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UNITED STATES DISTRICT COURT  
DISTRICT OF UTAH

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HANNAH PAISLEY ZOULEK, a Utah resident; JESSICA CHRISTENSEN, a Utah resident; LU ANN COOPER, a Utah resident; M.C., a Utah resident, by and through her parent, LU ANN COOPER; VAL SNOW, a Utah resident; and UTAH YOUTH ENVIRONMENTAL SOLUTIONS, a Utah association,

Plaintiffs,

v.

KATIE HASS, in her official capacity as Director of the Utah Division of Consumer Protection; SEAN REYES, in his official capacity as Utah Attorney General,

Defendants.

**DECLARATION OF  
CHRISTOPHER FERGUSON  
IN SUPPORT OF PLAINTIFFS'  
MOTION FOR PRELIMINARY  
INJUNCTION**

Case No. 2:24-cv-00031-RJS-CMR

Chief Judge Robert J. Shelby

Magistrate Judge Cecilia M. Romero

I, Christopher Ferguson, declare as follows:

I am over the age of 18 and have personal knowledge of the facts set forth in this Declaration.

***Background***

1. **Title:** *Professor of Psychology, Stetson University. Psychologist licensed in Florida and Texas (inactive in Texas).*
2. **Education:** *B.A. in psychology, Stetson University. M.S. developmental psychology, Florida International University. Ph.D. in clinical psychology, University of Central Florida.*
3. **Previous positions:** *Associate Professor, Texas A&M International University; Assistant Professor, University of Wisconsin - Whitewater*
4. **Research focus:** *Media effects on youth including video games, social media, etc..*
5. **Author or co-author of:** *7 non-fiction books, approximately 268 scientific journal articles, book chapters, reviews, or reports.*
6. **Most relevant publications:**

**Books:**

Ferguson, C. J. (2023). *Catastrophe! How Psychology Explains Why Good People Make Bad Situations Worse*. New York: Rowman & Littlefield.

Ferguson, C. J. (2020). *How Madness Shaped History*. New York: Rowman & Littlefield.

Ferguson, C. J. (2018). *Video game influences on aggression, cognition and attention*. New York: Springer.

Markey, P.M., & Ferguson, C.J. (2017) *Moral combat: Why the war on video games is wrong*. Dallas, TX: BenBella Books.

Ferguson, C. J. (2016). *Media psychology 101*. New York, NY: Springer.

Ferguson, C. J. (2013). *Adolescents, crime, and the media: A critical analysis*. New York, NY, US: Springer Science + Business Media. doi:10.1007/978-1-4614-6741-0

### **Research Publications**

Ferguson, C.J., Kaye, L.K., Branley-Bell, D., & Markey, P. (in press). There is no evidence that time spent on social media is correlated with adolescent mental health problems: Findings from a meta-analysis. *Professional Psychology: Research and Practice*.

Ferguson, C.J. (in press). Do social media experiments prove a link with mental health: A methodological and meta-analytic review. *Psychology of Popular Media*.

Ferguson, C.J. (in press). Longitudinal associations between social media use and mental health outcomes in sample of Irish youth: A brief report. *Communication Reports*.

Ferguson, C.J. (in press). Cyberbullying and its relation to right and left authoritarianism, Trait victimhood, and mental illness. *Psychology of Popular Media*.

Ferguson, C.J. (in press). Does the internet make the world worse? Depression, aggression and polarization in the social media age. *Bulleting of Science, Technology, & Society*.

Ferguson, C.J., Jeong, E.J., & Wang, J.C.K. (2023). Psychological gaming: A longitudinal study from the perspectives of mental health problems and social stress model. *The Journal of General Psychology, 150*, 323-343.

Ferguson, C.J. (2022). Does exposure to sexualized media lead to boys' objectification of girls and women?: A preregistered, longitudinal reanalysis of Rousseau et al. (2019). *Adolescent Psychiatry, 12*, 60-66.

Garcia, S., Ferguson, C.J., & Wang, C.K.J. (2022). Prosocial video game content, empathy and cognitive ability in a large sample of youth. *Journal of Youth and Adolescence, 51*, 62-73.

Ferguson, C.J., Kaye, L., Branley-Bell, D., Markey, P., Ivory, J., Klisanin, D., et al. (2022). Like This Meta-analysis: Screen Media and Mental Health. *Professional Psychology: Research and Practice, 53*, 205-214.

Ferguson, C.J., & Heene, M. (2021). Providing a lower-bound estimate for psychology's "crud factor": The case of aggression. *Professional Psychology: Research and Practice, 52*, 620-626.

Ferguson, C.J., & Wang, C.K.J. (2021). Aggressive video games are not a risk factor for mental health problems in youth: A longitudinal study. *Cyberpsychology, Behavior and Social Networking 24*(1), 70-73.

Ferguson, C.J. (2021). One less reason why: Viewing of suicide-themed fictional media is associated with lower depressive symptoms in youth. *Mass Communication and Society, 24*(1), 85-105.

Ferguson, C.J. (2021). Links between screen use and depressive symptoms in adolescents over 16 years: Is there evidence for increased harm? *Developmental Science*, 24(1) e13008.

Turel, O., & Ferguson, C.J. (2021). Excessive use of technology: Can tech-providers be the culprits? *Communications of the ACM*, 64(1), 42-44.

Drummond, A., Sauer, J.D., & Ferguson, C.J. (2020). Do longitudinal studies support long-term relationships between aggressive game play and youth aggressive behavior? A meta-analytic examination. *Royal Society Open Science*.

<https://doi.org/10.1098/rsos.200373>

Lindner, D., Tribble, M., Pilato, I., & Ferguson, C.J. (2020). Examining the effects of exposure to a sexualized female video game protagonist on women's body image. *Psychology of Popular Media Culture*, 9(4), 553-560.

Ferguson, C. J. (2019). 13 reasons why not: A methodological and meta-analytic review of evidence regarding suicide contagion by fictional media. *Suicide and Life-Threatening Behavior*, 49(4), 1178-1186.

Berryman, C., Ferguson, C. J., & Negy, C. (2018). Social media use and mental health among young adults. *Psychiatric Quarterly*, 89(2), 307-314.

Ferguson, C. J., Munoz, M. E., Garza, A., & Galindo, M. (2014). Concurrent and prospective analyses of peer, television and social media influences on body dissatisfaction, eating disorder symptoms and life satisfaction in adolescent girls. *Journal of Youth and Adolescence*, 43(1) 1-14.

7. **Prior Expert Testimony and Compensation:** I consulted with the prosecution in the Nicholas Cruz case in Broward County, FL approximately 1 year ago. I am offering this declaration pro bono.

8. In past generations, society has experienced repeated moral panics over new media and technology, ranging from novels to the radio, to comic books, to various forms of music (**jazz**, rock, rap, etc.), to video games and the role-playing game Dungeons and Dragons. In each case, politicians and scholars worried about the potentially pernicious effects of these media, often pushing for censorship/regulation. In many instances, some scholars (for instance, psychiatrist Fredric Wertham in the case of comic books) and even professional guild organizations such as American Psychological Association have been revealed as vastly overstating the evidence for harmful effects (Elson, M., Ferguson, C. J., Gregerson, M., Hogg, J. L., Ivory, J., Klisanin, D., Markey, P. M., Nichols, D., Siddiqui, S., & Wilson, J. (2019). Do policy statements on media effects faithfully represent the science? *Advances in Methods and Practices in Psychological Science* 2(1), 12-25.) in some cases based on very poor quality and ultimately unreplicable meta-analyses (Ferguson, C.J., Copenhaver, A. & Markey, P. (2020). Re-examining the findings of the APA's 2015 task force on violent media: A meta-analysis. *Perspectives on Psychological Science* 15(6), 1423-1443.) The question before us is whether current concerns about social media are a repetition of this moral panic pattern, or whether the scientific data support that social media pose a unique problem for youth. I will consider this in relation to the data on youth mental health in society, experimental data, survey data of youth and families and, lastly, an examination of Moral Panic Theory.

### Societal Data

9. In her declaration, Dr. Twenge suggests that a proliferation of social media and smartphones is directly tied to an increase in youth mental health problems, and the rise in mental health problems among youth can't be explained via other factors. However, there is no evidence establishing a cause-and-effect relationship between these time trends, her analysis ignores that mental health data for less-technology adopting older generations is actually *worse* than for teens, these trends in youth mental health are not observed for other high-technology adopting countries in Europe or the Anglophone sphere (Canada, UK, Australia, etc.) and that other factors within the US actually provide better explanations for youth mental health trends than does social media use.

10. First, we must understand the reliability of varying data sources. Unreliable data can come from problems with self-report, as well as reporting changes in official statistics. For instance, Twenge refers to hospital admissions for self-injury (paragraph 26), however, this is now understood to mainly be a function of reporting standards which changed in the 2010s (Corredor-Waldron, A. & Currie, J. (2024). To what extent are trends in teen mental health driven by changes in reporting? The example of suicide-related hospital visits. *The Journal of Human Resources*, 59, S14-S40.) Similarly diagnostic changes in the American Psychiatry Association's Diagnostic and Statistical Manual in 2013 broadened criteria for many mental illnesses, making diagnosis for these conditions easier. Further as noted in one recent book (Shrier, A., (2024). *Bad Therapy: Why Kids Aren't Growing Up*. Penguin), the 2010s saw the growth of a therapeutic industry within K12 schools, within parenting, and within the general culture. As a positive, this may have destigmatized the reporting of mental health

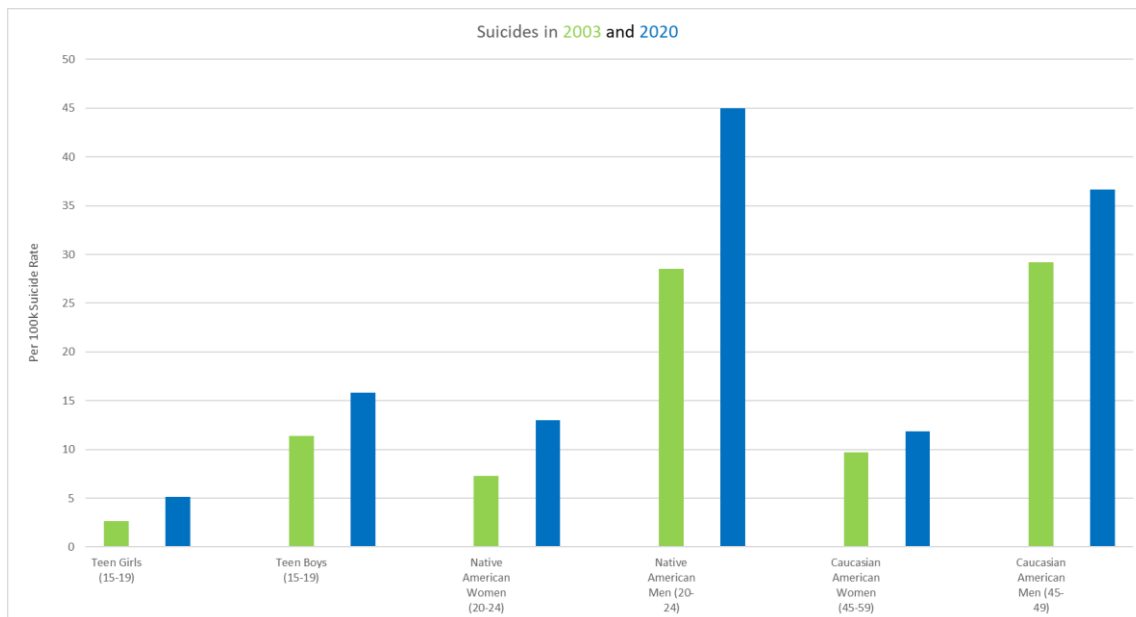
symptoms (a point also made by Corredor-Waldron & Currie, *ibid*), but as a negative may also have led to youth redefining minor worries and sadnesses as mental illness. As such, any trends in youth self-reported mental health or hospital admissions are likely due to changes in diagnosis, reporting standards and cultural perceptions of mental illness, all of which shifted rapidly during the 2010s.

11. As such, the most reliable data appear to be suicide data which, for the United States, is reported in the Centers for Disease Control (CDC) WISQARS database. Suicide data is not immune to reporting standards changes, but put rather bluntly, at least a body is a body and, as such, easier to count. We see from such data that teen suicides remain rare compared to other age categories, though did rise through the 2010s, only to fall in 2022. If we take the example of teen girls, often the specific focus on debates on social media effects, teen girl suicide remains the lowest, by far, of any demographic, though their absolute numbers did rise through 2022, falling that year (CDC. (2024).

*Vital Statistics Rapid Report*. Retrieved from:

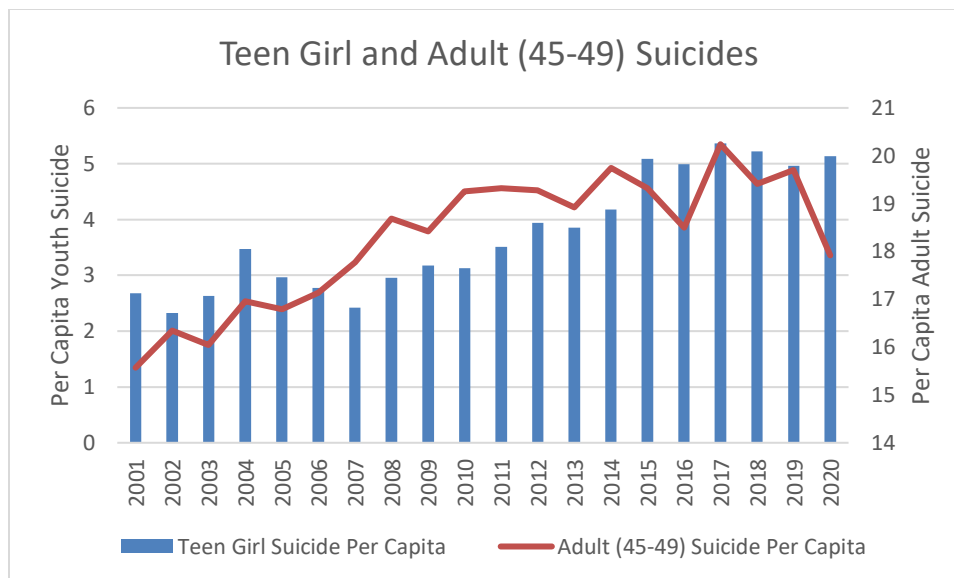
<https://www.cdc.gov/nchs/data/vsrr/vsrr034.pdf>.) For instance, suicides among middle-aged Caucasian men and suicides among mid-20s Native American men are roughly 3-5x the rate of teen girls. The numbers for middle aged adults are particularly striking, given such individuals are less tech-adopting than teens. Thus the first mistake of both the state and Dr. Twenge is to consider teen mental health in isolation of that of their parents, and in doing so falsely equate it as having been caused by something unique to teens (social media) rather than something systemic to families.





12. Again, it worth nothing that suicides among teens and young adults declined in 2022 without **the** intervention of the state although suicides among older adults continued to increase (CDC, *ibid*).

13. Further, rates of teen suicide are directly correlated to rates of middle-aged adult suicide, **suggesting** these phenomena are occurring in concert with each other. Note the trend is similar for teen boys as teen girls. The correlation between these phenomena survives time series analysis (suggesting it is not an ecological fallacy or frivolous correlation).



14. Scholar Mike Males has analyzed other CDC data to pinpoint potential causes for this **relationship** between teen and adult suicide. In his data (Males, M. (2024). Why do authorities who claim “concern” for bullied teenagers lie shamelessly about who’s bullying them? Retrieved from: <https://mikemales.substack.com/p/why-do-authorities-who-claim-concern>), he finds that social media use is not correlated to teen self-reported suicidal depression. However, emotionally and physically abusive parenting behaviors are. This suggests that, to the extent youth are experiencing a mental health crisis in the United States, this is due to a trickle-down from their parents’ mental health crisis, which can take the form of abuse or, alternatively, deaths of despair of parents due to drug overdoses or suicide. Parental mental health problems and poor family environment are well-known predictors of youth suicide (e.g., King, R., Schwab-Stone, M., Flisher, A., et al. (2001). Psychosocial and risk behavior correlates of youth suicide attempts and suicidal ideation. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40, 837-846.)

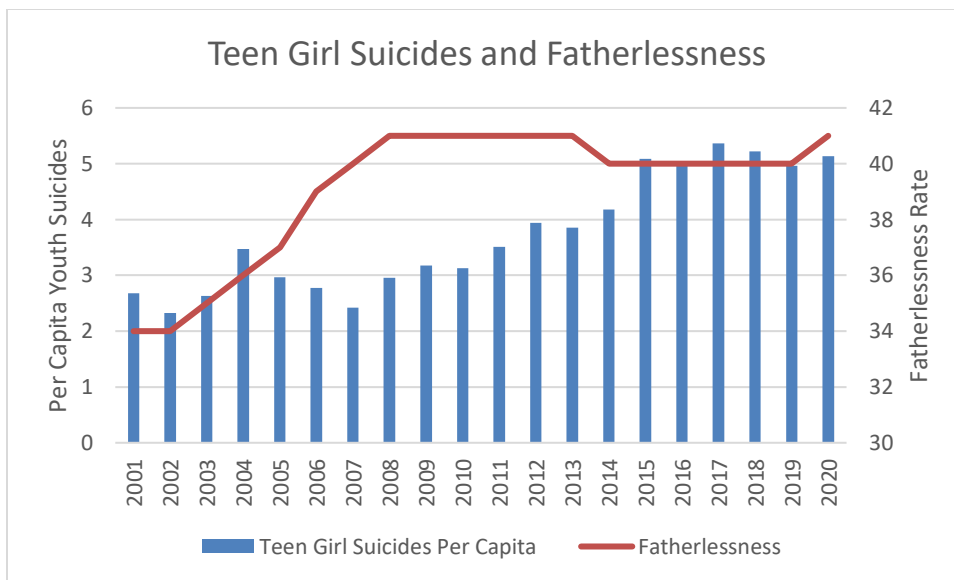
15. By contrast we have no data to suggest changes in teens' screen or social media use are **predictive** of US youth suicide trends, nor does Dr. Twenge provide any. By contrast, time series analyses have specifically ruled out social media as a cause of youth suicide trends (Padmanathan, P., Bould, H., Winstone, L., Moran, P., & Gunnell, D. (2020). Social media use, economic recession and income inequality in relation to trends in youth suicide in high-income countries: A time trends analysis. *Journal of Affective Disorders*, 275, 58–65. <https://doi-org.stetson.idm.oclc.org/10.1016/j.jad.2020.05.057>). Changes in youth screen use do not appear to have affected youth mental health on a global scale (Vuorre, M., Orben, A., & Przybylski, A.K. (2021). There is no evidence that associations Between adolescents' digital technology engagement and mental health problems have increased. *Clinical Psychological Science*, 9 (5), 823-835. <https://doi.org/10.1177/2167702621994549>)

16. Advocates for the belief that social media has driven changes in US teens' suicide or mental health use only vague goalposts to describe when this may have occurred. Social **media** initially became available in roughly 2004 with Facebook, with smartphones becoming available around 2009, etc. We are led to believe that *some* change in youth screen use during that time is responsible for *any* change in youth mental health during that same time period from 2004-2024. However, with no clear guidelines for evidence, *any* change in youth wellness between 2004 through the present could have been attributed to changes in technology. In other words, rises in youth suicide which began in the early 2010s has been attributed to social media, but had youth suicides increased in 2004, or 2009, or 2019 or 2024, the same argument could have been made. This lacks any scientific rigor and amounts to post-hoc reasoning. It is worth noting that

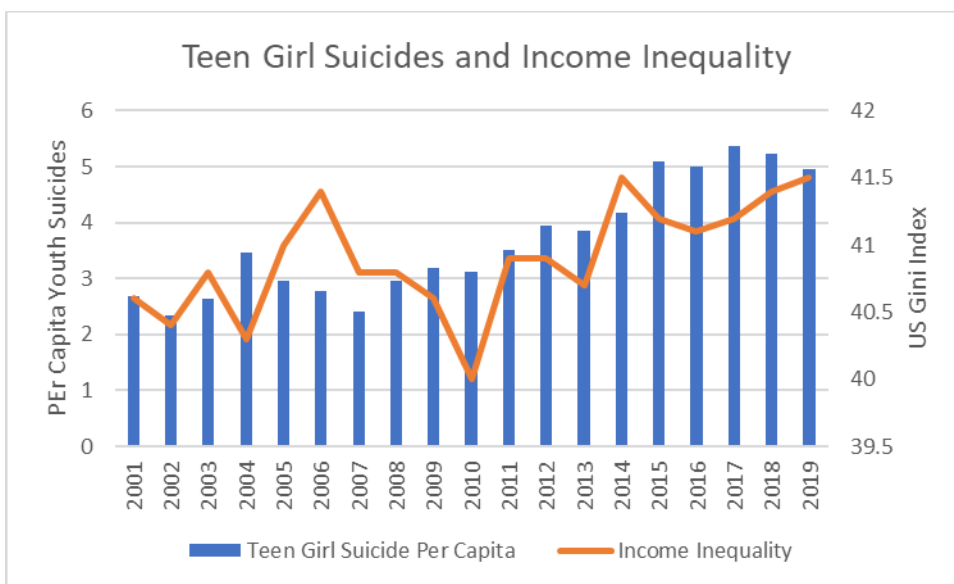
similar arguments were once made both by politicians (including the Surgeon General) and scholars about movie and television violence and violent crime, and these proved to be false once violent crime began to plummet in frequency in the 1990s (Markey, P. M., French, J. E., & Markey, C. N. (2015). Violent movies and severe acts of violence: Sensationalism versus science. *Human Communication Research*, 41(2), 155–173. <https://doi-org.stetson.idm.oclc.org/10.1111/hcre.12046>). This represents, overall, a very poor standard of evidence on which to base public policy.

17. People might reasonably ask what other factors in US society might explain youth mental **health** suicide increases. As noted before some data suggest that reporting standards changes may be responsible for some data such as hospital reported self-injuries (Corredor-Waldon & Currie, *ibid*). Further Shrier (*ibid*) has offered an explosion of a therapeutic industry both in K12 education and in the general public as a potential explanation. Both of these occurred within the relevant timeframe. Other changes occurring within US society in a similar timeframe are myriad and, tragically, in our focus on social media, many have been poorly explored. I offer two examples, both of which hold up in time-series analyses, suggesting more than mere ecological fallacies.

18. For instance, fatherlessness as indicated by births to unwed mothers (data provided by [kidscount.org](http://kidscount.org)) is associated strongly with youth suicide.



19. So too is income inequality related to youth suicide (a finding also supported by Padmanathan et al., *ibid*).

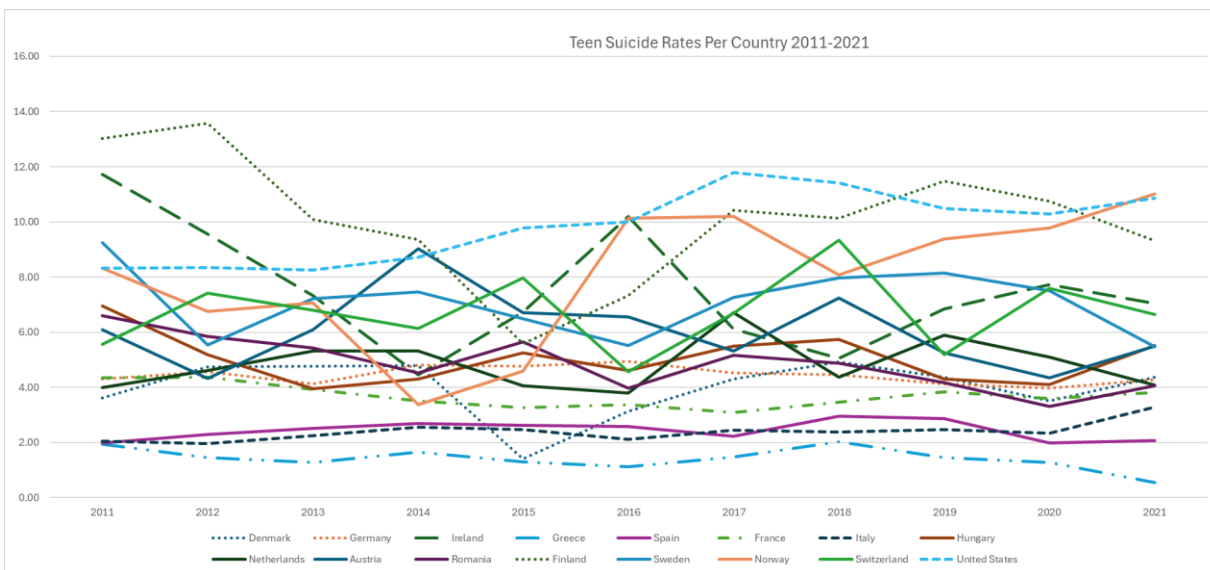


20. Other studies have pointed toward other factors such as a decline in childhood independent activities as a source of youth mental illness (Gray et al., (2023). Decline in independent activity as a cause of decline in children’s mental well-being: Summary of the evidence. *Journal of Pediatrics*, 260, 113352). Opportunities for autonomous, reasonably unsupervised play tend to be associated with healthier child

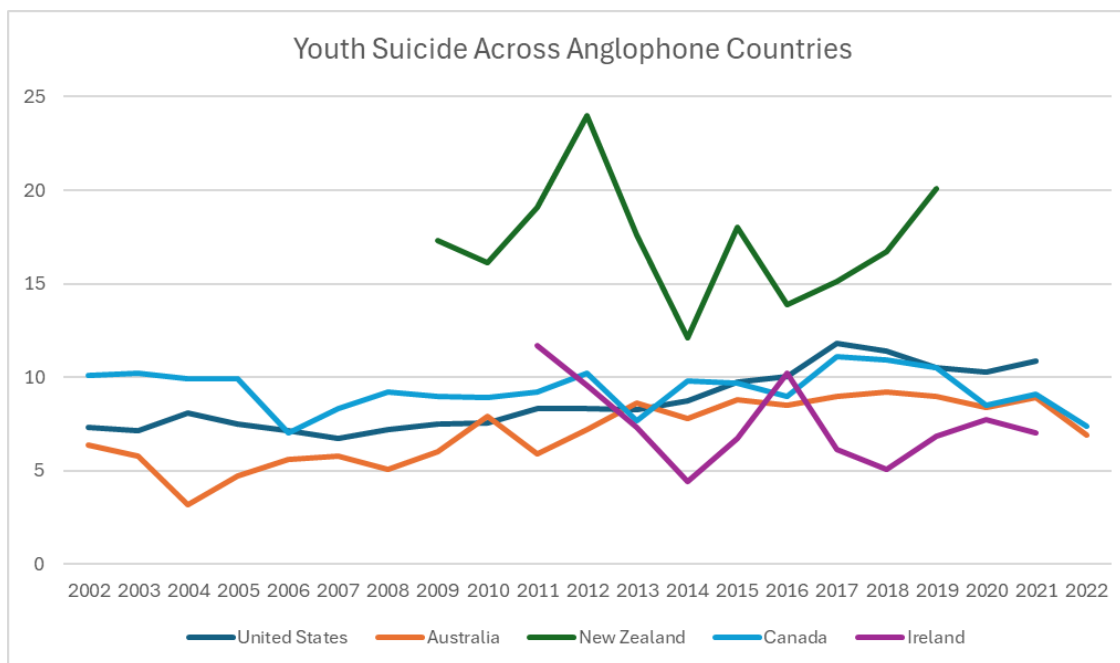
development (van der Kaap-Deeder, J., Vansteenkiste, M., Soenens, B., & Mabbe, E. (2017). Children’s daily well-being: The role of mothers’, teachers’, and siblings’ autonomy support and psychological control. *Developmental Psychology*, 53(2), 237–251. <https://doi-org.stetson.idm.oclc.org/10.1037/dev0000218>), although the trend in parenting in recent decades has been toward risk-aversion, and the suppression of autonomy. “Helicopter parenting” is generally correlated with worse mental health outcomes for youth, though more longitudinal research would be welcome (Vigdal, J.S., & Brønnick, K.K. (2022). A Systematic Review of “Helicopter Parenting” and Its Relationship With Anxiety and Depression. *Frontiers in Psychology*, 13.) This suggests a larger issue with shifting parenting practices, often motivated by shame, guilt and heightened perception of environmental risk, that may be impacting youth mental health in the US in a way that has nothing to do with social media. There are many other potential variables and, undoubtedly, no single explanation is sufficient. But in our rush to judge social media, this is causing harm by distracting policy makers from other, better supported risk factors for youth mental health issues, many of which originate from struggling families.

21. It is worth also looking at cross-national data on youth suicide. Were social media to blame for youth mental health/suicides, we would expect to see similar youth suicide trends in other high technology adopting countries. In her declaration Twenge appears to claim this is the case (paragraphs, 27-29) but according to official statistics (e.g., Eurostat) on violent deaths, this does not appear to be the case. For example, across European countries, though there is between-country variance, the

overall trend in youth suicides has been for a slight *reduction* in youth suicide in recent decades.



22. Similarly for Anglophone countries (Ireland, Australia, Canada, etc.), there is no trend in **youth** suicides that would indicate a consistent cross-national trend in youth suicides:



23. Here we can note the rising US rate (this data do not include the 2022 decline reported by the CDC). Teen suicides in New Zealand are particularly high but show no trend. Overall, across nations, there is no consistent trend in youth suicide. UK data provided by the Royal College of Pediatricians and Child Health ((2021), *State of Child Health*. Retrieved from: <https://stateofchildhealth.rcpch.ac.uk/evidence/mental-health/suicide/>) report a decline in youth suicides through 2018 when reporting standards changed making further tracking of data confounded.

24. In conclusion, data within US society and cross-nationally do not support either that there is a consistent trend in youth mental health cross-nationally, nor that the specific issue regarding mental health in the US is limited to teens, nor due to social media. No good data is on offer to suggest that social media use in society is well-associated with teen suicide trends, and what good data is available, if anything, suggests that social media is a red herring. By contrast, the data we have suggests that youth mental health and suicide is linked to systemic issues within struggling families which are also affecting youth's parents. Rather than indulging yet another media moral panic, it would be more fruitful to examine real family systems risk factors for mental health problems across generations.

#### **Experimental Studies: Is There Evidence For Causality?**

25. **Experimental** studies of social media effects typically randomize participants (most often young adults) to either restrict their social media use for some period of time, or to continue using social media as normal. Typically, both before and after the allotted time (some studies may only do so after), participants are asked to rate their own mental health. Such studies have an obvious weakness in that it is fairly



obvious to participants what the hypotheses of the study are. When this occurs, participants are likely to report their behavior closer to what they think they experimenters want and, as such, give responses that do not indicate their true feelings or behavior. This obviously limits the degree to which studies are informative.

26. Nonetheless, the results of individual studies vary widely. Some suggest that restricting **social** media may help mental health, others find no effect, and some find that restricting social media is detrimental to mental health. A recent meta-analysis of experimental studies concluded that, across studies, they provided no evidence for the belief that restricting social media improves mental health (Ferguson, C.J. (in press). Do social media experiments prove a link with mental health: A methodological and meta-analytic review. *Psychology of Popular Media*.) Effects were higher in studies where researchers failed to note prior inconsistencies in the literature (a phenomenon called citation bias), which can indicate researcher bias. This means that, in some studies, researcher bias against social media resulted in what were likely artificially inflated results. This phenomenon occurs in Dr. Twenge's declaration to the court wherein she fails to note many studies that did not conclude social media restrictions improved mental health (e.g., Przybylski, A.K., Nguyen, T.V.T., Law, W. *et al.* (2021). Does Taking a Short Break from Social Media Have a Positive Effect on Well-being? Evidence from Three Preregistered Field Experiments. *Journal of Technology and Behavioral Sciences*. 6, 507–514. <https://doi.org/10.1007/s41347-020-00189-w>; Mitev, K., Weinstein, N., Karabeliova, S., Nguyen, T., Law, W., & Przybylski, A. (2021). Social Media Use Only Helps, and Does Not Harm, Daily Interactions and Well-Being. *Technology, Mind, and Behavior*, 2(1). <https://doi.org/10.1037/tmb0000033>).

27. Overall, methodological quality of studies was quite poor and few used open or **transparent** research practices.

28. The results of some studies are also often misrepresented, sometimes by the study authors **themselves**. For example, the study Allcott et al., (Allcott, H., Braghieri, L., Eichmeyer, S., & Gentzkow, M. (2020). The Welfare Effects of Social Media. *American Economic Review*, 110 (3), 629-76.) which was cited in Dr. Twenge's declaration (paragraph 51) concluded that reducing social media time improved wellness. However, the magnitude of effect was a miniscule .09 standard deviation units, with .00 being no effect at all. This is important because standard deviation units below .21 are unreliable, often due to methodological noise (Ferguson, C.J., & Heene, M. (2021). Providing a lower-bound estimate for psychology's "crud factor": The case of aggression. *Professional Psychology: Research and Practice*, 52, 620-626.) An effect of such small magnitude is simply too small to reliably distinguish from methodological noise. Even if that were not the case, such an effect would account for less than 1% of the variance in mental health.

29. This is a wide problem for social science where, too often, noise results are misinterpreted as evidence for a hypothesis, when they should not be. Put simply, the Allcott et al. study (ibid) should never be interpreted as evidence that reducing social media time improves mental health. Unfortunately, it is a statistical quirk that noise outcomes can become "statistically significant" when sample sizes are large (as was the case for Allcott et al.) Too few scholars carefully note this problem in social science and adjust their interpretations appropriately.

30. Other **studies** are also more complicated than often indicated. For instance, Dr. Twenge refers to a study by Lepp and Barkley (Lepp, A., & Barkley, J. E. (2023). The experimental effect of social media use, treadmill walking, studying, and a control condition on positive and negative affect in college students. *Current Psychology*, 42, 26331–26340.) Although it is true that this experiment (which, like most, is limited by its hypotheses being overly obvious to participants, which may have caused them to artificially alter their behavior to please the experimenters, a common phenomenon) found people who exercised were happier than those who used social media, those who used social media were happier than those who did not use social media (the actual control group). It is a very different question to ask whether exercise makes people happier than social media, than to ask whether social media causes harm relative to not using social media. Lepp and Barkley provide no good evidence for the latter concern.

31. It is important to note that these studies mentioned in Dr. Twenge's declaration were included **in** the meta-analysis mentioned above (Ferguson, *ibid*). Once again, across studies, they did not provide evidence that reducing social media time improved mental health.

32. In **conclusion** to this section, experimental studies are severely limited by major methodological weaknesses likely to create false positive results. Further, some studies evidence clear researcher bias as indicated by citation bias. Nonetheless, as a group, they do not provide evidence for causal impacts of social media use on mental health.

### Correlational/Longitudinal Studies

33. If the evidence for causal effects is poor, we might ask whether at least there is correlation between social media use and youth mental health. Of course, correlational evidence is not evidence for causal effects or harm. Even if a correlation did exist, for instance, it could be that youth who are more distressed use social media either to distract themselves or seek information or support regarding their mental illness.

34. There are a great number of correlational studies, many of which are not done with youth, although a fair number are. Studies are generally inconsistent in results, with some finding correlations, some finding no correlations and some even finding that social media use predicts good outcomes. Unfortunately, once again in her declaration, Dr. Twenge presents a research field to be more consistent than it actually is by failing to inform the court of studies which don't support her conclusions.

35. Even meta-analyses of correlational studies come to different conclusions. For instance, Dr. **Twenge** reports one meta-analysis which concluded there is a correlation between social media use and youth mental health (Liu, M., Kamper-DeMarco, K. E., Zhang, J., Xiao, J., Dong, D., & Xue, P. (2022). Time Spent on Social Media and Risk of Depression in Adolescents: A Dose-Response Meta-Analysis. *International Journal of Environmental Research and Public Health*, 19(9).) Dr. Twenge expresses that the size of this effect is "strong", but actually the size of the effect is very near the threshold for noise. The authors report an overall effect which is consistent with roughly  $r = .128$ . Taken at face value, this would mean that time spent on social media would explain roughly 1.6% of the variance in youth depression. Or put simply, a very weak effect, one very close to the threshold produced by methodological noise.

36. Other meta-analyses have come to differing conclusions. For example, one recent meta-analysis concluded that social media use did not predict mental health once other factors were controlled (Yang, Q., & Feng, Y. (2024). Relationships between social Networking Site (SNS) use and subjective well-being----- A meta-analysis and meta-analytic structural equation model, *Heliyon*, <https://doi.org/10.1016/j.heliyon.2024.e32463>). Similarly, a recent meta-analysis which focused specifically on youth mental health outcomes concluded that there was no predictive relationship between social media use and youth mental health (Ferguson, C.J., Kaye, L.K., Branley-Bell, D., & Markey, P. (in press). There is no evidence that time spent on social media is correlated with adolescent mental health problems: Findings from a meta-analysis. *Professional Psychology: Research and Practice*.) This fits with some of the best longitudinal studies of youth wellness which generally find no to weak associations between social media use and teen mental health (e.g., Heffer, T., Good, M., Daly, O., MacDonell, E., & Willoughby, T. (2019). The longitudinal association between social-media use and depressive symptoms among adolescents and young adults: An empirical reply to Twenge et al (2018). *Clinical Psychological Science*, 7(3), 462–470. <https://doi-org.stetson.idm.oclc.org/10.1177/2167702618812727>; Jensen, M., George, M. J., Russell, M. R., & Odgers, C. L. (2019). Young adolescents’ digital technology use and mental health symptoms: Little evidence of longitudinal or daily linkages. *Clinical Psychological Science*, 7(6), 1416–1433. <https://doi-org.stetson.idm.oclc.org/10.1177/2167702619859336>

37. It is **important** to recognize that some studies find that social media use is associated with *better* mental health outcomes. For instance, one study found that using

social media such as Instagram was associated with decreased loneliness (Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior*, 62, 155–167. <https://doi-org.stetson.idm.oclc.org/10.1016/j.chb.2016.03.084>). Similarly, another study found that Facebook use was associated with improved life satisfaction (Valenzuela, S., Park, N., & Kee, K. F. (2009). Is there social capital in a social network site?: Facebook use and college students' life satisfaction, trust, and participation. *Journal of Computer-Mediated Communication*, 14(4), 875–901. <https://doi-org.stetson.idm.oclc.org/10.1111/j.1083-6101.2009.01474.x>). The key takeaway is that there is simply no clear consistency to indicate a correlation between social media use and mental health. Effects across all studies are generally very weak, whether positive or negative and the extent to which such studies rely on self-report or may not control adequately for relevant confounding variables, often do not present state-of-the-art science.

38. Effects in meta-analyses may also be miscommunicated in several other ways. Some meta-analyses may find effects that are very close to zero and well within the level of effects expected by methodological noise. Yet authors may focus on “statistical significance”. But almost all meta-analyses produce “statistically significant” effects due to the massive power of such analyses...even for relationships that are trivial or due to chance. This is, again, one unfortunate quirk of social science which too many scholars have been slow to recognize. Further, some meta-analyses may focus on bivariate correlations which do not adequately control for confounding variables such as

biological sex, family stress, prior mental health, etc. This will inadvertently overestimate the true size of correlations.

39. Dr. Twenge also refers to an internal Facebook/Instagram study which received considerable notoriety in the general press (Twenge declaration, paragraph 47). However, **there** are several points to be made about this. First, the data was based on self-report by a relatively small number of girls. This study and its approach has been widely criticized by scholars for poor methodology (e.g., Ritchie, S. (2021). *Is Instagram really bad for teenagers?* The quality of the company's secret research into mental health is abysmal. *Unherd*. Retrieved from: <https://unherd.com/2021/09/facebooks-bad-science/>). People regularly misattribute the cause of their own feelings or behavior, and the questions were poorly worded. One can certainly conclude that this was an unforced error on Facebook's part, but few scholars think of this internal data as being of high scientific quality. Secondly, Dr. Twenge only reports that some girls thought Instagram had a negative impact on them. She fails to note (as did much of the news media coverage...seldom a reliable source), that higher proportions of girls felt that Instagram either had no effect on them or made them feel *better*. Very likely if we asked youth about how, say, school made them feel, school would get worse results. It is simply not possible to make any kind of informed conclusion from the study, both because of its poor quality and because the results were mixed, not conclusive.

40. Dr. **Twenge** also refers to a study which concluded that the rollout of Facebook across different college campuses was associated with declines in mental health (Braghieri, L., Levy, R., & Makarin, A. (2022). *Social Media and Mental Health*.

*American Economic Review*, 112(11), 3660–3693). However, this study too has been criticized by scholars for having weaker results than often advertised, with results that were not robust (e.g., Eckles, D. (2023). The Facebook and mental health trends: Harvard and Suffolk County Community College. *Statistical Modeling, Causal Inference, and Social Science*. Retrieved from: <https://statmodeling.stat.columbia.edu/2023/08/22/thefacebook-and-mental-health-trends-harvard-and-suffolk-community-college/>)

41. In conclusion, correlational and longitudinal studies vary widely in quality and outcomes. However, between them the evidence they provide for a relationship between social media use and mental health remains weak.

#### **Potential Benefits of Social Media for Teens**

42. During **times** of moral panic, it is common to view new media or technology as inherently dangerous and ignore potential benefits. This appears to be reflected in the social science literature which, overwhelmingly, concerns itself with risks (whether evidence is found for them or not), rather than potential benefits. However, some evidence does also point to potential benefits for youth on social media. Of course, this evidence should be subjected to the same scrutiny as that for harms and, at present, I conclude that the evidence here is more “proof of concept” than definitive.

43. However, some research does point toward potential benefits for teens in the use of social media. **For** example, social media may be an effective way of communicating health information to teens (Plaisime, M., et al., (2020). Social media and teens: A needs assessment exploring the potential role of social media in promoting health. *Social Media and Society*, <https://doi.org/10.1177/2056305119886025>). Youth



with chronic health conditions may be able to use social media to find social connections and support (Daniels, S., & Willard, V. W. (2023). Social media interactions after diagnosis: Social experiences of adolescents and young adults (aya) with cancer. *Journal of Psychosocial Oncology*. <https://doi-org.stetson.idm.oclc.org/10.1080/07347332.2023.2249876>). Social media may be of particularly benefit to LGBT youth, who can use it to find connections and support (Berger M.N. et al., (2022). Social media use and health and well-being of lesbian, gay, bisexual, transgender, and queer youth: Systematic review. *Journal of Medical Internet Research*, 24(9), e38449, doi: 10.2196/38449).

44. One **recent** large-scale review found there is evidence for multiple areas of benefit for teens in using social media (Haddock, A., Ward, N., Yu, R., & O'Dea, N. (2022). Positive effects of digital technology use by adolescents: A scoping review of the literature. *International Journal Environmental Research in Public Health*, 19(21):14009. doi: 10.3390/ijerph192114009.). For social media specifically, the authors concluded there are potential benefits related to social communication and reciprocity, information gathering and creative thinking, and developing real-life relationships. My own personal read is that much of this evidence remains correlational, has similar weaknesses as with the “harm” literature and should be interpreted with some caution. However, it does provide an important counterpoint to the current exclusive focus on “harm” to the exclusion of all else.

45. My point is not that this research on benefits is any more definitive than that on harms, but rather that any crude policy decisions made in the midst of moral panic may have more deleterious effects than positive.

### **Moral Panic Theory**

46. Both politicians and scholars have a long history of indulging moral panics as relate to new media and technology. Moral Panic Theory is well-established in the sociological and criminal justice literature (Cohen, S. (1972). *Folk devils and moral panics*. London: MacGibbon and Kee.) Put briefly, moral panics occur typically when older adults in society become concerned about new media or technology that youth are using, and ascribe the use of that media and technology to some social problem, real or imagined. This creates incentives for news media, politicians and scholars to cater to the moral panic in order to garner news headlines, votes, and research funding. During times of moral panic, data which supports the panic may be given far more attention than that which calls it into question. Moral panics tend to last until the generation of older adults who believe in the panic begin to die. Thus, we can look back on panics over everything from Greek plays, to going to the theater, to books, to the radio, to television, to comic books, to video games, to rock music, etc., with something akin to disdain, yet fail to learn from this historical pattern.

47. As noted in this declaration, there is a wide gulf between the rhetoric used by some politicians and scholars in support of the censorship or regulation of social media and the actual research evidence to support such claims. In fact, the evidence is, at best, weak and inconsistent. Yet many politicians and even scholars fail to report this faithfully. This does not imply bad faith, merely that such behavior is common to moral panics.

48. In her declaration, Dr. Twenge refers to the US Surgeon General (Twenge declaration, paragraphs 44-45.) However, the Surgeon General has been something of an

engine of moral panics, having promoted moral panics in the past over television, video games and other forms of media. Most notably, during the early 1980s, then-Surgeon General C. Everett Koop described video games as addictive, dangerous both physically and mentally and hazardous "body and soul" (see Associated Press. (1982). Around the Nation; Surgeon General Sees Danger in Video Games. *New York Times*. Retrieved from: <https://www.nytimes.com/1982/11/10/us/around-the-nation-surgeon-general-sees-danger-in-video-games.html>). It is important to recognize that he was discussing video games such as *Pac Man* or *Space Invaders* which no one today believes to be dangerous in the slightest. Interestingly, in his advisory on social media, the US Surgeon General both acknowledges that social media may have benefits for many youths, but also that there are significant gaps in the research literature. Nonetheless, he appears to lean into moral panic language with classic reversed burden of proof stating "Nearly every teenager in America uses social media, and yet we do not have enough evidence to conclude that it is sufficiently safe for them." This framing that the harm hypothesis is *true* until it is proven false is exactly the inverse of how science actually works. Nor does the Surgeon General provide any guidelines for what they would consider evidence social media is "safe" despite significant evidence that social media is not harmful. Is there a "perfect" study the Surgeon General would consider definitive? Is there a certain ratio of null to "statistically significant" studies they would find convincing? Is there a certain minimal effect size below which we could safely conclude any social media effects are trivial? Without such clear scientific guidelines any public statements are politicized and unfalsifiable rather than helpful.

49. One further issue of concern regarding the current policies, is that there is confusion regarding whether social media or smartphones are key. Dr. Twenge herself has sometimes made the argument that smartphones, not social media, are central to youth mental health (Twenge, J. (2017). Have smartphones destroyed a generation? *The Atlantic*. Retrieved from: <https://www.theatlantic.com/magazine/archive/2017/09/has-the-smartphone-destroyed-a-generation/534198/>). My personal read is that the evidence smartphones are harmful for youth is no better than social media. Nonetheless, if Dr. Twenge's are to be taken at face value, regulating social media would have no impact on youth access to smartphones which have numerous other functions and, as such, there is little reason to believe these regulatory policies impacting free speech would benefit children.

### **Conclusions**

50. To summarize:

1) There is no clear evidence that there is an international trend in mental health impacting youth whether due to access to social media or due to any other cause (see *supra* paragraphs 21-13).

2) To the extent that a mental health crisis exists specifically in the US, this is not isolated in teens, but appears to be inter-generational, impacting less-tech adopting older adults more than teens (see *supra* paragraphs 11-12).

3) Mental health in older generations appears to be deeply entwined with mental health in younger generations likely due both to parental suicide, as well as parental emotional and physical abuse (see *supra* paragraphs 13-14).

4) There is no good evidence that restricting social media time is a panacea for mental health (see supra paragraphs 25-32).

5) Nor does time spent on social media appear to be a useful predictor of which youth are likely to develop mental health problems in the future (see supra paragraphs 33-41).

6) Current concerns over social media are fitting a well-known and established pattern of moral panic which has been witnessed in prior generations over other forms of media and technology, often with identical sounding language (see supra paragraphs 46-49.)

51. Further there is no evidence that the kinds of specific changes required by the Utah law (reducing infinite scroll, autoplay or push notifications) would impact youth mental health. Lastly, although evidence that either social media or smartphone use is harmful is very weak, if we take Dr. Twenge's arguments at face value, the Utah law would leave smartphones in youth hands, which would mean even at face value the restriction of social media would not help youth. Put simply, there is no reason to believe the Utah law will help children, may even harm children by preventing children who would benefit from social media from accessing it, and opens pernicious doors in the restriction of free speech during a period of moral panic.

52. Such is the course of moral panics. What can appear to be a pressing moral threat today is often clearly harmless with the hindsight of history. However, during moral panics, scientific evidence suggesting we should be more cautious in attributing blame to media and technology is often brushed aside or ignored. This has clearly happened with the state's case regarding social media. This can, itself, become

dangerous given the precedent that can be set in using an incomplete and flawed reading of the scientific evidence in support of policies that erode the core value of free speech. Censorship often comes in the guise of “protecting” some ostensibly vulnerable group. This time appears to be no different.

**DECLARATION UNDER PENALTY OF PERJURY**

Pursuant to 28 U.S.C. §1746, I declare under penalty of perjury that the above statements are true and based upon my personal knowledge.

Executed on July 23, 2024.



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CHRISTOPHER J. FERGUSON