were published after 2014. At present, ten of the studies show a statistically significant effect on mental health or happiness, while just four studies failed to find an effect. It must be noted that nearly all of these experiments used college students or older samples; none used middle school students, who are likely to be the most vulnerable to the harms of social media. (Doing experiments with younger teens should be an urgent research priority.)

**2.8. The "eyewitness testimony" confirms the academic findings: social media is a culprit.** Section 4 of the Social Media collaborative review collects studies that have directly asked teens what they think is going on. Teens often say that they enjoy social media while they are using it — which is something heroin users are likely to say too. The more important question is whether the teens themselves think that social media is, overall, good for their mental health. The answer is consistently "no." Facebook's own internal research, brought out by Frances Haugen in the Wall Street Journal, concluded that "Teens blame Instagram for increases in the rate of anxiety and depression … This reaction was unprompted and consistent across all groups."

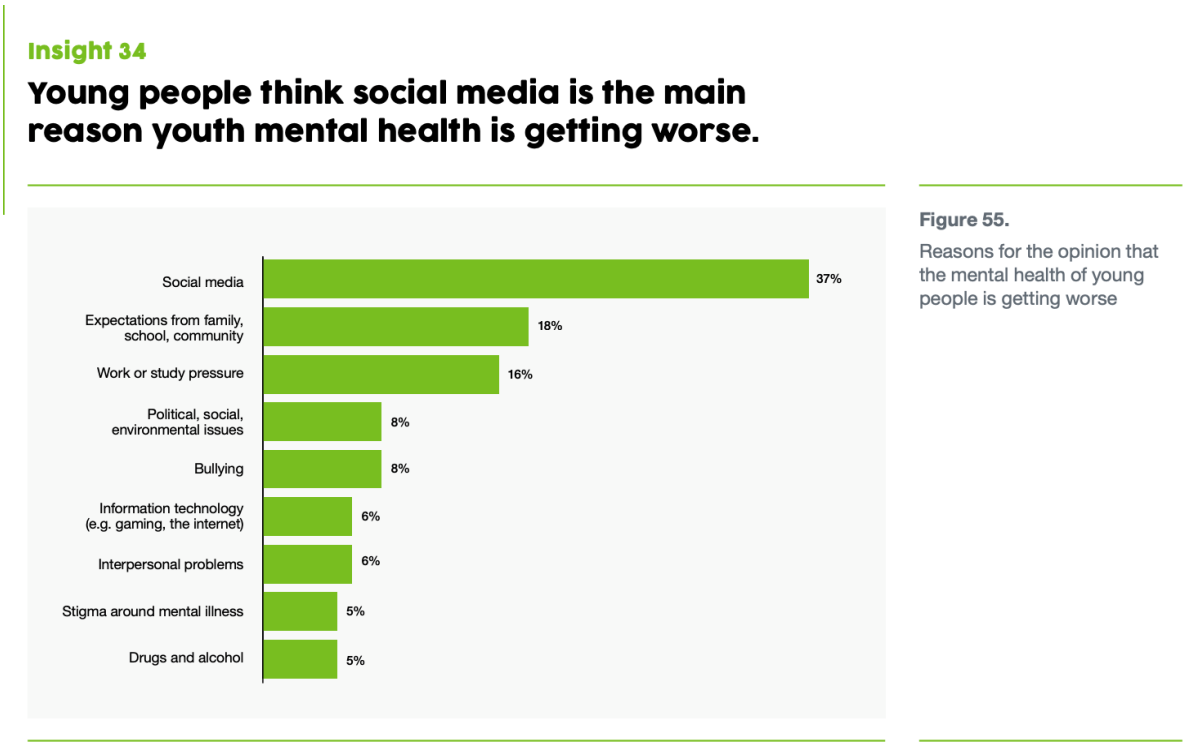


*Figure 6: Australian teens believe that social media is the main reason that youth mental health is getting worse. Source: [Headspace National Youth Mental Health Survey (2018).]*

## PART 3: WHAT LEGISLATION WOULD BE HELPFUL IN ADDRESSING THE CRISIS?

The United States is experiencing a catastrophic wave of mood disorders (anxiety and depression) and related behaviors (self harm and suicide). The crisis is so severe that the U.S. Surgeon General, Vivek Murthy, recently issued an Advisory on Youth Mental Health.

This crisis did not emerge gradually. There was no sign of it before 2010, but by 2015 it was everywhere, overwhelming mental health centers that catered to teens and college students. The crisis emerged in the exact years when American teens were getting smart phones and becoming daily users of social media platforms such as Instagram. Correlational, experimental, and eye-witness testimony points to social media as a major cause of the crisis. I do not believe that social media is the *only* cause of the crisis, but there is no alternative hypothesis that can explain the suddenness, enormity, and international similarity that I laid out in part 1 of this document. Researchers and spokespeople for the major platforms who tell you that the evidence is “inconclusive” or that the effect sizes are “too small” should be asked directly: “OK, then what do YOU think caused this?”

What should be done? What legislation can Congress pass that might address and reverse America's rolling mental health disaster? My main essay on the effects of social media on teen mental health is a 2021 Atlantic essay titled The Dangerous Experiment on Teen Girls. In that essay I laid out the evidence, as I have in this document, and then I offered three policy suggestions. **The first was that Congress pass the very bill that you are considering today**:

> *First, Congress should pass legislation compelling Facebook, Instagram, and all other social-media platforms to allow academic researchers access to their data. One such bill is the **Platform Accountability and Transparency Act**, proposed by the Stanford University researcher Nate Persily.*

My second suggestion was that you consider **updating COPPA**:

> *Second, Congress should toughen the 1998 Children's Online Privacy Protection Act. An early version of the legislation proposed 16 as the age at which children should legally be allowed to give away their data and their privacy. Unfortunately, e-commerce companies lobbied successfully to have the age of "internet adulthood" set instead at 13. Now, more than two decades later, today's 13-year-olds are not doing well. Federal law is outdated and inadequate. The age should be raised. More power should be given to parents, less to companies.*

**I strongly believe that Congress must undo the disastrous mistake of setting the age too low and letting the companies off the hook for enforcing even the low age of 13.** Puberty and middle school are already so hard, especially for girls. Social media makes it all worse, and that recent study by Orben, Przybylski, Blakemore, & Kievit shows us that this vulnerable period is when mental health damage is most likely. We do not know if the damage done in middle school is permanent, or if the children will outgrow it if they were to leave the most toxic social media environments. But we can all work together to ensure that middle school children are not on Instagram and other platforms, especially when they are only 11 or 12 years old.

I now believe there is an additional approach that is extremely promising, in part because it is politically very feasible. This is my third suggestion: **to simply pass the Age Appropriate Design Code that the UK Parliament has already enacted.** The genius of this approach, developed by Beeban Kidron of the House of Lords, is that it recognizes that children are everywhere, on nearly all platforms, including those designed for adults. It specifies the responsibilities of all platforms to provide a suitable environment for children, if they fail to keep children off. The state of California is currently considering implementing the UK's code. The bill recently passed out of a subcommittee on a unanimous and bipartisan vote. The bill, AB 2273, would create the

California Age Appropriate Design Code Act. You can read about the bill in this essay. Of course, a state by state patchwork of bills makes no sense for the Internet. **I strongly urge this committee to consider putting forth a federal version of the same bill.**

My fourth and final suggestion is that **Congress authorize and facilitate research on this topic**. Of course, many researchers are already working on it, but we are working in the dark. We do not have access to the best and most informative data -- the data held closely by the companies themselves. The Platform Accountability and Transparency Act will help researchers gain access. **The Children and Media Research Advancement Act (CAMRA)** which you are currently considering would provide funds to speed up this research. I urge you to enact it.

* * * * *

Surgeon General Murthy wrote in his Advisory: "*Our obligation to act is not just medical—it's moral*" (p. 4). Will the Senate rise to meet this obligation? Can it find the bipartisan will to address the most non-partisan of all issues: the widespread and increasing suffering of America's children?