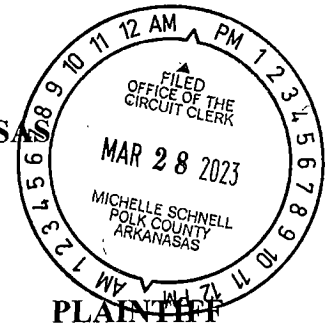


IN THE CIRCUIT COURT OF POLK COUNTY, ARKANSAS
CIVIL DIVISION



STATE OF ARKANSAS, *ex rel.*
TIM GRIFFIN, ATTORNEY GENERAL

v. Case No. 57CV-23- 47

META PLATFORMS, INC.; FACEBOOK HOLDINGS,
LLC; FACEBOOK OPERATIONS, LLC; META
PAYMENTS INC.; FACEBOOK TECHNOLOGIES, LLC;
INSTAGRAM, LLC; and SICULUS, INC.

DEFENDANTS

COMPLAINT

COMES NOW, the State of Arkansas, by and through its Attorney General Tim Griffin (“the State”), and brings this action in a *parens patriae* capacity, and for its Complaint against the Defendants, states as follows:

I. INTRODUCTION

1. American adolescence is undergoing a dramatic change, and the youth of Arkansas have not been immune to that change. Today, a staggering number of our nation’s children suffer from mental and behavioral health disorders. In 2019, 13% of adolescents reported having a major depressive episode – a 60% increase from 2007. The quantum growth in such cases has been fueled in part by a profound technological transformation deliberately designed by some of the country’s most profitable social media¹ giants to exploit the vulnerabilities of children’s brain development for profit. As recently acknowledged by Governor Sarah Huckabee Sanders, the

¹ Social media can be defined as any form of interactive electronic communication through an internet website or application by which a user creates a service-specific identifying user profile to connect with other users of the internet website or application for the purpose of communicating and sharing information, ideas, news, stories, opinions, images, and other content.

children in Arkansas are suffering: “We’ve been failing them, not just in school but in life.”² In connection with the introduction of a new Arkansas bill, The Social Media Safety Act,³ she noted: “Big Tech” can be a “threat to our kids.” She has promised to protect Arkansas children, and she understands the dangers presented by social media:

As a mom of three kids, one of the things I certainly am not looking forward to is my kids asking me for social media accounts. It’s already an incredibly dangerous world, and the last thing they need is to be exposed to some of the worst and most hateful parts of it that play out on social media every single day. While social media can be a great tool and a good resource for a number of things, many kids are simply not prepared for the negative aspects of it . . . [But Big Tech Companies] want the most users possible, as young as possible, with as little parental supervision as possible.⁴

And they have designed their platforms to achieve exactly that.

2. Three decades ago, the gravest public health threats to teenagers in the United States came from binge drinking, drunk driving, teen pregnancy, and smoking. With increased education, these threats have fallen significantly but have been replaced by a new public health concern: soaring rates of mental health disorders, including depression, self-harm, and suicidal ideation.⁵ Twenty percent of American children aged 3 to 17 have a mental, emotional, developmental, or behavioral disorder. The rising rates of emergency room visits for suicide and

² Steve Brawner, *Governor signs LEARNS Act; rulemaking process begins*, Talk Business and Politics (March 8, 2023), <https://talkbusiness.net/2023/03/governor-signs-learns-act-rulemaking-process-begins/>.

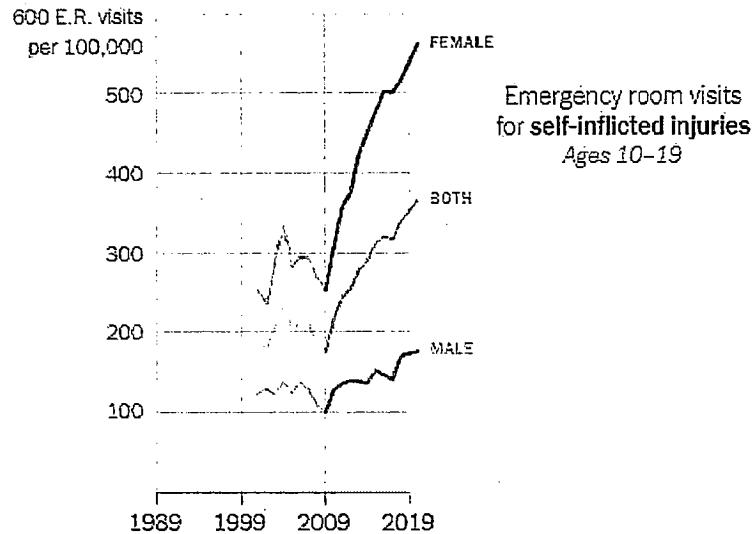
³ SB396 introduced on March 9, 2023 by Senators T. Dees and J. Petty.

⁴ *Arkansas Gov. Sarah Huckabee Sanders is expected to make an announcement regarding legislation*, KATV Channel 7 (Mar. 9, 2023), <https://www.facebook.com/KATVChannel7/videos/watch-live-arkansas-gov-sarah-huckabee-sanders-is-expected-to-make-an-announceme/1295161391061757/>.

⁵ Matt Richtel, *‘It’s Life or Death’: The Mental Health Crisis Among U.S. Teens*, N.Y. Times (May 3, 2022), <https://www.nytimes.com/2022/04/23/health/mental-health-crisis-teens.html>.

self-harm leave little doubt that the physical nature of the threat has changed dramatically in the last 15 years:⁶

Emergency room visits for self-harm by children and adolescents rose sharply over the last decade, particularly among young women.



By The New York Times | Source: Centers for Disease Control and Prevention

3. For people aged 10 to 24, suicide rates, which were stable from 2000 to 2007, leapt nearly 60% by 2018 according to the Centers for Disease Control and Prevention (“CDC”).⁷ On December 7, 2021, the United States Surgeon General issued an advisory on the youth mental health crisis: “Mental health challenges in children, adolescents, and young adults are real and widespread. Even before the pandemic, an alarming number of young people struggled with feelings of helplessness, depression, and thoughts of suicide – and rates have increased over the past decade.”⁸ In Arkansas, as of 2020, more than four times as many people died by suicide than

⁶ *Id.*

⁷ *Id.*

⁸ Press Release, U.S. Dep’t Health & Hum. Servs., *U.S. Surgeon General Issues Advisory on Youth Mental Health Crisis Further Exposed by COVID 19 Pandemic* (Dec. 7, 2021), <https://www.njsba.org/news-publications/school-board-notes/december-14-2021-vol-xlv-no-18/surgeon-general-warning-mental-health-crisis-for-youths/>.

in alcohol related motor vehicle accidents, and suicide is the second leading cause of death for youth.⁹ Teen suicide in Arkansas is even above that in the U.S. generally¹⁰ and has reportedly been on the rise in various Arkansas counties.¹¹ Dr. Rick Barr, executive vice president and chief clinical and academic officer of Arkansas Children’s Hospital, recently acknowledged, “[c]hildren are facing mental health crises in Arkansas.”¹²

4. Youth mental health problems have advanced in lockstep with the growth of social media platforms that have been deliberately designed to attract and addict youth by amplifying harmful material, dosing users with dopamine hits, and thereby driving youth engagement and advertising revenue. Between 2001 and 2021, the percentage of Arkansas high school students who reported feeling sad or hopeless rose from 29.7% to 42.9%.¹³

5. Defendant Facebook (defined below) designs, markets, promotes, and operates social media platforms for which it has especially cultivated a young audience. It has successfully grown its platforms exponentially over the past decade, from millions to billions of users, particularly children and teens. According to an August 30, 2022, World Economic Forum, a Pew

⁹ *Suicide Facts and Figures: Arkansas 2020*, <https://aws-fetch.s3.amazonaws.com/state-fact-sheets/2020/2020-state-fact-sheets-arkansas.pdf>.

¹⁰ *Health of Women and Children Report 2022: Teen Suicide*, America’s Health Rankings: United Health Foundation (2022), americashealthrankings.org.

¹¹ *Suicide Deaths on the Rise in Kids in Sebastian County, AR*, Valley Behavioral Health System, <https://www.valleybehavioral.com/about/news-media/suicide-death-rate/#:~:text=Sebastian%20County%2C%20Arkansas%20has%20an,by%20suicide%20every%2017%20hours> (last visited Mar. 22, 2023); *Suicide Deaths on the Rise in Kids in Miller County, Arkansas*, Riverview Behavioral Health, <https://www.riverviewbehavioralhealth.com/about/news-media/suicide-death-rate> (last visited Mar. 22, 2023).

¹² *Jason Williams, Psy.D., to Lead Child Mental and Behavioral Health at UAMS, Arkansas Children’s*, Contify Life Science News (Jan. 23, 2023).

¹³ *Arkansas Youth Risk Behavior Survey 2021*, Arkansas Division of Elementary and Secondary Education School Health Service at 20.

Research Study found that almost half of United States teenagers aged 13 to 17 say they are online “almost constantly.”¹⁴

6. There is a reason America’s youth is online “almost constantly,” which is that the primary metric of success for these social media giants is engagement. The companies’ success requires more users to be on their platforms for longer periods of time to maximize advertising revenue. Defendants deliberately employ strategies designed to maximize engagement, including: (a) using platform designs and endless scrolls that create harmful experiences for children and teens; and (b) using Intermittent Variable Rewards (“IVRs”) or dopamine hits to intentionally alter users’ behavior, thereby creating habits and addiction.

7. Defendants have designed and structured their platforms to exploit multiple neuro-psychological traits in youth, including by inducing “flow state,” manipulating social comparisons and triggering dopamine “hits.” Defendants’ platforms are built around meticulously designed algorithms – sets of rules that govern how the users interact with the platforms, including what posts a user sees, what feedback a user receives from the platforms, and how often a user receives feedback. Defendants have intentionally designed their products using these complex algorithms that are designed to exploit human psychology and foster addiction to maximize users’ screen time interfacing with those products. These algorithms are designed to maximize user engagement by intermittently notifying users of activity on the platform, provide feedback to users of others’ interaction with their posts on the platform, and stimulate releases of dopamine in the user precisely timed to bring users back to the platform, encourage them to post or otherwise interact with the platform, and thus keeping users on their platforms longer. Defendants’ choices to target youth in

¹⁴ Stefan Ellerbeck, *Half of U.S. teens use the internet ‘almost constantly.’ But where are they spending their time online?*, World Economic Forum (Aug. 30, 2022), <https://www.weforum.org/agenda/2022/08/social-media-internet-online-teenagers-screens-us/#:~:text=The%20number%20of%20teens%20using,from%202014%2D15%20to%202022.>

this way create unhealthy and harmful outcomes for children and teens. The algorithms used by the companies to foster engagement and addiction are deliberately engineered to exploit the frailties of young users' developing brains and maximize their engagement using many of the same techniques found in slot machines. However, instead of feeding money into machines, our youth are feeding Defendants' platforms with their time and attention.

8. The platforms' designs have allowed Defendants to grow not only their user bases but also increase the frequency of engagement and time spent on the platforms by users. Attention equals engagement, and engagement equals advertising revenue. Defendants' growth is a product of the choices they made to design and operate their platforms in ways that exploit the psychology and neurophysiology of their users, particularly children and teens, leading them to spend more and more time on their platforms.

9. Defendants also exploit the vulnerability of developing minds with continuous dopamine hits, akin to that experienced in a casino, with what is known as the "social-validation feedback loop." As former Napster founder and Facebook president Sean Parker ("Parker") explained:

"The thought process that went into building these applications . . . was all about, 'How do we consume as much of your time and conscious attention as possible?' To do that, he said, "We need to sort of give you a little dopamine hit every once in a while, because someone liked or commented on a photo or a post or whatever. And that's going to get you to contribute more content, and that's going to get you more likes and comments."¹⁵

10. These manipulations were deliberately built into the platforms from the beginning, as further noted by Parker:

I mean, it's exactly the kind of thing that a hacker like myself would come up with because you're exploiting a vulnerability in human psychology. [chuckles] And I

¹⁵ Max Fisher, *The Chaos Machine: The Inside Story of How Social Media Rewired Our Minds and Our World* at 24-25 (2022) ("*Chaos Machine*").

think that we . . . you know, the inventors, creators, and it's me, it's Mark [Zuckerberg], it's Kevin Systrom at Instagram. It's all of these people [who] understood this consciously, and we did it anyway.¹⁶

11. The platforms are especially effective and harmful to Defendants' youth audience who are more vulnerable because their brains are still developing. Adolescents have a stronger drive to socialize than adults, which manifests as heavier use of social networks and a greater sensitivity to what happens there. Social apps hijack the adolescent compulsion to connect that can be even more powerful than hunger or greed. As noted by Stanford addiction specialist Dr. Anna Lembke:

What makes adolescents especially vulnerable to the addictive nature of smartphones is that they are in a crucially pliable point of their mental and physical growth. "They're incredibly socially sensitive . . ."

* * *

"[They] are more vulnerable to risk taking, so the emotion centers of the brain drive behavior more than the future planning centers of the brain" . . . which is why teens are impulsive enough to take risks without recognizing future consequences. Their brains are pliable because adolescence is a time when neurons undergo pruning, fundamentally altering the shape and structure of the brain from one of a child's into that of an adult's.

Online, that can be dangerous: It can lead to slut shaming when kids send and receive nude photos without thinking about ramifications, for example, or bullying on anonymous messaging apps Being turned on by peers can be devastating for a teen and in some extreme, tragic cases lead to suicide.¹⁷

12. The need to fit in and the desire to be popular and gain social points mean that children this age are especially vulnerable to falling for the "social media contagion effect," the term Dr. Lembke uses to describe a child doing something just because a peer is doing it.¹⁸ That

¹⁶ *The Social Dilemma – 2020 Transcript*, Scraps from the Loft (Oct. 3, 2020), <https://scrapsfromtheloft.com/movies/the-social-dilemma-movie-transcript/>.

¹⁷ Tanya Basu, *Just How Bad is Kids' Smartphone Addiction?*, The Daily Beast (Jan. 9, 2018), <https://www.thedailybeast.com/just-how-bad-is-kids-smartphone-addiction>.

¹⁸ *Id.*

reasoning is simply logical in an adolescent’s brain. Yet there is almost no limit to who can be targeted, or how viciously, on social media:

The Silicon Valley dream of freedom from laws and hierarchies has become, online, freedom from social and moral codes as well. The community has created its own standards . . . but around the organizing profit-driving incentive of all social media: attention – at significant cost to the mental health of America’s youth.¹⁹

13. Increasingly, experts who study the effects of social media on teenagers report on the dangers, including: (a) social comparison (when everyone else’s life or body looks better online); (b) displacement (social media replacing sleep, exercise, and real interaction); (c) social isolation; (d) increases in depression and anxiety; and (e) disordered eating behaviors. These impacts disproportionately affect girls. Jean Twenge (“Twenge”), a psychology professor at San Diego State University and a leading expert on the subject, states: “There is a substantial link to depression, and that link tends to be stronger among girls” and “[t]he same is true for self-harm. . . . The more hours a day she spends using social media, the more likely she is to engage in self-harm behaviors – the link is there for boys as well, it’s just not as large.”²⁰ Twenge further reports: “Most of the large studies show that heavy users of social media are about twice as likely to be depressed as light users.”²¹

14. Federal research shows that teenagers as a group are getting less sleep and exercise and spending less in-person time with friends – all crucial for healthy development – at a period in life when it is typical to test boundaries and explore one’s identity. The combined result for

¹⁹ *The Chaos Machine* at 55.

²⁰ Jennifer A. Kingson, *Social media’s effects on teen mental health comes into focus*, Axios (Jan. 11, 2023), <https://www.axios.com/2023/01/11/social-media-children-teenagers-mental-health-tiktok-meta-facebook-snapchat>.

²¹ *Id.*

some adolescents is a kind of cognitive implosion: anxiety, depression, compulsive behaviors, self-harm, vandalism, violence, and even suicide.

15. Like virtually everywhere in the United States now, Arkansas's youth suffer from a high degree of distraction, depression, suicidality, and other mental disorders caused or worsened by the overconsumption of social media on a daily basis, which substantially interferes with the rights of health and safety common to the general public and has required Arkansas to expend substantial resources in response. Indeed, Arkansas has funded outpatient mental health services for children and teens, family-based mental health services, crisis services, emergency services, dedicated suicide prevention efforts for youth, evidence-based programs for school-aged youth, peer-support services, and family support services.²² The need is that great.

16. Social media has the potential to be a useful tool for learning and growth for entrepreneurship and showcasing one's skills. However, these platforms increasingly define the world around our youth, creating social realities and interactions. Safe and healthy social media use by children and teens lies in stark contrast with the deliberate design of platforms to psychologically manipulate young users, addict them to the platforms, and then exploit them for profit by selling advertising to them. This is having deep and dangerous ramifications on our youth, our communities, and our schools that simply cannot be ignored. These social media giants can and should take measures to stem the tide of the mental health crisis afflicting America's social media-addicted youth, a crisis created and fueled by their own design and intent.

²² Arkansas Dept. of Human Services, Crisis Stabilization Units, <https://humanservices.arkansas.gov/divisions-shared-services/aging-adult-behavioral-health-services/crisis-stabilization-units/#:~:text=The%20contact%20phone%20number%20is%20870%2D393%2D5335>; Arkansas Dept. of Human Services, Programs for Mental Health & Substance Abuse Issues, <https://humanservices.arkansas.gov/learn-about-programs/programs-for-mental-health-substance-abuse-issues/>

17. The State's claims arise from Defendants' status as designers and marketers of dangerous social media platforms that have injured the health, comfort, and repose of the State's community. The nature of Defendants' platforms centers around Defendants' use of algorithms and other design features that encourage users to maximize the amount of time spent on their platforms.

18. Defendants are liable for the manipulative and addicting features they deploy to hook young users and keep them on the platform and returning to the platform. In addition to features such as Instagram filters that encourage unhealthy body image ideals and promotional emails that encourage users to return to their platforms, Defendants deluge youth with instant notifications to induce users to return to the platform and re-engage with the platform when a user's activity drops

19. The State's claims are predicated on Defendants' conduct, which has resulted in fueling the current youth mental health crisis so evident among Arkansas's youth.

20. With this action, Arkansas, by and through its Attorney General Tim Griffin, seeks to hold Defendants accountable for engaging in deceptive and unconscionable trade practices in violation of the Arkansas Deceptive Trade Practices Act ("ADTPA") (Ark. Code Ann. §§ 4-88-101 *et seq.*), creating a public nuisance, and unjustly enriching themselves at the expense of the State and its citizens. Arkansas seeks all remedies available, including but not limited to injunctive relief, civil penalties, damages, restitution, and abatement.

II. JURISDICTION AND VENUE

21. This Court has subject matter jurisdiction of this case under Amendment 80 § 6(A) of the Constitution of the State of Arkansas, Ark. Code Ann. § 4-88-104 and the common law of the State of Arkansas.

22. Defendants did and continue to do business within the State of Arkansas and have directed their conduct toward Arkansas youth residing within the State. Defendants have marketed, directed, and operated their platforms within the State of Arkansas, solicited the creation of new youth accounts by directing marketing material within this State, derived substantial revenue by marketing, directing, and operating their social media platforms to and for youth users within the State of Arkansas, made material false representations about their products which Defendants knew or should have known would be heard by and relied upon by Arkansans within this State, and the consequences of the Defendants' conduct have directly affected the lives and wellbeing of young Arkansans within this State. Defendants have also interfaced directly with a significant percentage of the youth population in the State of Arkansas by sending messages, notifications, and other communications directed toward and received within the State of Arkansas relating to the use of Defendants' social media platforms.

23. This Court has personal jurisdiction over Defendants under the long-arm statute of the State of Arkansas (Ark. Code Ann. § 16-4-101) and the Constitution of the United States because Defendants conduct business in the State of Arkansas, purposefully directed their actions toward the State of Arkansas and its citizens residing within the State, as well as purposefully availed themselves of the benefits of transacting business within Arkansas and with its citizens, and they have the requisite minimum contacts with the State of Arkansas necessary to permit this Court to exercise jurisdiction.

24. Venue is proper in this court pursuant to Ark. Code Ann. §§ 4-88-104, 4-88-112, 16-60-103 and 4-88-104, and the common law of the State of Arkansas

III. THE PARTIES

A. Plaintiff

25. This action is brought on behalf of the sovereign State of Arkansas by and through Tim Griffin, the duly-elected Attorney General and chief law enforcement officer for the State.

B. Defendants

26. Defendant Meta Platforms, Inc. (“Meta”), formerly known as Facebook, Inc., is a Delaware corporation with its principal place of business in Menlo Park, California. Defendant Meta builds and maintains technologies for social media platforms, communication platforms, and electronic devices that are widely available to users throughout the United States. The platforms developed and maintained by Meta include Facebook (including its self-titled application, Marketplace, and Workplace), Messenger (including Messenger Kids), Instagram, and a line of electronic virtual reality devices and services called Meta Quest (formerly Oculus) (collectively, “Meta platforms”). At all times material to this action, Defendant Meta was a control person within the meaning of Ark. Code Ann. § 4-88-113(d) and is jointly and severally liable for its violations of the ADTPA, as well as any violations of the ADTPA committed by its subsidiaries.

27. Defendant Meta’s subsidiaries include Defendants Facebook Holdings, LLC, Facebook Operations, LLC, Meta Payments Inc., Facebook Technologies, LLC, Siculus, Inc. (all defined below, and collectively, with Meta, “Facebook”), and Instagram, LLC.

28. Defendant Meta’s platforms, Facebook and Instagram, are among the most popular social networking platforms in the world, with more than 3.6 billion users worldwide.²³

29. Meta transacts or has transacted business in this State and throughout the United States. At all times material to this Complaint, acting alone or in concert with its subsidiaries,

²³ Felix Richter, *Meta Reaches 3.6 billion People Each Month*, Statista (Oct. 29, 2021), <https://www.statista.com/chart/2183/facebook-mobile-users/>.

Meta has advertised, marketed, and distributed the Meta platforms to consumers throughout the State of Arkansas. At all times material to this Complaint, Meta formulated, directed, controlled, had the authority to control, or participated in the acts and practices set forth in this Complaint.

30. Defendant Meta's subsidiary, Defendant Facebook Holdings, LLC ("Facebook Holdings"), was organized under the laws of the State of Delaware on March 11, 2020, and is a wholly-owned subsidiary of Meta. Facebook Holdings is primarily a holding company for entities involved in Meta's supporting and international endeavors, and its principal place of business is in Menlo Park, California. Defendant Meta is the sole member of Facebook Holdings. At all times material to this action, Defendant Facebook Holdings was a control person within the meaning of Ark. Code Ann. § 4-88-113(d) and is jointly and severally liable for its violations of the ADTPA, as well as any violations of the ADTPA committed by any of the Meta subsidiaries which Facebook Holdings directly or indirectly controls.

31. Defendant Meta's subsidiary, Defendant Facebook Operations, LLC ("Facebook Operations"), was organized under the laws of the State of Delaware on January 8, 2012, and is wholly owned by Meta. The principal place of business of Facebook Operations is in Menlo Park, California. Defendant Meta is the sole member of Facebook Operations. At all times material to this action, Defendant Facebook Operations was a control person within the meaning of Ark. Code Ann. § 4-88-113(d) and is jointly and severally liable for its violations of the ADTPA, as well as any violations of the ADTPA committed by any of the Meta subsidiaries which Facebook Operations, LLC directly or indirectly controls.

32. Defendant Meta's subsidiary, Defendant Meta Payments Inc. ("Meta Payments"), was incorporated in the State of Florida on December 10, 2010, as Facebook Payments Inc. In July 2022, the entity's name was amended to Meta Payments Inc. Meta Payments is a wholly-owned subsidiary of Meta. Meta Payments manages, secures, and processes payments made

through Meta, among other activities, and its principal place of business is in Menlo Park, California. At all times material to this action, Defendant Meta Payments Inc. was a control person within the meaning of Ark. Code Ann. § 4-88-113(d) and is jointly and severally liable for its violations of the ADTPA, as well as any violations of the ADTPA committed by any of the Meta subsidiaries which Meta Payments directly or indirectly controls.

33. Defendant Meta's subsidiary, Defendant Facebook Technologies, LLC ("Facebook Technologies"), was organized under the laws of the State of Delaware as "Oculus VR, LLC" on March 21, 2014, and acquired by Meta on March 25, 2014. Facebook Technologies develops Meta's virtual and augmented reality technology, such as the Meta Quest line of services, among other technologies related to Meta's platforms, and its principal place of business is in Menlo Park, California. Defendant Meta is the sole member of Facebook Technologies. At all times material to this action, Defendant Facebook Technologies was a control person within the meaning of Ark. Code Ann. § 4-88-113(d) and is jointly and severally liable for its violations of the ADTPA, as well as any violations of the ADTPA committed by any of the Meta subsidiaries which Facebook Technologies directly or indirectly controls.

34. Defendant Meta's subsidiary, Defendant Instagram, LLC ("Instagram"), was founded by Kevin Systrom and Mike Krieger in October 2010 and is a social media platform designed for photo, image, and video sharing. In April 2012, Meta purchased the company for approximately \$1 billion. Meta reformed the limited liability company under the laws of the State of Delaware on April 7, 2012, and its principal place of business is in Menlo Park, California. Defendant Meta is the sole member of Instagram. At all times material to this action, Defendant Instagram was a control person within the meaning of Ark. Code Ann. § 4-88-113(d) and is jointly and severally liable for its violations of the ADTPA, as well as any violations of the ADTPA committed by any of the Meta subsidiaries which Instagram directly or indirectly controls.

35. Defendant Meta’s subsidiary, Defendant Siculus, Inc. (“Siculus”), was incorporated in the State of Delaware on October 19, 2011. Siculus is a wholly-owned subsidiary of Meta that supports Meta platforms by constructing data facilities and other projects. Siculus’ principal place of business is in Menlo Park, California. Defendant Meta is the sole member of Siculus. At all times material to this action, Defendant Siculus was a control person within the meaning of Ark. Code Ann. § 4-88-113(d) and is jointly and severally liable for its violations of the ADTPA as well as any violations of the ADTPA committed by any of the Meta subsidiaries which Siculus, Inc. directly or indirectly controls.

36. At all relevant times mentioned herein, the Defendants collectively controlled all aspects of the operation, planning, management, policies, and development of the Facebook and Instagram social media platforms.

IV. FACTUAL ALLEGATIONS

37. The dawn of the social media era is generally considered to be approximately 2006 to 2007, when, on the heels of Yahoo’s failed attempt to acquire Facebook for \$1 billion, Facebook revamped its home page to launch a newsfeed that provided each user with a continuous personalized feed of what that user’s friends were doing.²⁴ The newsfeed drove engagement and thus advertising revenue as Facebook membership exploded by 600% to 700%, and suddenly “everyone had total unblinking visibility into the digital lives of everyone else.”²⁵ When the newsfeed launched in 2006, 11% of Americans were on social media (between 2% and 4% used

²⁴ *Chaos Machine* at 20-21.

²⁵ *Id.* at 22.

Facebook).²⁶ By fall 2007, Facebook was valued at \$15 billion. By 2014, nearly two-thirds of Americans used social media platforms, with Facebook use being nearly universal.

A. Social Media Addiction Is Prevalent Among America's Youth

38. Social media has been likened to a “casino that fits in your pocket,” training us to “answer any dip in our happiness with a pull at the most ubiquitous slot machine in history.”²⁷ Researchers studying the effect social media has on the brain have shown that social media exploits the same neural circuitry as gambling and recreational drugs to keep consumers using their platforms as much as possible.²⁸ All are addictive because of the neurological chemical dopamine, which is released with the pulsing colorful notification, sounds, and vibrations associated with a “reward”.²⁹ “But when that dopamine reward system gets hijacked, it can compel you to repeat self-destructive behaviors: To place one more bet, binge on alcohol – or spend hours on apps even when they make you unhappy.”³⁰

39. Scientists have studied the impacts of the overuse of social media since at least 2008, with social media addiction recognized in literature around that time after a pervasive upsurge in Facebook usage. The Bergen Social Media Addiction Scale assesses social media addiction along six core elements: 1) salience (preoccupation with the activity); 2) mood modification (the behavior alters the emotional state); 3) tolerance (increasing activity is needed for the same mood-altering effects); 4) withdrawal (physical or psychological discomfort when the

²⁶ *Id.* at 23.

²⁷ *Id.* at 27.

²⁸ *Id.* at 24-28.

²⁹ *Id.* at 26.

³⁰ *Id.*

behavior is discontinued); 5) conflict (ceasing other activities or social interaction to perform the behavior); and 6) relapse (resuming the behavior after attempting to control or discontinue it).³¹ Notably, a study out of the University of Arkansas found that “social media was associated with developing depression for all personality traits.”³²

40. Beginning in at least 2014, researchers began demonstrating that addictive and compulsive use of Defendants’ apps leads to negative mental and physical outcomes for kids.

41. Defendants deliberately designed and marketed exploitative and addictive social media platforms specifically targeting youth and have been extremely successful in their efforts. Ninety percent of children aged 13 to 17 use social media.³³ Younger children also regularly use social media. One study reported 38% of children aged 8 to 12 used social media in 2021.³⁴ Other studies reveal numbers as high as 49% of children aged 10 to 12 use social media and 32% of children aged 7 to 9 use social media.³⁵

42. Facebook is the fifth most popular social media platform, with 32% of children aged 13 to 17 reporting they have used Facebook’s app or website.³⁶ As of October 2021,

³¹ Cecilie Schou Andreassen, et al., *The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study*, Psychology of Addictive Behaviors (Mar. 2016).

³² Renae A. Merrill, *Associations between social media use, personality structure, and development of depression*, ScienceDirect (July 6, 2022), <https://www.sciencedirect.com/science/article/pii/S2666915322000762>.

³³ *Social Media and Teens*, Am. Acad. Child & Adolescent Psych. (Mar. 2018), https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Social-Media-and-Teens-100.aspx.

³⁴ Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens at 5*, Common Sense Media (2022), https://www.common sense media.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf.

³⁵ *Sharing Too Soon? Children and Social Media Apps*, 39(4) C.S. Mott Child.’s Hosp. Univ. Mich. Health (Oct. 18, 2021), https://mottpoll.org/sites/default/files/documents/101821_SocialMedia.pdf.

³⁶ *Id.*

Facebook had over 2.9 billion monthly active users, approximately 2 billion of whom use Facebook on a daily basis.

43. As of October 2021, Instagram's monthly active user count exceeded 1 billion by some estimates, and it has become the most popular photo-sharing social media app among young people, with over 57 million users; approximately 72% of children between the ages of 13 and 17 in the United States use Instagram. Ten percent of teens use Instagram almost constantly.³⁷

44. Teenagers who use these social media platforms are also likely to use them continuously. One study estimates that 62% of children aged 13 to 18 use social media every day.³⁸ An increasing number of younger children also use social media daily, with 18% of children aged 8 to 12 reporting using a social media site at least once a day.³⁹

45. Daily use for many teenagers does not consist of logging onto a platform just once. Rather, many teenage users check social media repeatedly throughout the day. The average teen spends over 4 hours per day on social media.⁴⁰

46. Even more alarming, some teenagers never stop looking at social media.⁴¹

³⁷ *Id.*

³⁸ Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens* at 4, Common Sense Media (2022), https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf.

³⁹ *Id.* at 5.

⁴⁰ *Taking Stock with Teens: 21+ Years of Researching U.S. Teens GenZ Insights* at 17, Piper Sandler (Spring 2022), https://s3.amazonaws.com/media.mediapost.com/uploads/piper_sandler_taking_stock_teens.pdf.

⁴¹ Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens* at 4, Common Sense Media (2022), https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf; Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/>.

| | Almost constantly | Several times a day | About once a day | Several times a week | Less often | Do not use | NET Daily |
|-----------|-------------------|---------------------|------------------|----------------------|------------|------------|-----------|
| YouTube | 19 | 41 | 17 | 12 | 6 | 5 | 77 |
| TikTok | 16 | 32 | 9 | 5 | 4 | | 33 |
| Snapchat | 15 | 29 | 7 | 3 | 5 | | 41 |
| Instagram | 10 | 27 | 12 | 7 | 5 | | 38 |
| Facebook | 2 | 8 | 8 | 6 | 8 | | 67 |

Note: Teens refer to those ages 13 to 17. Those who did not give an answer are not shown. Figures may not add up to the NET values due to rounding.
Source: Survey conducted April 14-May 4, 2022.
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47. Ten percent of teens report that they use Instagram almost constantly.⁴²

48. Teenagers are aware that social media has a significant hold on their lives, yet they still cannot stop using it. Thirty-six percent of teenagers admit they spend too much time on social media.⁴³ Over half of teens say that giving up social media would be somewhat hard, with nearly one in five teens saying giving up social media would be very hard.⁴⁴ Of the subgroup of teenagers who use at least one platform “almost constantly,” 71% said giving up social media would be hard, with 32% saying giving up social media would be very hard.⁴⁵

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

⁴⁵ *Id.*

49. Teenagers report symptoms of addiction disorders with regard to social media. For instance, the more teenagers use social media, the harder it is for them to give it up. Teenagers who acknowledge that they spend too much time on social media are almost twice as likely to say that giving up social media would be difficult as teens who see their social media usage as about right.⁴⁶

50. Despite using social media frequently, most youth do not enjoy it. Only 27% of boys and 42% of girls aged 8 to 18 reported enjoying social media “a lot” in 2021.⁴⁷

B. Social Media Has Widespread, Harmful, and Often Tragic Effects on Youth Mental Health

51. The dimensions of the youth mental health crisis are alarming by all accounts. There are many severe and broadly negative effects of social media use on youth mental health. Social media use is linked to increases in mental, emotional, developmental, and behavioral disorders. These include cyberbullying, eating disorders, cutting, depression, anxiety, sleep disorders, vandalism, violence, and suicide-related outcomes. These negative impacts have been demonstrated by both independent research and internal data from the social media platforms themselves.

52. In adolescence, the structures of the brain that are “closely tied” to social media activity and that drive instinctual behavior begin to change.⁴⁸ The ventral striatum is one of those structures. It receives a rush of dopamine and oxytocin, known as the “happy hormones,”

⁴⁶ *Id.*

⁴⁷ Victoria Rideout et al., *The Common Sense Census: Media Use by Tweens and Teens* at 34, Common Sense Media (2022), https://www.commonsensemedia.org/sites/default/files/research/report/8-18-census-integrated-report-final-web_0.pdf.

⁴⁸ Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int'l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html>.

whenever we experience social rewards.⁴⁹ Between the ages of 10 and 12, the receptors for those happy hormones begin to multiply in this region of the brain, which makes compliments on a new hairstyle, laughter from a classmate, or other social rewards “start to feel a lot more satisfying.”⁵⁰

53. Historically, these biological changes incentivized children and teens to develop healthy social skills and connections. “But arriving at school in a new pair of designer jeans, hoping your crush will smile at you in the hallway, is worlds away from posting a video on [social media] that may get thousands of views and likes,” according to Mitch Prinstein, Chief Science Officer for the American Psychology Association.⁵¹

54. Part of what makes the “interactions so different”⁵² is that they are often permanent and public in nature. Unlike in-person interactions, “[a]fter you walk away from a regular conversation, you don’t know if the other person liked it, or if anyone else liked it.”⁵³ Conversely, on Defendants’ platforms, children, their friends, and even complete strangers can publicly deliver or withhold social rewards in the form of likes, comments, views, and follows.⁵⁴

55. These social rewards release dopamine and oxytocin in the brains of youth and adults alike; but there are two key differences, as Prinstein explained: “First, adults tend to have a

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ Zara Abrams, *Why young brains are especially vulnerable to social media*, Am. Psych. Ass’n (Aug. 25, 2022), <https://www.apa.org/news/apa/2022/social-media-children-teens>.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ *Id.*

fixed sense of self that relies less on feedback from peers. Second, adults have a more mature prefrontal cortex, an area that can help regulate emotional responses to social rewards.”⁵⁵

56. Adolescents, by contrast, are in a “period of personal and social identity formation,” much of which “is now reliant on social media. Due to their limited capacity for self-regulation and their vulnerability to peer pressure,” adolescents “are at greater risk of developing mental disorder.”⁵⁶

57. In general, electronic screen use causes lower psychological well-being.⁵⁷ This link is especially apparent among adolescents. Those with high screen time are twice as likely to receive diagnoses of depression or anxiety or to need treatment for mental or behavioral health conditions compared to low screen time users.⁵⁸

⁵⁵ *Id.*

⁵⁶ Betül Keles et al., *A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents*, Int’l J. Adolescence & Youth (Mar. 3, 2019), https://www.researchgate.net/publication/331947590_A_systematic_review_the_influence_of_social_media_on_depression_anxiety_and_psychological_distress_in_adolescents/fulltext/5c94432345851506d7223822/A-systematic-review-the-influence-of-social-media-on-depression-anxiety-and-psychological-distress-in-adolescents.pdf.

⁵⁷ Jean M. Twenge & W. Keith Campbell, *Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study*, 12 Prev. Med. Rep. 271-83 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6214874/>; Ariel Shensa et al., *Social Media Use and Depression and Anxiety Symptoms: A Cluster Analysis*, 42(2) Am. J. Health Behav. 116-28 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5904786/>; *Effects of Social Media on Children*, Cleveland Clinic (Dec. 3, 2021), <https://health.clevelandclinic.org/dangers-of-social-media-for-youth/>.

⁵⁸ Jean M. Twenge & W. Keith Campbell, *Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study*, 12 Prev. Med. Rep. 271-83 (2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6214874/>.

58. Social media specifically has a “detrimental effect on the psychological health of its users,”⁵⁹ and of adolescents specifically. High social media use increases depressive symptoms, suicide-related outcomes, and suicide rates among adolescents.⁶⁰

59. The harm to youth from social media use increases with the amount of time spent on these platforms. One study found that the investment of time in social media by adolescents is linked to higher levels of depression and lower self-esteem.⁶¹ “U.S. teenagers who spend 3 hours a day or more on electronic devices are 35% more likely, and those who spend 5 hours or more are 71% more likely, to have a risk factor for suicide than those who spend less than 1 hour.”⁶²

60. In 2018, a systematic literature review of nine studies published in the Indian Journal of Psychiatry concluded that dangerous features in social networking platforms “contribute to increased exposure to and engagement in self-harm behavior, as users tend to emulate self-injurious behavior of others online, adopt self-injurious practices from self-harm videos, or are encouraged and acclaimed by others, thus normalizing self-injurious thoughts and behavior.”⁶³

61. A 2019 survey of American adolescents ages 12-14 found that a user’s displeasure with their body could be predicted based on their frequency of using social media (including

⁵⁹ Fazida Karim et al., *Social Media Use and Its Connection to Mental Health: A Systemic Review*, 12(6) *Cureus* (June 15, 2020), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7364393/>.

⁶⁰ Jean M. Twenge et al., *Increases in Depressive Symptoms, Suicide-Related Outcomes, and Suicide Rates Among U.S. Adolescents After 2010 and Links to Increased New Media Screen Time*, 6(1) *Clinical Psych. Sci.* 3-17 (2017), <https://doi.org/10.1177/2167702617723376>.

⁶¹ Corey J. Blomfield Neira & Bonnie L. Barber (2014) *Social networking site use: Linked to adolescents’ social self-concept, self-esteem, and depressed mood*, *Australian Journal of Psychology*, 66:1, 56-64, <https://www.tandfonline.com/doi/full/10.1111/ajpy.12034>.

⁶² Anne Sheehan, *Letter from JANA Partners & CalSTRS to Apple, Inc.*, Harvard Law School Forum on Corporate Governance (Jan. 19, 2018), <https://corpgov.law.harvard.edu/2018/01/19/joint-shareholder-letter-to-apple-inc/> (citing Jean M. Twenge, PhD. *iGen*. New York: Atria Books (an imprint of Simon & Schuster), 2017).

⁶³ Aksha M. Memon et al., *The role of online social networking on deliberate self-harm and suicidality in adolescents: A systematized review of literature* at 384-392, *Indian Journal of Psychiatry* (Oct.-Dec. 2018), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6278213/>.

Instagram and Facebook) and based on the extent to which they engaged in behaviors that adopt an observer's point-of-view (such as taking selfies or asking others to "rate one's looks"). This effect was more pronounced among girls than boys.⁶⁴

62. A third study in 2019 of more than 6,500 American adolescents ranging in age from 12 to 15 years old found that those who used social media for 3 hours or more per day were more likely to suffer from mental health problems such as anxiety and depression.⁶⁵ Notably, this association remained significant even *after* adjusting for demographics, past alcohol and marijuana use, and history of mental health problems.

63. One of the primary reasons the use of social media is associated with depressive symptoms among adolescents is that it encourages unhealthy social comparison and feedback-seeking behaviors.⁶⁶ Because adolescents spend a majority of their time on social media looking at other users' profiles and photos, they are likely to engage in negative comparisons with their

⁶⁴ Ilyssa Salomon & Christia Spears Brown, *The Selfie Generation: Examining the Relationship Between Social Media Use and Early Adolescent Body Image*, *Journal of Early Adolescence* (Apr. 21, 2018), <https://journals.sagepub.com/doi/abs/10.1177/0272431618770809>.

⁶⁵ Kira E. Riehm et al., *Associations Between Time Spent Using Social Media and Internalizing and Externalizing Problems Among US Youth*, *JAMA Psychiatry* (2019), <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2749480>.

⁶⁶ Jacqueline Nesi & Mitchell J. Prinstein, *Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms*, 43(8) *J. Abnormal Child Psych.* 1427-38 (Nov. 2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5985443/>.

peers.⁶⁷ Specifically, adolescents are likely to engage in harmful upward comparisons with others whom they perceive to be more popular.⁶⁸

64. Clinicians have also observed a clear relationship between youth social media use and disordered eating behavior.⁶⁹ The more social media accounts an adolescent has, the greater disordered eating behaviors they exhibit. Additionally, research shows the more time young girls spend on social media platforms, the more likely they are to develop disordered eating behaviors.⁷⁰

65. Social media has created an environment where self-harm and suicidality is glorified, promoting youth to compete for who can cut the deepest or starve themselves the most.⁷¹ Experts say that sharing pictures of harmful practices encourages others to harm themselves by, in essence, normalizing the behavior.⁷²

66. Social media has also caused an increase in cyberbullying. The more time an individual, especially males, spends on social media, the more likely they are to commit acts of

⁶⁷ *Id.*; see also Nino Gugushvili et al., *Facebook use intensity and depressive symptoms: a moderated mediation model of problematic Facebook use, age, neuroticism, and extraversion* at 3, *BMC Psych.* 10, 279 (Nov. 28, 2022), <https://doi.org/10.1186/s40359-022-00990-7> (explaining that youth are particularly vulnerable because they “use social networking sites for construing their identity, developing a sense of belonging, and for comparison with others”).

⁶⁸ Jacqueline Nesi & Mitchell J. Prinstein, *Using Social Media for Social Comparison and Feedback-Seeking: Gender and Popularity Moderate Associations with Depressive Symptoms*, 43(8) *J. Abnormal Child Psych.* 1427-38 (Nov. 2015), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5985443/>.

⁶⁹ Simon M. Wilksch et al., *The relationship between social media use and disordered eating in young adolescents*, 53 *Int'l J. Eating Disorders* 96-106 (2020), <https://pubmed.ncbi.nlm.nih.gov/31797420/>.

⁷⁰ *Id.*

⁷¹ Cindy Krischer Goodman, *Hiding in plain sight: Inside the online world of suicidal teens anguished, armed and impulsive*, *S. Fla. Sun-Sentinel* (Jan. 12, 2020), <https://www.sun-sentinel.com/news/florida/fl-ne-teen-suicide-hidden-online-world-20200110-tj767jdoerh4jpw5zaomv26eum-story.html>.

⁷² Kimberly Leonard, *Is Social Media Making Self-Harm Worse for Teens?*, *U.S. News* (May 29, 2015), <https://www.usnews.com/news/articles/2015/05/29/is-social-media-making-self-harm-worse-for-teens>.

cyberbullying.⁷³ Cyberbullying is now so common that most American teens, 59%, have experienced some form of the behavior.⁷⁴ This number includes: (a) 42% of teens experiencing name calling; (b) 32% being subjected to false rumors; (c) 25% receiving an unsolicited explicit image; (d) 21% being subjected to online stalking; (e) 16% receiving physical threats online; and (f) 7% having had explicit images of them shared without their consent.⁷⁵

67. Social media use also contributes to sleep deprivation. Young adults who spend a lot of time on social media during the day or check it frequently throughout the week are more likely to suffer sleep disturbances than their peers who use social media infrequently.⁷⁶ In turn, disturbed and insufficient sleep is associated with poor health outcomes, such as weight gain and high blood pressure.⁷⁷ Sleep deprivation in youth is also linked to depressive symptoms and mood disorders.⁷⁸

⁷³ Amanda Giordano et al., *Understanding Adolescent Cyberbullies: Exploring Social Media Addiction and Psychological Factors*, 7(1) *J. Child & Adolescent Counseling* 42-55 (2021), <https://www.tandfonline.com/doi/abs/10.1080/23727810.2020.1835420?journalCode=ucac20>.

⁷⁴ Monica Anderson, *A Majority of Teens Have Experienced Some Form of Cyberbullying*, Pew Rsch. Ctr. (Sept. 27, 2018), <https://www.pewresearch.org/internet/2018/09/27/a-majority-of-teens-have-experienced-some-form-of-cyberbullying/>.

⁷⁵ *Id.*

⁷⁶ Jessica C. Levenson, et al., *The Association Between Social Media Use and Sleep Disturbance Among Young Adults*, 85 *Preventive Med.* 36-41 (Apr. 2016), <https://www.sciencedirect.com/science/article/abs/pii/S0091743516000025>.

⁷⁷ *Id.*; see also Jean M. Twenge, PhD. *iGen*. New York: Atria Books (an imprint of Simon & Schuster), 2017.

⁷⁸ Lynette Vernon, et al., *Tracking Effects of Problematic Social Networking on Adolescent Psychopathy: The Mediating Role of Sleep Disruptions*, *Journal of Clinical Child & Adolescent Psychology* (August 2016), https://www.researchgate.net/publication/305925717_Tracking_Effects_of_Problematic_Social_Networking_on_Adolescent_Psychopathology_The_Mediating_Role_of_Sleep_Disruptions.

68. Teens who spend five or more hours a day on electronic devices are over 50% more likely to experience sleep deprivation than youth who spend less than one hour per day.⁷⁹ Defendants exacerbate the disruption of sleep by sending push notifications and emails either at night when children should be sleeping or during school hours when they should be studying, thereby prompting children to reengage with Defendants' platforms at times when using the platforms is harmful to the children's health and well-being.⁸⁰

69. Disturbed and insufficient sleep is associated with poor health outcomes, including increased risk of major depression – by a factor of more than three – and future suicidal behavior in adolescents. The American Academy of Sleep Medicine has recommended that, in a 24-hour period, children aged 6-12 years regularly sleep 9-12 hours and teenagers aged 13-18 years sleep 8-10 hours.

70. Children are especially at risk of developing harmful behaviors because their prefrontal cortices are not fully developed.⁸¹ Emerging research shows that the human brain is still developing during adolescence in ways consistent with adolescents' demonstrated psychosocial immaturity. Specifically, adolescents' brains are not yet fully developed in regions related to risk evaluation, emotion regulation, and impulse control.

⁷⁹ Anne Sheehan, *Letter from JANA Partners & CalSTRS to Apple, Inc.*, Harvard Law School Forum on Corporate Governance (Jan. 19, 2018), <https://corpgov.law.harvard.edu/2018/01/19/joint-shareholder-letter-to-apple-inc/> (citing Jean M. Twenge, PhD, *iGen*. New York: Atria Books (an imprint of Simon & Schuster), 2017).

⁸⁰ See, e.g., Beatrice Nolan, *Kids are waking up in the night to check their notifications and are losing about 1 night's worth of sleep a week, study suggests*, Bus. Insider (Sept. 19, 2022), <https://www.businessinsider.com/social-media-costing-children-one-night-sleep-study-2022-9> (approximately 12.5% of children report waking up to check social media notifications).

⁸¹ Nino Gugushvili et al., *Facebook use intensity and depressive symptoms: a moderated mediation model of problematic Facebook use, age, neuroticism, and extraversion* at 3, BMC Psych. 10, 279 (Nov. 28, 2022), <https://doi.org/10.1186/s40359-022-00990-7>.

71. The frontal lobes – and in particular the prefrontal cortex – of the brain play an essential part in higher-order cognitive functions, impulse control, and executive decision-making. These regions of the brain are central to the process of planning and decision-making, including the evaluation of future consequences and the weighing of risk and reward. They are also essential to the ability to control emotions and inhibit impulses. MRI studies have shown that the prefrontal cortex is one of the last regions of the brain to mature.

72. During childhood and adolescence, the brain is maturing in at least two major ways. First, the brain undergoes myelination, the process through which the neural pathways connecting different parts of the brain become insulated with white fatty tissue called myelin. Second, during childhood and adolescence, the brain is undergoing “pruning” – the paring away of unused synapses, leading to more efficient neural connections. Through myelination and pruning, the brain’s frontal lobes change to help the brain work faster and more efficiently, improving the “executive” functions of the frontal lobes, including impulse control and risk evaluation. This shift in the brain’s composition continues throughout adolescence and into young adulthood.

73. Beginning around the age of 10, the brain also begins to change in important ways. Specifically, the receptors for dopamine multiply in the subcortical region of the brain. Dopamine is a neurotransmitter that is central to the brain’s reward system.

74. During this developmental phase, the brain learns to seek out stimuli (*e.g.*, Instagram) that result in a reward (*e.g.*, likes) and cause dopamine to flood the brain’s reward pathways. Each time this happens, associations between the stimulus and the reward become stronger. Notably, once the brain has learned to make this association, dopaminergic neurons

“shift their . . . activation from the time of reward delivery to the time of presentation of [a] predictive cue.”⁸² In other words, the anticipation of a reward can itself trigger a dopamine rush.

75. In late adolescence, important aspects of brain maturation remain incomplete, particularly those involving the brain’s executive functions and the coordinated activity of regions involved in emotion and cognition. As such, the part of the brain that is critical for control of impulses and emotions and mature, considered decision-making is still developing during adolescence, consistent with the demonstrated behavioral and psychosocial immaturity of juveniles.

76. Because adolescence is the period when sophisticated, essential inhibitory control functions are being established, the onset of prolonged exposure to addictive, dopamine-triggering stimuli during adolescence is particularly concerning. The extended development of the prefrontal cortex results in an adolescent brain that is largely undeveloped, highly malleable, and overwhelmingly vulnerable to long-term, irremediable effects of adverse influences, including addiction and a fractured psychological well-being.

77. As New York University professor and social psychologist Adam Alter has explained, product features such as “likes” give users a dopamine hit similar to drugs and alcohol:

The minute you take a drug, drink alcohol, smoke a cigarette . . . when you get a like on social media, all of those experiences produce dopamine, which is a chemical that’s associated with pleasure. When someone likes an Instagram post, or any content that you share, it’s a little bit like taking a drug. As far as your brain is concerned, it’s a very similar experience.⁸³

⁸² Luisa Speranza, et al., *Dopamine: The Neuromodulator of Long-Term Synaptic Plasticity, Reward and Movement Control*, National Library of Medicine (Apr. 10, 2021), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8066851/>,

⁸³ Eames Yates, *What happens to your brain when you get a like on Instagram*, Business Insider (Mar. 25, 2017), <https://www.businessinsider.com/what-happens-to-your-brain-like-instagram-dopamine-2017-3>.

78. As a result, when adolescents use design features such as “likes” it causes their brains to release euphoria-causing dopamine. However, as soon as dopamine is released, their euphoria is countered by dejection: adolescents’ brains adapt by reducing or “downregulating” the number of dopamine receptors that are stimulated.

79. In normal stimulatory environments, neutrality is restored after this dejection abates. But Defendants’ algorithms are designed to exploit users’ natural tendency to counteract dejection by going back to the source of pleasure for another dose of euphoria.

80. Eventually, as this pattern continues over a period of days, weeks, and months, the neurological baseline to trigger minor users’ dopamine responses increases. Prolonged exposure to this phenomenon also creates long-lasting effects in which the brains of overstimulated users begin to respond to the constant stimulation by lowering the natural production of dopamine, leaving users in a situation of having to seek out the synthetic, dopamine-producing triggers of Facebook and Instagram, not for enjoyment, but simply to feel normal. When minor users attempt to stop using Defendants’ social media products, they experience the universal symptoms of withdrawal from any addictive substance including anxiety, irritability, insomnia, and craving.

81. When the release of dopamine in young brains is manipulated by Defendants’ products, it interferes with the brain’s development and can have long-term impacts on an individual’s memory, affective processing, reasoning, planning, attention, inhibitory control, and risk-reward calibration.

82. These reward-based learning systems “contribute to the maintenance of excessive usage patterns.”⁸⁴ Researchers investigating the “directionality between . . . social networking [platforms] and problematic use” have found that “increases in the intensity of use . . . predict[]

⁸⁴ *Id.*

problematic use.”⁸⁵ Empirical studies have found that problematic use is associated with “insomnia, stress, relationship dissatisfaction, anxiety, social anxiety, and depressive symptoms.”⁸⁶

83. In this regard, adolescents are especially vulnerable to long-term harm from Defendants’ platforms because excessive and problematic use can disrupt their brains’ development at a critical stage.

84. Addictive use of social media by minors is psychologically and neurologically analogous to addiction to internet gaming disorder. Gaming addiction is recognized in the American Psychiatric Association’s 2013 Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (used by mental health professionals to diagnose mental disorders) and is a recognized mental health disorder by the World Health Organization and International Classification of Diseases. The diagnostic symptoms of social media addiction among minors are the same as the symptoms of addictive gaming promulgated in the DSM 5 and include:

- (a) preoccupation with social media and withdrawal symptoms (sadness, anxiety, irritability) when a device is taken away or use is not possible (sadness, anxiety, irritability);
- (b) tolerance, or the need to spend more time using social media to satisfy the urge;
- (c) inability to reduce social media usages, unsuccessful attempts to quit using social media;

⁸⁵ *Id.*

⁸⁶ *Id.* (collecting sources).

- (d) giving up other activities, loss of interest in previously enjoyed activities due to social media use;
- (e) continuing social media use despite problems;
- (f) deceiving family members or others about the amount of time spent on social media;
- (g) using social media to relieve negative moods, such as guilt or hopelessness; and
- (h) jeopardizing school, work performance, or relationships due to social media usage.

85. Studies have shown that the mental health challenges to emotional regulation and well-being caused by social media use continue on into young adulthood. For example, a nationally-representative sample of over 1,700 U.S. emerging adults (aged 18-29) found that problematic social media use was associated with depressive symptoms in those studied.⁸⁷

86. As described further herein, each Defendant deliberately designed, engineered, and implemented dangerous features in their apps that present social-rewards and other stimuli in a manner that has caused Arkansas citizens and many scores of others to compulsively seek out those stimuli, develop negative symptoms when they are withdrawn, and exhibit reduced impulse control and emotional regulation.

C. America's Youth Are Facing a Mental Health Crisis

87. The number of young people using Defendants' social media platforms and the intensity with which they use them has increased significantly since 2008, which has contributed

⁸⁷ Ariel Shensam MA, et al., *Problematic Social Media Use and Depressive Symptoms among U.S. Young Adults: A Nationally-Representative Study*. Soc Sci Med. (Apr. 24, 2017), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5476225/>.

to a wide range of negative effects on youth mental health. The incidence of young people experiencing depression, contemplating suicide, seeking emergency room help for mental health issues, and – tragically – committing suicide has skyrocketed.

88. On December 7, 2021, these issues led the United States Surgeon General to issue an advisory on the youth mental health crisis.⁸⁸ In issuing the advisory, the Surgeon General noted: “Mental health challenges in children, adolescents, and young adults are real and widespread. Even before the pandemic, an alarming number of young people struggled with feelings of helplessness, depression, and thoughts of suicide – and rates have increased over the past decade.”⁸⁹

89. While the report highlights ways in which the COVID-19 pandemic has exacerbated mental health issues for American youth, it also highlights the mental health challenges youth faced before the pandemic. Specifically, the report notes that pre-pandemic “mental health challenges were the leading cause of disability and poor life outcomes in young people.”⁹⁰

90. Before the pandemic, one in five children aged 3 to 17 in the United States had a mental, emotional, developmental, or behavioral disorder.⁹¹

⁸⁸ *Protecting Youth Mental Health: The U.S. Surgeon General’s Advisory*, U.S. Dep’t Health & Hum. Servs. (Dec. 7, 2021), <https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf>.

⁸⁹ Press Release, U.S. Dep’t Health & Hum. Servs., *U.S. Surgeon General Issues Advisory on Youth Mental Health Crisis Further Exposed by COVID-19 Pandemic* (Dec. 7, 2021), <https://www.njsba.org/news-publications/school-board-notes/december-14-2021-vol-xlv-no-18/surgeon-general-warning-mental-health-crisis-for-youths/>.

⁹⁰ *Id.*

⁹¹ *Id.*

91. Since the beginning of the COVID-19 pandemic, adolescents increased their social media use, also raising levels of excessive and problematic use of digital media.⁹² These higher rates of social media use are related to increased rates of “ill-being.”⁹³ Thus, the increase in adolescent social media use during the pandemic has caused an increase in adolescents experiencing mental health problems.

92. And over 75% of public schools reported an increase in concerns about youth depression, anxiety, and other disturbances since the start of the pandemic.⁹⁴ That relationship is reflected in reports on the provision of mental health services to youth. Youth receiving mental health services in specialty mental health and general medical settings predominantly do so because they “[f]elt depressed,” “[t]hought about killing [themselves] or tried to,” or “[f]elt very afraid and tense.”⁹⁵

93. Anxiety disorders are also up, affecting 31.9% of adolescents between the ages of 13 and 18.⁹⁶ “Research shows that untreated teenagers with anxiety disorders are at higher risk to

⁹² Laura Marciano et al., *Digital Media Use and Adolescents’ Mental Health During the Covid-19 Pandemic: A Systematic Review and Meta-Analysis*, *Frontiers Pub. Health* (Feb. 1, 2022), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8848548/>; see also Eric E. Rasmussen, et al., *The serially mediated relationship between emerging adults’ social media use and mental well-being* at 102:206-213 (2020); Corey J. Blomfield neira & Bonnie L. Barber (2014), *Social networking site use: Linked to adolescents’ social self-concept, self-esteem, and depressed mood*, *Australian Journal of Psychology*, 66:1, 56-64, DOI: 10.1111/ajpy.12034; a. Jean M. Twenge, PhD. *iGen*. New York: Atria Books (an imprint of Simon & Schuster), 2017.

⁹³ *Id.*

⁹⁴ *Roughly Half of Public Schools Report That They Can Effectively Provide Mental Health Services to All Students In Need*, Nat’l Ctr. Educ. Stat. (May 31, 2022), https://nces.ed.gov/whatsnew/press_releases/05_31_2022_2.asp.

⁹⁵ Rachel N. Lipari et al., *Adolescent Mental Health Service Use and Reasons for Using Services in Specialty, Educational, and General Medical Settings*, SAMHSA (May 5, 2016), [https://www.samhsa.gov/data/sites/default/files/report_1973/ShortReport-1973.html#:~:text=The percent20Substance percent20Abuse percent20and percent20Mental,273 percent20TALK percent20\(8255\)](https://www.samhsa.gov/data/sites/default/files/report_1973/ShortReport-1973.html#:~:text=The percent20Substance percent20Abuse percent20and percent20Mental,273 percent20TALK percent20(8255)).

⁹⁶ *Anxiety Disorders: Facts and Statistics*, Anxiety & Depression Ass’n Am., <https://adaa.org/understanding-anxiety/facts-statistics> (last visited Feb. 26, 2023).

perform poorly in school, miss out on important social experiences, and engage in substance abuse.”⁹⁷

94. In 2021, 42% of high school aged youth “felt so sad or hopeless almost every day for at least two weeks in a row” that they “stopped doing their usual activities.”⁹⁸ Females were more likely than males to experience these “persistent feelings of sadness or hopelessness.”⁹⁹ From 2011 to 2021, the rate of female high school aged youth who reported persistent feelings of sadness or hopelessness increased from 36% to 51% (to one out of every two female children), and the rate of male high school aged youth increased from 21% to 29%.¹⁰⁰

95. In 2021, 16% of high school students nationally reported that they were electronically bullied, including through Instagram and Facebook, during the past year. Female students were more likely than male students to be electronically bullied.¹⁰¹

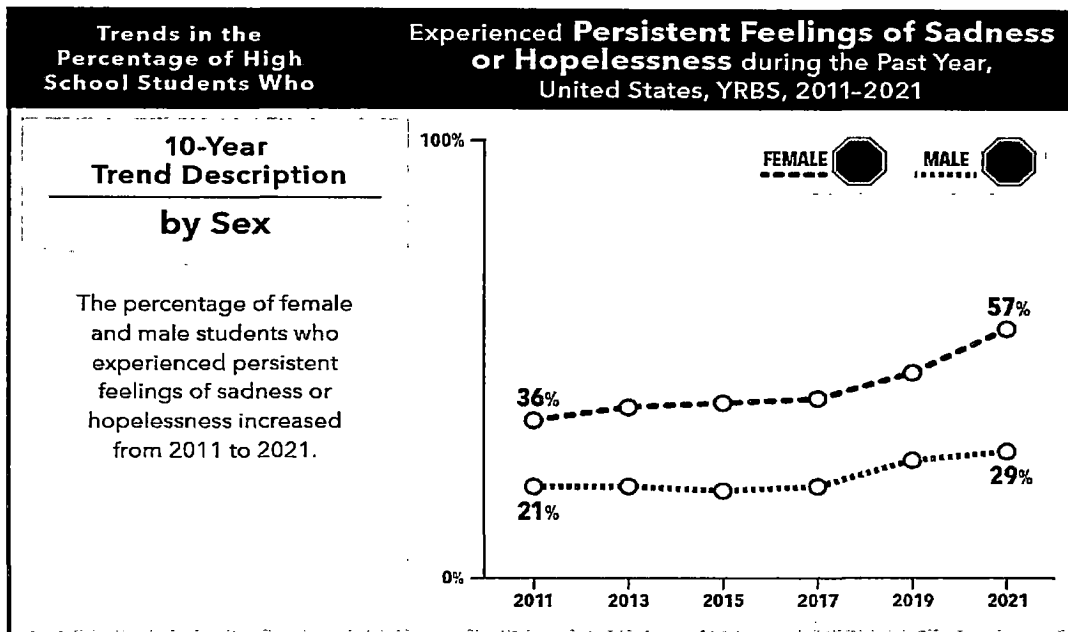
⁹⁷ *Id.*

⁹⁸ *Youth Risk Behavior Survey: Data Summary & Trends Report* at 60, CDC (Feb. 13, 2023), https://www.cdc.gov/healthyyouth/data/yrbs/pdf/YRBS_Data-Summary-Trends_Report2023_508.pdf.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 60-66.

¹⁰¹ *Id.* at 49, 52.



96. The share of children seriously considering attempting suicide increased 11% from 2011 to 2021, up to 22% of all high school students. The share who created a suicide plan increased to 18%.¹⁰²

97. From 2007 to 2018, suicide rates among youth aged 10 to 24 in the United States increased by 57%.¹⁰³ By 2018, suicide was the second leading cause of death for youth aged 10 to 24.¹⁰⁴

98. From 2007 to 2016, emergency room visits for youth aged 5 to 17 rose 117% for anxiety disorders, 44% for mood disorders, and 40% for attention disorders.¹⁰⁵

¹⁰² Sandy Cohen, *Suicide rate highest among teens and youth adults*, UCLA Health (Mar. 15, 2022), <https://www.uclahealth.org/news/suicide-rate-highest-among-teens-and-young-adults>.

¹⁰³ *Protecting Youth Mental Health: The U.S. Surgeon General's Advisory*, U.S. Dep't Health & Hum. Servs. (Dec. 7, 2021), <https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf>.

¹⁰⁴ *AAP-AACAP-CHA Declaration of a National Emergency in Child and Adolescent Mental Health*, Am. Acad. Pediatrics (Oct. 19, 2021), <https://www.aap.org/en/advocacy/child-and-adolescent-healthy-mental-development/aap-aacap-cha-declaration-of-a-national-emergency-in-child-and-adolescent-mental-health/>.

¹⁰⁵ Matt Richtel, *A Teen's Journey Into the Internet's Darkness and Back Again*, N.Y. Times (Aug. 22, 2022), <https://www.nytimes.com/2022/08/22/health/adolescents-mental-health-technology.html>.

99. This and other data led the American Academy of Pediatrics, the American Academy of Child and Adolescent Psychiatry, and the Children’s Hospital Association to join the Surgeon General and declare a national emergency in child and adolescent mental health.¹⁰⁶

D. Social Media Has Had a Harmful Effect on Arkansas’s Youth

100. The youth residing in Arkansas have been directly impacted by the youth mental health crisis.

101. As youth use of Defendants’ platforms has increased, youth mental, emotional, and social health has declined.

102. There has been a surge in the proportion of youth in Arkansas who say they cannot stop or control their anxiety, who feel so sad and hopeless that they stop doing the activities that they used to love, who are considering suicide, who made plans to commit suicide, and who have attempted to commit suicide. For instance, in 2021, 42.9% of surveyed Arkansas youth felt so sad or hopeless that they ceased their usual activities for over two weeks.¹⁰⁷ Also in 2021, 21.8% of high school-aged youth seriously considered suicide, and 10.4% of youth actually attempted suicide at least once.¹⁰⁸

103. The prevalence of mental health conditions in youth is harmful because, among other reasons, they inhibit learning. Adolescents in grades 6 through 12 identify depression, stress, and anxiety as the most prevalent obstacles to learning.¹⁰⁹ Most middle school and high school

¹⁰⁶ *AAP-AACAP-CHA Declaration of a National Emergency in Child and Adolescent Mental Health*, Am. Acad. Pediatrics (Oct. 19, 2021), <https://www.aap.org/en/advocacy/child-and-adolescent-healthy-mental-development/aap-aacap-cha-declaration-of-a-national-emergency-in-child-and-adolescent-mental-health/>.

¹⁰⁷ *Arkansas Youth Risk Behavior Survey 2021*, Arkansas Division of Elementary and Secondary Education School Health Service at 54.

¹⁰⁸ *Id.* at 55, 57.

¹⁰⁹ *Insights From the Student Experience, Part I: Emotional and Mental Health* at 2-3, YouthTruth (2022), https://youthtruthsurvey.org/wp-content/uploads/2022/10/YouthTruth_EMH_102622.pdf.

students also fail to get enough sleep on school nights, which contributes to poor academic performance.¹¹⁰ Only 22.2% of surveyed Arkansas youth reported that they get eight or more hours of sleep on an average school night.¹¹¹ These negative mental health outcomes are also the most common symptoms of excessive social media use.

104. Cyberbullying through social media has also increased over the past decade. In 2021, 18.4% of Arkansas youth surveyed reported that they had experienced cyberbullying in the past year.¹¹²

105. That crisis has led to a marked increase in the number of Arkansas's adolescent residents in need of mental health services. The problem has become so dire in Arkansas that the state amended its School Safety Act in 2022 "to include mental health awareness professional development" in its schools, consisting of, among other efforts, "mental health training to staff members that work with students in Arkansas."¹¹³

106. Additionally, more children have been acting out as a result of the decline Defendants caused in mental, emotional, and social health among youth. The State has been forced to divert resources and expend additional resources in an attempt to address the decline in youth mental, emotional, and social health for its citizens.

107. As a funder of youth mental health services within the state, Arkansas is uniquely harmed by the current youth mental health crisis. The State funds outpatient mental health services

¹¹⁰ Anne G. Wheaton et al., *Short Sleep Duration Among Middle School and High School Students-United States, 2015*, 67(3) *Morbidity & Mortality Wkly. Rpt.* 85-90 (Jan. 26, 2018), <http://dx.doi.org/10.15585/mmwr.mm6703a1>.

¹¹¹ *Arkansas Youth Risk Behavior Survey 2021*, Arkansas Division of Elementary and Secondary Education School Health Service at 161.

¹¹² *Id.* at 50.

¹¹³ Kaleigh Begneaud, *New Arkansas laws going into effect in 2023: This year, we'll see a new state income tax, expanded healthcare coverage, and mental health training required in schools*, CBS-5 KRSM (Arkansas) (Dec. 30, 2022).

for children and teens, family-based mental health services, crisis services, emergency services, dedicated suicide prevention efforts for youth, evidence-based programs for school-aged youth, peer-support services, and family support services.

108. Despite all of the programs and services the State offers and funds, Arkansas service providers are struggling to provide enough mental health services because of the increase in youth seeking these services. Many children and adolescents cannot access services in a timely manner due to long wait lists for existing mental health care providers.

109. The State has borne increased costs and expenses in response to the youth mental health crisis and is expected to continue incurring such costs in the future as a result of the harms caused by Defendants.

110. The State requires significantly greater and long-term funding to address and abate the nuisance Defendants have created.

E. Defendants Intentionally Design, Operate, and Market Their Social Media Platforms for Youth Users

111. This mental health crisis among America's youth is the result of Defendants' actions to design and market their social media platforms in such a way as to encourage youth addiction to their platforms.

112. Defendants each maintain and operate social media platforms. The interactive features Defendants provide on their platforms are similar in many respects. For example, Facebook and Instagram both offer tailored "feeds" and notifications to users through complex algorithms intended to learn a user's interests and ways to publicly express affirmation through "likes," comments, and sharing or reposting, which lead to dopamine spikes, which in turn encourage addiction. These methods are so effective in promoting use that Defendants are known

to copy the designs and features of one another.¹¹⁴ The salient features of Defendants' social media platforms are described in more detail below.

113. Defendants profit from their social media platforms by using them as advertising platforms. Upon information and belief, Meta generated \$69.7 billion from advertising in 2019, more than 98% of its total revenue for the year.

114. The value of those advertisements, and by extension, the profits generated by the Defendants from the sale of those advertisements, are directly linked to the level of engagement and the amount of time spent by users of the Defendants' social media platforms. In short, if users engage with Facebook and Instagram more frequently and for longer amounts of time, the Defendants make more money selling advertising targeted to those users.

115. Defendants view youth, adolescent, and even preadolescent users as one of their most valuable commodities as an audience for their advertisements. Young users are central to Defendants' business model and advertising revenue as children are more likely than adults to use social media. Indeed, 95% of children aged 13 to 17 have cell phones,¹¹⁵ 90% use social media,¹¹⁶ and 28% buy products and services through social media.¹¹⁷

116. To profit from these young users, Defendants intentionally market their platforms to children and teens. Defendants collect data on their youth users' viewing habits and behaviors

¹¹⁴ See, e.g., Kevin Hurler, *For Sites Like Instagram and Twitter, Imitation Is the Only Form of Flattery*, Gizmodo (Aug. 16, 2022), <https://gizmodo.com/instagram-tiktok-snapchat-facebook-meta-1849395419>.

¹¹⁵ Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/>.

¹¹⁶ *Social Media and Teens*, Am. Acad. Child & Adolescent Psychiatry (Mar. 2018), https://www.aacap.org/AACAP/Families_and_Youth/Facts_for_Families/FFF-Guide/Social-Media-and-Teens-100.aspx.

¹¹⁷ Erinn E. Murphy et al., *Taking Stock with Teens: 21 Years of Researching U.S. Teens GenZ Insights* at 13, Piper Sandler (Fall 2021), https://piper2.bluematrix.com/docs/pdf/3bad99c6-e44a-4424-8fb1-0e3adfcdbd1d4.pdf?utm_source=newsletter&utm_medium=email&utm_campaign=newsletter_axiosam&stream=top.

and use that data to sell advertisers access to their youth and other users to allow those companies to promote their products. Advertisers pay a premium to target advertisements to specific categories of users, including youth.

117. The U.S. Surgeon General recently explained that children versus Big Tech is:

[J]ust not a fair fight . . . You have some of the best designers and product developers in the world who have designed these products to make sure people are maximizing the amount of time they spend on these platforms. And if we tell a child, use the force of your willpower to control how much time you're spending, you're pitting a child against the world's greatest product designers.¹¹⁸

118. More recently, Defendants embarked on a bolder strategy and sought to capture preadolescent audiences by offering “kid versions” of their platforms that, while not collecting and using their information, are reportedly “designed to fuel [children’s] interest in the grown-up version[s].”¹¹⁹

119. To maximize revenue, Defendants have intentionally designed and operated their platforms to maximize users’ screen time. Defendants have done so by building features and operating their platforms in a manner intended to exploit human psychology using complex algorithms driven by advanced artificial intelligence (“AI”) and machine-learning systems. As stated by Catheryn O’Neil, Ph.D., Harvard mathematician and data scientist, “algorithms are opinions embedded in code . . . algorithms are not objective. Algorithms are optimized to some definition of success. So, if you can imagine, if . . . a commercial enterprise builds an algorithm

¹¹⁸ Allison Gordon and Pamela Brown, *Surgeon General says 13 is ‘to early’ to join social media*, CNN Health (Jan. 29, 2023), <https://www.cnn.com/2023/01/29/health/surgeon-general-social-media/index.html#:~:text=US%20Surgeon%20General%20Vivek%20Murthy,still%20%E2%80%9Cdeveloping%20their%20identity.%E2%80%9D>.

¹¹⁹ Leonard Sax, *Is TikTok Dangerous for Teens?*, Inst. for Fam. Stud. (Mar. 29, 2022), <https://ifstudies.org/blog/is-tiktok-dangerous-for-teens->.

to their definition of success, it's a commercial interest. It's usually profit."¹²⁰ In this regard, in the name of profit, Defendants have aggressively modified their platforms in ways that promote excessive and problematic use and have done so in ways known to be harmful to children.

120. One way that Defendants maximize the time users spend on their platforms involves the design of feeds – whether of photos, videos, or sponsored or promoted content. Each uses algorithms to serve users personalized content for them to consume *ad nauseam*. Google's former design ethicist, Tristan Harris, explained that this never-ending stream is designed to “keep [users] scrolling, and purposely eliminate any reason for [them] to pause, reconsider or leave.”¹²¹ Defendants' feeds take “an experience that was bounded and finite, and turn it into a bottomless flow that keeps going.”¹²² This “flow state,” as psychologists describe it, “fully immerse[s]” users, distorts their perception of time, and “has been shown to be associated with problematic use of social networking sites.”¹²³ As Harris further states:

[W]e've moved away from having a tools-based technology environment to an addiction- and manipulation-based technology environment. . . . Social media isn't a tool that's just waiting to be used. It has its own goals, and it has its own means of pursuing them by using your psychology against you.¹²⁴

121. A second way Defendants manipulate users, particularly young ones, is through social reciprocity. “Reciprocity,” from a psychology perspective, refers to the powerful social

¹²⁰ *The Social Dilemma – 2020 Transcript*, Scraps from the Loft (Oct. 3, 2020), <https://scrapsfromtheloft.com/movies/the-social-dilemma-movie-transcript/>.

¹²¹ Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int'l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html>.

¹²² *Id.*

¹²³ Nino Gugushvili et al., *Facebook use intensity and depressive symptoms: a moderated mediation model of problematic Facebook use, age, neuroticism, and extraversion* at 3, *BMC Psych.* 10, 279 (Nov. 28, 2022), <https://doi.org/10.1186/s40359-022-00990-7>.

¹²⁴ *The Social Dilemma – 2020 Transcript*, Scraps from the Loft (Oct. 3, 2020), <https://scrapsfromtheloft.com/movies/the-social-dilemma-movie-transcript/>.

phenomenon of how people respond to positive or, conversely, hostile actions. Reciprocity means that in response to friendly actions, people respond in a friendly manner and vice versa.¹²⁵ Phillip Kunz best illustrated the automatic nature of reciprocity through his Christmas card experiment. In the experiment, Kunz sent a group of complete strangers holiday cards with pictures of his family and included a brief note.¹²⁶ Those people, whom he had never met or communicated with before, reciprocated, flooding him with holiday cards.¹²⁷ The majority of the responses did not even ask Kunz who he was.¹²⁸ They simply responded to his initial gesture with a reciprocal action.

122. Reciprocity is why Facebook automatically tells a “sender when you ‘saw’ their message, instead of letting you avoid disclosing whether you read it. As a consequence, you feel more obligated to respond” immediately.¹²⁹ That keeps users on the platform longer. Another tactic, push notifications, make users feel psychologically compelled to return to the platform.

123. A third way Defendants manipulate users to keep using or coming back to their platforms is through the use of IVRs. Slot machines are a frequent example of how IVRs work.¹³⁰

¹²⁵ Ernst Fehr & Simon Gächter, *Fairness and Retaliation: The Economics of Reciprocity*, 14(3) J. Econ. Persps. 159-81 (Mar. 2000), https://www.researchgate.net/profile/Ernst-Fehr-2/publication/23756527_Fairness_and_Retaliation_The_Economics_of_Reciprocity/links/5eb024e945851592d6b87d3b/Fairness-and-Retaliation-The-Economics-of-Reciprocity.pdf.

¹²⁶ Phillip R. Kunz & Michael Woolcott, *Season's Greetings: From my status to yours*, 5(3) Soc. Sci. Rsch. 269-78 (Sept. 1976), [https://doi.org/10.1016/0049-089X\(76\)90003-X](https://doi.org/10.1016/0049-089X(76)90003-X).

¹²⁷ *Id.*

¹²⁸ *Id.*

¹²⁹ Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int'l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html>.

¹³⁰ See, e.g., Julian Morgans, *The Secret Ways Social Media is Built for Addiction*, Vice (May 17, 2017), <https://www.vice.com/en/article/vv5jkb/the-secret-ways-social-media-is-built-for-addiction>.

Users pull a lever to win a prize. With each pull, the user may or may not win a prize (*i.e.*, an intermittent reward that varies in value).

124. IVRs work by spacing out dopamine triggering stimuli with dopamine gaps, allowing for anticipation and craving to develop, which strengthens the desire to engage in the activity with each release of dopamine.

125. Defendants bake IVRs into the design and operations of their respective platforms by “link[ing] a user’s action (like pulling a lever) with a variable reward.”¹³¹ For example, when “we swipe down our finger to scroll the Instagram feed, we’re playing a slot machine to see what photo comes next.”¹³² Facebook also delays the time it takes to load the feed. “This is because without that three-second delay, Instagram wouldn’t feel variable.”¹³³ Without that delay, there would be no time for users’ anticipation to build. In slot machine terms, there would be “no sense of *will I win?* because you’d know instantly. So the delay isn’t the app loading. It’s the cogs spinning on the slot machine.”¹³⁴ Each of Defendants’ platforms exploits this biochemical reaction among its users, typically using “likes,” “hearts,” or other forms of approval that serve as the reward.

126. Youth are especially vulnerable both to the ways in which Defendants manipulate users to maximize their “watch time” and to the resulting harms. Because of children’s developing

¹³¹ Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int’l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html>.

¹³² *Id.* (emphasis in original).

¹³³ Julian Morgans, *The Secret Ways Social Media is Built for Addiction*, Vice (May 17, 2017), <https://www.vice.com/en/article/vv5jkb/the-secret-ways-social-media-is-built-for-addiction>.

¹³⁴ *Id.* (emphasis in original).

brains, they are “extra sensitive to attention and admiration from others.”¹³⁵ Consequently, Defendants’ use of IVRs, reciprocity, and other “rewards” to maximize the time users spend on their platforms exploits a vulnerability unique to youth. This “extra sensitivity” also puts Arkansas youth at greater risk. As Tristan Harris acknowledged: “Everyone innately responds to social approval, but some demographics, in particular teenagers, are more vulnerable to it than others.”¹³⁶

127. Thus, the relentless stream of interaction lodged by Defendants intended to keep users engaged “can be especially problematic for young people” because they may lack the capability to stop watching, says David Anderson, a clinical psychologist at the nonprofit mental health care provider, The Child Mind Institute.¹³⁷

128. Together, Defendants have designed, refined, marketed, and operated their social media platforms to maximize the number of youth who use their platforms and the time they spend on those platforms. Despite knowing that social media inflicts harms on youth, Defendants have continued to create more sophisticated versions of their platforms with features designed to keep users engaged and maximize the amount of time they spend using social media. Defendants’ conduct in designing and marketing exploitative and manipulative platforms has resulted in youth spending excessive amounts of time on Defendants’ platforms.

¹³⁵ Zara Abrams, *Why young brains are especially vulnerable to social media*, Am. Psych. Ass’n (Aug. 25, 2022), <https://www.apa.org/news/apa/2022/social-media-children-teens>.

¹³⁶ Von Tristan Harris, *The Slot Machine in Your Pocket*, Spiegel Int’l (July 27, 2016), <https://www.spiegel.de/international/zeitgeist/smartphone-addiction-is-part-of-the-design-a-1104237.html>.

¹³⁷ Rob Barry et al., *How TikTok Serves Up Sex and Drug Videos to Minors*, Wall St. J. (Sept. 8, 2021), https://www.wsj.com/articles/tiktok-algorithm-sex-drugs-minors-11631052944?st=e92pu57341vc7ta&reflink=desktopwebshare_permalink.

129. Defendants' efforts have proven wildly successful. The majority of teenagers use the same social media platforms, including Instagram and Facebook.¹³⁸ Each of these platforms individually boasts high numbers of teenage users.

130. Despite intentionally designing their products to be addictive and despite knowing the negative impact that use of their products has on young users, the Defendants have publicly misled consumers about the addictive nature of their products. Defendants have denied that their products are addictive and affirmatively stated that they do not want their products to be addictive. Defendants have also misled and deceived consumers about the safety of their products, the effect those products have on mental health, especially the mental health of young users, and they have touted their dedication to safety despite declining to take basic, reasonable steps to make their products safer and ignoring warnings and internal data that demonstrated their products were detrimental to the health and well-being of young users.

F. Facebook and Instagram Have Substantially Contributed to the Youth Mental Health Crisis

1. The Facebook Platform

131. Facebook is a social networking platform owned by Meta.

132. Facebook was founded in 2004 and has become the largest social network in the world. As of October 2021, Facebook had approximately 2.9 billion monthly active users, approximately 2 billion of whom use Facebook every day.¹³⁹

¹³⁸ Emily A. Vogels et al., *Teens, Social Media and Technology 2022*, Pew Rsch. Ctr. (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/>.

¹³⁹ *See id.*; Stacy Jo Dixon, *Number of Daily Active Facebook Users Worldwide as of 4th Quarter 2022 (in Millions)*, Statista (Feb. 13, 2023), <https://www.statista.com/statistics/346167/facebook-global-dau/>.

133. When Facebook was founded in 2004, only students at certain colleges and universities could use the social media platform, and verification of college enrollment was required to access Facebook.

134. In 2005, Facebook expanded and became accessible to students at more universities around the world, after which Facebook launched a high school version that also required an invitation to join.

135. Facebook later expanded eligibility to employees of several companies, including Apple and Microsoft, and also added more universities to its network.

136. In September 2006, Facebook became available to all internet users. At the time, Facebook claimed that it was open only to persons aged 13 and older with a valid email address; however, on information and belief, Facebook did not in fact require verification of a user's age or identity and did not actually verify users' email addresses, such that underage users could easily register an account with and access Facebook.

137. Facebook then underwent a series of changes aimed at increasing user engagement and platform growth, without regard to user safety, including the following changes:

- In 2009, Facebook launched the "like" button;
- In 2011, Facebook launched Messenger, its direct messaging service, and started allowing people to subscribe to non-friends;
- In 2012, Facebook started showing advertisements in its newsfeed and launched a real-time bidding system through which advertisers could bid on users based on their visits to third-party websites;
- In 2014, Facebook's facial recognition algorithm (DeepFace) reached near-human accuracy in identifying faces;
- In 2015, Facebook made significant changes to its newsfeed algorithm to boost user engagement and launched its live-streaming service;
- In 2016, Facebook launched games for its social media platform so that users could play games without having to install new apps; and

- In 2017, Facebook launched Facebook Creator, an app for mobile video posts that assists with content creation.

2. The Instagram Platform

138. Instagram enables users to share photos and videos with other users and view other users' photos and videos. These photos and videos appear on users' Instagram "feeds," which are virtually bottomless, scrollable lists of content.

139. After being acquired by Meta, Instagram experienced exponential user growth, expanding from approximately ten million monthly active users in September 2012 to more than one billion monthly active users worldwide today, including approximately 160 million users in the United States.¹⁴⁰

140. Instagram's user growth was driven by design and development changes to the Instagram platform that increased engagement at the expense of the health and well-being of Instagram's users – especially the children using the platform.

141. For example, in August 2020, Instagram began hosting and recommending short videos to users, called Reels.¹⁴¹ Instagram allows users to view an endless feed of Reels that are recommended and curated to users by Instagram's algorithm.

142. Instagram has become the most popular photo-sharing social media platform among children in the United States – approximately 72% of children aged 13 to 17 in the United States use Instagram.¹⁴²

¹⁴⁰ Stacy Jo Dixon, *Number of Instagram Users Worldwide from 2020 to 2025 (in Billions)*, Statista (Feb. 15, 2023), <https://www.statista.com/statistics/183585/instagram-number-of-global-users/>.

¹⁴¹ *Introducing Instagram Reels*, Instagram (Aug. 5, 2020), <https://about.instagram.com/blog/announcements/introducing-instagram-reels-announcement>.

¹⁴² Katherine Schaeffer, *7 Facts About Americans and Instagram*, Pew Rsch. Ctr. (Oct. 7, 2021), <https://www.pewresearch.org/fact-tank/2021/10/07/7-facts-about-americans-and-instagram/>.

3. Facebook and Instagram Design and Market Their Platforms to Appeal to a Youth Audience

143. Facebook and Instagram have expended significant effort to attract youth, including teens and preteens, to their platforms, including designing features that appeal to them. They do this to maximize the revenue generated from relationships with advertisers and also because they view teenagers as a way to attract other potential users, such as by using teenagers to recruit parents who want to participate in their children's lives, as well as younger siblings who look to older siblings as models for which social media platforms to use and how to use them.¹⁴³

144. Facebook and Instagram explicitly target teenagers. An internal Instagram marketing plan reveals that it knows “[i]f we lose the teen foothold in the U.S. we lose the pipeline” for growth.¹⁴⁴ To ensure that did not happen, Instagram devoted almost all of its \$390 million annual marketing budget for 2018 to target teenagers.¹⁴⁵

145. Facebook also views preteens or “tweens” as a “valuable but untapped audience,” even contemplating “[e]xploring playdates as a growth lever.”¹⁴⁶ Facebook formed a team to study preteens, endeavored to create more products designed for them, and commissioned strategy papers regarding the “business opportunities” created.¹⁴⁷

¹⁴³ Sheera Frenkel et al., *Instagram Struggles with Fears of Losing Its 'Pipeline': Young Users*, N.Y. Times (Oct. 26, 2021), <https://www.nytimes.com/2021/10/16/technology/instagram-teens.html>.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ Georgia Wells & Jeff Horwitz, *Facebook's Effort to Attract Preteens Goes Beyond Instagram Kids, Documents Show; It has investigated how to engage young users in response to competition from Snapchat, TikTok; 'Exploring playdates as a growth lever,'* Wall St. J. (Sept. 28, 2021), <https://www.wsj.com/articles/facebook-instagram-kids-tweens-attract-11632849667>.

¹⁴⁷ *Id.*

- Are kids using Messenger Kids during playdates, and if so, how are they using the app and talking about the app?
- Who initiates the playdates, and how are they planned/what kinds of activities take place?

Is there a way to leverage playdates to drive word of hand/growth among kids?

drive word of hand/growth

To better understand how playdates might be an area to drive kid growth, we asked parents of the MK Community about how they initiate and plan, as well as the activities that take place during playdates.

***Researcher's note:* This note is intended to generate ideas and consider how we can leverage playdates to increase growth/retention and active threads. These findings are MK community-specific (active users who routinely provide feedback about the app) and are meant to give us insight into how active users leverage Messenger Kids in the context of initiating and coordinating playdates.

TL;DR:

- Most kids (68% | 65/95) do not use Messenger Kids during playdates, mainly because parents view the app as a way for kids to communicate with others when they're *not* together.
 - When kids do use Messenger Kids during playdates, it is mainly to communicate with their parents or with another friend who is not present at the playdate.

Why do we care about tweens?

They are a valuable but untapped audience

- Our ultimate goal is messaging primacy with US Tweens (TAM = 12M), which may also lead to winning with Teens (TAM 36M).
- MK begins to lose PMF as kids age. Our primacy declines at 10 and 82% of users are 10 or younger.

"I don't think I would use it...that's just me. I would have to get [my mom's] permission to [connect with my friends] and everyone would make fun of me..."

10 yo boy, Detroit

146. For these reasons, Facebook and Instagram are designed to be used by children and are actively marketed to children throughout their markets in the United States. Facebook and Instagram both advertise to children through their own efforts, as well as through advertisers that create and target advertisements to children. Internal company documents establish that Facebook spends hundreds of millions of dollars researching, analyzing, and marketing to children to find ways to make its platforms more appealing to these age groups and to maximize the time they spend on its platforms as these age groups are seen as essential to Facebook’s long-term profitability and market dominance.¹⁴⁸ For instance, after Instagram’s founders left in September 2018, “Facebook went all out to turn Instagram into a main attraction for young audiences” and “began concentrating on the ‘teen time spent’ data point” in order to “drive up the amount of time that teenagers were on the app with features including Instagram Live, a broadcasting tool, and Instagram TV, where people upload videos that run as long as an hour.”¹⁴⁹

147. Similarly, Instagram’s popularity among young people is the result of its deliberate efforts to target children, which in turn is driven by the desire of advertisers and marketers to target children on the Facebook and Instagram platforms. In fact, Facebook’s acquisition of Instagram was primarily motivated by its desire to make up for declines in the use of Facebook by children and its view of Instagram as central to its ability to attract and retain young audiences. A 2018 internal Facebook marketing report is indicative of this, lamenting the loss of teenage users to competitors’ platforms as “an existential threat.”¹⁵⁰ In contrast, a Facebook presentation from

¹⁴⁸ *Id.*

¹⁴⁹ Sheera Frenkel et al., *Instagram Struggles with Fears of Losing Its ‘Pipeline’: Young Users*, N.Y. Times (Oct. 26, 2021), <https://www.nytimes.com/2021/10/16/technology/instagram-teens.html>.

¹⁵⁰ *Id.*

2019 indicated that “Instagram is well positioned to resonate and win with young people,” and “[t]here is a path to growth if Instagram can continue their trajectory.”¹⁵¹

148. With respect to preteens, Facebook’s policy is that they cannot register an account on either Facebook or Instagram, but Facebook knowingly lacks effective age-verification protocols. Since at least 2011, Facebook has known that its age-verification protocols are largely inadequate, estimating at that time that it removed 20,000 children under age 13 from Facebook every day.¹⁵² In 2021, Adam Mosseri, the executive in charge of Instagram, acknowledged users under 13 can still “lie about [their] age now” to register an account.¹⁵³

149. Facebook has yet to implement protocols to verify a user’s age, presumably because it has strong business incentives not to do so or to laxly enforce its policy. Facebook also has agreements with cell phone manufacturers and/or providers and/or retailers, who often preinstall its platforms on mobile devices prior to sale without regard to the age of the intended user of each such device. That is, even though Facebook is prohibited from providing its platforms to users under the age of 13, Facebook actively promotes and provides underage users access to its platforms by encouraging and allowing cell phone manufacturers to preinstall the platforms on mobile devices indiscriminately. Consequently, in a recent Pew Research study, approximately 11% of United States parents of children between the ages of 9 and 11 said their children used

¹⁵¹ Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show; Its own in-depth research shows a significant teen mental-health issue that Facebook plays down in public*, Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739>.

¹⁵² Austin Carr, *Facebook Booting “20,000” Underage Users Per Day: Reaction to Growing Privacy Concerns?*, Fast Co. (Mar. 22, 2011), <https://www.fastcompany.com/1741875/facebook-booting-20000-underage-users-day-reaction-growing-privacy-concerns>.

¹⁵³ Georgia Wells & Jeff Horwitz, *Facebook’s Effort to Attract Preteens Goes Beyond Instagram Kids, Documents Show; It has investigated how to engage young users in response to competition from Snapchat, TikTok; ‘Exploring playdates as a growth lever,’* Wall St. J. (Sept. 28, 2021), <https://www.wsj.com/articles/facebook-instagram-kids-tweens-attract-11632849667>.

Instagram in 2020¹⁵⁴ despite Facebook claiming to remove approximately 600,000 underage users per quarter.¹⁵⁵

150. Facebook's efforts to attract young users have been successful. In a recent study, 62% of children aged 13 to 17 reported they have used Instagram's app, and 32% of children aged 13 to 17 reported they have used Facebook's app or website.¹⁵⁶

4. Facebook and Instagram Intentionally Design Exploitative Features Aimed at Keeping Users on the Platforms for as Long as Possible

151. The Facebook platforms are designed to maximize user engagement, creating content and using features that exploit the natural human desire for social interaction and the neurophysiology of the brain's reward systems to keep users endlessly scrolling, posting, "liking," commenting, and counting the number of "likes" and comments to their own posts. The developing brains of children are particularly vulnerable to such exploitation.

152. One of the ways in which Facebook and Instagram employ IVRs is through their push notifications and emails; this Defendant-produced notification mechanism encourages habitual use and is designed to prompt users to open and be exposed to content selected to maximize the use of the Facebook platforms and the ads run on them. In particular, Facebook and Instagram space out notifications of likes and comments into multiple bursts rather than notifying users in real time so as to create dopamine gaps that leave users craving in anticipation for more. In this regard, Facebook's push notifications and emails are specifically designed to manipulate

¹⁵⁴ Brooke Auxier et al., *Parenting Children in the Age of Screens*, Pew Rsch. Ctr. (July 28, 2020), <https://www.pewresearch.org/internet/2020/07/28/childrens-engagement-with-digital-devices-screen-time/>.

¹⁵⁵ Georgia Wells & Jeff Horwitz, *Facebook's Effort to Attract Preteens Goes Beyond Instagram Kids, Documents Show; It has investigated how to engage young users in response to competition from Snapchat, TikTok; 'Exploring playdates as a growth lever,'* Wall St. J. (Sept. 28, 2021), <https://www.wsj.com/articles/facebook-instagram-kids-tweens-attract-11632849667>.

¹⁵⁶ Emily A. Vogels, et al., *Teens, Social Media and Technology 2022*, Pew Research Center (Aug. 10, 2022), <https://www.pewresearch.org/internet/2022/08/10/teens-social-media-and-technology-2022/>.

users into reengaging with the Facebook platforms to increase user engagement regardless of a user's health or well-being.

153. Facebook also exploits IVRs to manipulate users with one of its most defining features: the “Like” button. Facebook knows “Likes” are a source of social comparison harm for many users as detailed below. Several Facebook employees involved in creating the Like button have since left Facebook and have spoken publicly about the manipulative nature of the Facebook platforms and the harm they cause users.¹⁵⁷

154. The “Like” feature common to Defendants’ products has an especially powerful effect on teenagers and can neurologically alter their perception of online posts. Researchers at UCLA used magnetic resonance imaging to study the brains of teenage girls as they used Instagram. They found that girls’ perception of a photo changed depending on the number of likes it had generated. That an image was highly liked – regardless of its content – instinctively caused the girls to prefer it. As the researchers put it, teens react to perceived “endorsements,” even if likes on social media are often fake, purchased, or manufactured.

155. In 2014, a study of adolescent girls found that increased use of Facebook was linked with body image concerns, the idealization of thinness, and increased dieting. This study was sent to Mark Zuckerberg in 2018, in a letter signed by 118 public health advocates.¹⁵⁸

156. In another 2016 study, 52% of girls said they use image filters every day, and 80% reported using an app to change their appearance before the age of 13. In fact, 77% of girls reported

¹⁵⁷ See, e.g., Paul Lewis, *‘Our minds can be hijacked’: the tech insiders who fear a smartphone dystopia*, Guardian (Oct. 6, 2017), <https://www.theguardian.com/technology/2017/oct/05/smartphone-addiction-silicon-valley-dystopia>.

¹⁵⁸ Letter to Mark Zuckerberg, *Re: Facebook Messenger Kids*, Campaign for a Commercial-Free Childhood, (January 30, 2018), <https://fairplayforkids.org/wp-content/uploads/archive/devel-generate/gaw/FBMessengerKids.pdf>.

trying to change or hide at least one part of their body before posting a photo of themselves, and 50% believe they did not look good enough without editing.¹⁵⁹

157. Additionally, Facebook designed other features of its platforms on principles of IVRs, such as posts, comments, tagging, and the “pull to refresh” feature (which is similar to the way that slot machines work).

158. Other design decisions were motivated by reciprocity, such as the use of visual cues to reflect that someone is currently writing a message (a feature designed to keep a user on the platform until they receive the message) and alerting users when a recipient has read their message (which encourages the recipient to respond and return to the platform to check for a response).

159. Facebook and Instagram are designed to encourage users to post content and to like, comment, and interact with other users’ posts. Each new post that appears on a user’s feed functions as a dopamine-producing social interaction in the user’s brain. Similarly, likes, comments, and other interactions with users’ posts function as an even stronger dopamine-producing stimulus than does seeing new posts from other users. This in turn drives users to generate content they expect will generate many likes and comments. In this regard, Facebook has designed its platforms to function in concert as users’ interactions with others users psychologically compels users to post similar content themselves, trapping users – especially youth – in endless cycles of “little dopamine loops.”¹⁶⁰

¹⁵⁹ Anna Haines, *From “Instagram Face” to “Snapchat Dysmorphia”*: How Beauty Filters Are Changing the Way We See Ourselves, *Forbes* (Apr. 27, 2021), <https://www.forbes.com/sites/annahaines/2021/04/27/from-instagram-face-to-snapchatdysmorphia-how-beauty-filters-are-changing-the-way-we-see-ourselves/?sh=3c32eb144eff>.

¹⁶⁰ Allison Slater Tate, *Facebook whistleblower Frances Haugen says parents make 1 big mistake with social media*, *Today* (Feb. 7, 2022), <https://www.today.com/parents/teens/facebook-whistleblower-frances-haugen-rcna15256>.

5. Facebook's and Instagram's Algorithms Are Manipulative and Harmful

160. Facebook and Instagram create features and employ advanced computer algorithms and AI to make the platforms as engaging and habit forming as possible for users. For example, Facebook and Instagram produce original content and design recommendations that are customized to each user by using sophisticated algorithms. The proprietary services developed through such algorithms include Facebook's Feed (a newsfeed of stories and posts published on the platform, some of which are posted by connections and others that are suggested by Facebook's algorithms), People You May Know (algorithm-based suggestions of persons with common connections or background), Suggested for You, Groups You Should Join, and Discover (algorithm-based recommendations of groups). Such algorithm-based content and recommendations are pushed to each user in a steady stream as the user navigates the platform, as well as through notifications sent to the user's smartphone and email addresses when the user is disengaged with the platform.

161. These algorithms are not based exclusively on user requests or even user inputs. Facebook's algorithms combine the user's profile (*e.g.*, the information posted by the user on the platform) and the user's dossier (the data collected and synthesized by Facebook to which Facebook assigns categorical designations) to make assumptions about that user's interests and preferences, make predictions about what else might appeal to the user, and then make very specific recommendations of posts and pages to view and groups to visit and join based on rankings that will optimize Meta's key performance indicators. In this regard, Facebook's design controls the presentation of material to users in ways known by the Defendants to be the most addictive to users.

162. Facebook's and Instagram's current use of algorithms in their platforms are driven and designed to maximize user engagement. Over time, Facebook and Instagram have gradually

transitioned away from chronological ranking, which organized the interfaces according to when content was posted or sent, to Meaningful Social Interactions, which emphasizes users' connections and interactions such as likes and comments and gives greater significance to the interactions of connections that appeared to be the closest to users. Facebook thus developed and employed an "amplification algorithm" to execute engagement-based ranking, which considers a post's likes, shares, and comments, as well as a respective user's past interactions with similar content, and exhibits the post in the user's newsfeed if it otherwise meets certain benchmarks.

163. Due to Facebook's focus on user engagement, Facebook's algorithms promote addictive and excessive use for users designed to fuel the users' return to the platforms, which in turn helped Facebook and Instagram sell more advertisements that generate most of their revenue. As such, Facebook's algorithms promote harmful and addictive behaviors, which thereby increases its appeal to advertisers and increases its overall value and profitability.

164. Facebook's and Instagram's shift from chronological ranking to algorithm-driven content and recommendations has changed the platforms in ways that are profoundly dangerous and harmful to children, whose psychological susceptibility to habit-forming platforms put them at great risk of harm from the platforms' exploitative and harmful features. In this regard, the algorithms used by these platforms exploit child users' diminished decision-making capacity, impulse control, emotional maturity, and psychological resiliency caused by users' incomplete brain development, and Facebook and Instagram specifically design their platforms with these vulnerabilities in mind.

6. Facebook and Instagram "Feeds" Are Designed to Enable Users to Scroll Endlessly

165. Both Facebook and Instagram show each user a "feed" that is generated by an algorithm for that user, which consists of a series of photos and videos posted by accounts that the

user follows, along with advertising and content specifically selected and promoted by the company.

166. These feeds are virtually endless and enable users to scroll *ad infinitum* without any natural end points that would otherwise encourage them to move on to other activities. “Unlike a magazine, television show, or video game,” the Facebook and Instagram platforms only rarely prompt their users to take a break by using “stopping cues.”¹⁶¹ The “bottomless scrolling” feature is designed to encourage users to use their platforms for unlimited periods of time.

167. Facebook and Instagram also exert control over a user’s feed through certain ranking mechanisms, escalation loops, and promotion of advertising and content specifically selected and promoted based on, among other things, their ongoing planning, assessment, and prioritization of the types of information most likely to increase user engagement.

168. As described above, the algorithms generating a user’s feed encourage excessive use, particularly where the algorithm is designed to prioritize the number of interactions rather than the quality of interactions.

169. Instagram features a feed of “Stories,” which are short-lived photo or video posts that are accessible only for 24 hours. This feature encourages constant, repeated, and compulsive use of Instagram so that users do not miss out on material before it disappears. As with other feeds, the presentation of Stories is generated by an algorithm designed by Instagram to maximize the amount of time a user spends on the app.

170. Instagram also features a feed called “Explore,” which presents users with information from accounts the users had not previously “followed.” The material in “Explore” is

¹⁶¹ See Zara Abrams, *How can we minimize Instagram’s harmful effects?; Psychologists’ research has shown that Instagram use is associated both with beneficial and detrimental effects – depending on how it’s used*, Am. Psych. Ass’n (Dec. 2, 2021), <https://www.apa.org/monitor/2022/03/feature-minimize-instagram-effects>.

selected and presented by an algorithm designed to maximize the amount of time a user spends on the app. As with other feeds, the Explore feature may be scrolled endlessly, and its algorithm will continually generate new recommendations, encouraging users to use the app for unlimited periods of time.

171. Instagram also features a feed called “Reels,” which presents short video posts by users not previously followed. These videos play automatically, without input from the user, encouraging the user to stay on the app for indefinite periods of time. As with other feeds, Reels are presented by an algorithm designed to maximize the amount of time a user spends on the app.

7. For Years, Facebook and Instagram Have Been Aware That Their Platforms Harm Children and Have Deceived the Public Regarding the Harm They Cause

172. Social media platforms like Facebook – and Instagram in particular – can cause serious harm to the mental and physical health of children. Moreover, this capacity for harm is by design – what makes these platforms profitable is precisely what harms its young users.

173. In an internal slide presentation in 2019, Facebook’s own researchers studying Instagram’s effects on children concluded: “We make body image issues worse for one in three teen girls.”¹⁶² This presentation was one of many documents leaked by former employee Frances Haugen to journalists at *The Wall Street Journal* and federal regulators in 2021.¹⁶³ *The Wall Street*

¹⁶² Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show; Its own in-depth research shows a significant teen mental-health issue that Facebook plays down in public*, Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739>.

¹⁶³ *The Wall Street Journal* and *Digital Wellbeing* published several of these documents in November 2021. See, e.g., Paul Marsden, *The ‘Facebook Files’ on Instagram harms – all leaked slides on a single page*, Digit. Wellbeing (Oct. 20, 2021), <https://digitalwellbeing.org/the-facebook-files-on-instagram-harms-all-leaked-slides-on-a-single-page/>. Gizmodo also started publishing these documents in November 2021. See Dell Cameron et al., *Read the Facebook Papers for Yourself; Hundreds of internal documents formed the basis of dozen of news stories. They have not been made public. Until now*, Gizmodo (Feb. 14, 2023), <https://gizmodo.com/facebook-papers-how-to-read-1848702919>.

Journal's reporting on the documents began in September 2021 and caused a national and international uproar.

174. Upon information and belief, at least as far back as 2019, Facebook initiated a Proactive Incident Response experiment, which began researching the effect of Facebook and Instagram on the mental health of today's children.¹⁶⁴ Facebook's own in-depth analyses showed significant mental-health issues stemming from the use of Instagram among teenage girls, many of whom linked suicidal thoughts and eating disorders to their experiences on the app.¹⁶⁵

175. The companies' own researchers have repeatedly found that Instagram is harmful for a sizable percentage of teens who use the platform.¹⁶⁶ In particular, the researchers found that "[s]ocial comparison," or peoples' assessment of their own value relative to that of others, is "worse on Instagram" for teens than on other social media platforms.¹⁶⁷ One in five teens reported that Instagram makes "them feel worse about themselves."¹⁶⁸ Roughly two in five teen users reported feeling "unattractive," while one in ten teen users reporting suicidal thoughts traced them to Instagram.¹⁶⁹ Teens "consistently" and without prompting blamed Instagram "for increases in the rate of anxiety and depression."¹⁷⁰ Although teenagers identify Instagram as a source of

¹⁶⁴ See *Facebook Whistleblower Testifies on Protecting Children Online*, C-SPAN (Oct. 5, 2021), <https://www.c-span.org/video/?515042-1/whistleblower-frances-haugen-calls-congress-regulate-facebook>.

¹⁶⁵ See Georgia Wells et al., *Facebook Knows Instagram Is Toxic for Teen Girls, Company Documents Show*, Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/articles/facebook-knows-instagram-is-toxic-for-teen-girls-company-documents-show-11631620739>.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ *Id.*

psychological harm, they often lack the self-control to use Instagram less. Also, according to their own researchers, young users are not capable of controlling their Instagram use to protect their own health.¹⁷¹ Such users “often feel ‘addicted’ and know that what they’re seeing is bad for their mental health but feel unable to stop themselves.”¹⁷²

176. Similarly, in a March 2020 presentation posted to Facebook’s internal message board, researchers found that “[t]hirty-two percent of teen girls said that when they felt bad about their bodies, Instagram made them feel worse.”¹⁷³ Sixty-six percent of teen girls and 40% of teen boys have experienced negative social comparison harms on Instagram.¹⁷⁴ Further, approximately 13% of teen girl Instagram users say the platform makes thoughts of “suicide and self harm” worse, and 17% of teen girl Instagram users say the platform makes “[e]ating issues” worse.¹⁷⁵ Internal researchers also acknowledged that “[m]ental health outcomes” related to the use of Instagram

¹⁷¹ *Id.*

¹⁷² *Id.*

¹⁷³ *Id.*; see also *Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the U.S.*, Wall St. J. (Sept. 29, 2021), <https://digitalwellbeing.org/wp-content/uploads/2021/10/Facebook-Files-Teen-Girls-Body-Image-and-Social-Comparison-on-Instagram.pdf>; *Hard Life Moments-Mental Health Deep Dive* at 14, Facebook (Nov. 2019), <https://about.fb.com/wp-content/uploads/2021/09/Instagram-Teen-Annotated-Research-Deck-1.pdf>; Paul Marsden, *The ‘Facebook Files’ on Instagram harms – all leaked slides on a single page* at slide 14, Digit. Wellbeing (Oct. 20, 2021), <https://digitalwellbeing.org/the-facebook-files-on-instagram-harms-all-leaked-slides-on-a-single-page> (hard life moment – mental health deep dive).

¹⁷⁴ *Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the U.S.* at 9, Wall St. J. (Sept. 29, 2021), <https://digitalwellbeing.org/wp-content/uploads/2021/10/Facebook-Files-Teen-Girls-Body-Image-and-Social-Comparison-on-Instagram.pdf>.

¹⁷⁵ *Hard Life Moments-Mental Health Deep Dive* at 14, Facebook (Nov. 2019), <https://about.fb.com/wp-content/uploads/2021/09/Instagram-Teen-Annotated-Research-Deck-1.pdf>; Paul Marsden, *The Facebook Files’ on Instagram harms – all leaked slides on a single page* at slide 14, Digit. Wellbeing (Oct. 20, 2021), <https://digitalwellbeing.org/the-facebook-files-on-instagram-harms-all-leaked-slides-on-a-single-page>.

“can be severe,” including: (i) “Body Dissatisfaction”; (ii) “Body Dysmorphia”; (iii) “Eating Disorders”; (iv) “Loneliness”; and (v) “Depression.”¹⁷⁶

177. Not only is Facebook aware of the harmful nature of the Facebook and Instagram platforms, the leaked documents reveal that Facebook is aware of the specific design features that lead to excessive use and harm to children. For instance, Facebook and Instagram know that Instagram’s Explore, Feed, and Stories features contribute to social comparison harms “in different ways.”¹⁷⁷ Moreover, specific “[a]spects of Instagram exacerbate each other to create a perfect storm” of harm to users, and the “[s]ocial [c]omparison [s]weet [s]pot” – a place of considerable harm to users, particularly teenagers and teen girls – lies at the center of Meta’s model and platforms’ features.¹⁷⁸ Internal researchers wrote that “social comparison and perfectionism are nothing new, but young people are dealing with this on an unprecedented scale” and “constant comparison on Instagram is contributing to higher levels of anxiety and depression.”¹⁷⁹

178. Despite knowing better, Meta’s high-ranking executives then began pushing intentionally misleading talking points to the public. Instead of informing the public about Meta’s internal research demonstrating Instagram’s and Facebook’s negative impacts on the health and well-being of the nation’s youth, Meta repeatedly omitted key facts and misrepresented its products in service of an overall message touting the safety of its products for children.

¹⁷⁶ *Teen Girls Body Image and Social Comparison on Instagram – An Exploratory Study in the U.S.* at 34, Wall St. J. (Sept. 29, 2021), <https://digitalwellbeing.org/wp-content/uploads/2021/10/Facebook-Files-Teen-Girls-Body-Image-and-Social-Comparison-on-Instagram.pdf>.

¹⁷⁷ *Id.* at 31.

¹⁷⁸ *Id.* at 33.

¹⁷⁹ See *The Facebook Files, Part 2: ‘We Make Body Image Issues Worse,’* Wall St. J. (Sept. 14, 2021), <https://www.wsj.com/podcasts/the-journal/the-facebook-files-part-2-we-make-body-image-issues-worse/c2c4d7ba-f261-4343-8d18-d4de177cf973>.

179. In the year leading up to Meta’s acquisition of Instagram, Meta publicly acknowledged its duty to children and worked to create false expectations about its products’ safety. For example:

(a) Zuckerberg (3/25/2011): “One of the things that got people initially very comfortable with having a page on a service like Facebook is that we offer these extremely robust privacy controls . . . We are really focused on safety, especially children’s safety. We take a lot of extra precautions to make sure it is a safe environment for them to use the service. We really try to build a safe environment.”¹⁸⁰

(b) Zuckerberg (3/25/2011): “Right, and they, they feel like Facebook is this really secure place and that it’s a hundred percent safe, and um, we’re always thinking about little and big things like that that we can do to keep it safe for, for the people who use our service.”¹⁸¹

180. Following Meta’s acquisition of Instagram, high-ranking executives continued to make public pronouncements about the safety of Meta’s products, including but not limited to the following statements:

(a) Zuckerberg (12/1/2015): “We will do our part to make this [better world] happen, not only because we love you, but also because we have a moral responsibility to all children in the next generation.”¹⁸²

¹⁸⁰ Todd Hollingshead, *Facebook’s Zuckerberg at BYU: Be passionate about what you’re doing*, BYU University Connections News (Mar. 24, 2011), <https://news.byu.edu/news/facebooks-zuckerberg-byu-be-passionate-about-what-youre-doing>.

¹⁸¹ Mark Zuckerberg at BYU with Senator Orrin Hatch, YouTube (Mar. 25, 2011), <http://www.youtube.com/watch?v=zRsbWommvNo>.

¹⁸² Mark Zuckerberg, *A letter to our daughter*, Sky News (Dec. 1, 2015), <https://news.sky.com/story/in-full-zuckerbergs-letter-to-his-daughter-10337516#:~:text=We%20will%20do%20our%20part,future%20generations%20than%20live%20today>.

(b) Zuckerberg (4/10/2018): when asked by members of the U.S. Senate Committee on Commerce, Science, and Transportation whether he worries about social media addiction as a problem for America's teens, Zuckerberg answered:

At Facebook specifically, I view our responsibility as not just building services that people like but building services that are good for people and good for society as well. So we study a lot of effects of well-being of our tools and broader technology. . . .

What we find in general is that if you're using social media in order to build relationships . . . you are sharing content with friends, you're interacting, then that is associated with all of the long-term measures of well-being that you'd intuitively think of. . . .¹⁸³

(c) Zuckerberg (4/10/2018): when asked about protecting children, he said: "I think protecting minors and protecting their privacy is extremely important, and we do a number of things on Facebook to do that already."¹⁸⁴

(d) Zuckerberg (4/10/2018): At the same Congressional hearing, Zuckerberg was asked whether his companies "[h]ire consulting firms to help them figure out how to get more dopamine feedback loops so that people don't want to leave the platform?" Zuckerberg stated: "No... that is not how we talk about this or how we set up our product teams. We want our products to be valuable to people, and if they are valuable, then people choose to use them."¹⁸⁵

¹⁸³ Transcript of Joint Hearing before the Committee on Commerce, Science, and Transportation United States Senate and the Committee on the Judiciary United States Senate, One Hundred Fifteenth Congress at 111, *Facebook, Social Media Privacy, and the Use and Abuse of Data* (Apr. 10, 2018), <https://www.youtube.com/watch?v=AB4mB-K7-xY>.

¹⁸⁴ *Id.* at 113.

¹⁸⁵ *Id.* at 111.

(e) Zuckerberg (4/10/2018): Zuckerberg also stated: “We think offering an ad-supported service is the most aligned with our mission of trying to help connect everyone in the world.”¹⁸⁶

(f) Zuckerberg (7/12/2018): on Facebook’s core principles: “There are really two core principles at play here. There’s giving people a voice, so that people can express their opinions. Then, there’s keeping the community safe, which I think is really important.”¹⁸⁷

(g) Zuckerberg (8/21/2018): “One of the most important responsibilities we have as a company is to keep people safe and stop anyone from abusing our service.”¹⁸⁸

(h) Zuckerberg (9/7/2018): “What I’ve learned so far is that when you build services that are used by billions of people across countries and cultures, you will see all of the good humanity is capable of, and people will try to abuse those services in every way possible. It is our responsibility to amplify the good and mitigate the bad.”¹⁸⁹

(i) Facebook Inc.’s written response (12/23/2020), when asked by the Senate Committee on the Judiciary whether it could “determine whether increased use of [their] platform among teenage girls has any correlation with increased signs of depression [or anxiety]?” His

¹⁸⁶ *Id.* at 24.

¹⁸⁷ Kara Swisher, *Zuckerberg: The Recode Interview*, Vox (Oct. 8, 2018) <https://www.vox.com/2018/7/18/17575156/mark-zuckerberg-interview-facebook-recode-kara-swisher>.

¹⁸⁸ Mark Zuckerberg, Facebook (Aug. 21, 2018), https://www.facebook.com/zuck/posts/10105188590724391?__tn__=K-R.

¹⁸⁹ Mark Zuckerberg, Facebook (Sept. 7, 2018), https://www.facebook.com/zuck/posts/10105224999156601?__xts__%5B0%5D=68.ARB273c8TJkMqNAclfli0UB6fVWHZ_hO4k0KASCy8XfVdyC9XEVqoPLsPUPDh94zSHboQiB1t3mSlP9yEUyjvaEF50UxoUqVca4ZcM4nnkQ3MWz3dBGRQYm71JMj_Cbl25p7a9-HX-aXjkjNds21XzaAThg9PfkzJ_dTLszwUZ3H6b3Q4biIc&__tn__.

answer: “No.” And, when asked what research Meta had conducted internally on the mental health impacts of social media use: “The effects of social media are still being studied.”¹⁹⁰

(j) Zuckerberg (3/25/21), when asked by members of the U.S. House of Representatives Committee on Energy and Commerce: “Do you believe that your platform harms children?” His answer:

I don’t believe so. This is something that we study and we care a lot about; designing products that improve peoples’ well-being is very important to us. And what our products do is help people stay connected to people they care about, which I think is one of the most fundamental and important human things that we do, whether that’s for teens or for people who are older than that.¹⁹¹

(k) Adam Mosseri, Instagram executive, (5/2021): in a statement to reporters, dismissed concerns around Instagram’s negative impact on teens as “quite small.”¹⁹²

181. On each of the above occasions, and on many others, Meta touted the safety of its products; it could have but failed to disclose information it knew concerning the significant risks associated with its products, even though it knew that the public lacked access to this information.

182. Facebook also made numerous false and misleading statements in its Code of Conduct (“COC”) regarding the Company’s commitment to user safety. For instance, the COC, which the Company posted to its website, stated that: “Our reach and influence require that we commit and hold ourselves accountable to a high standard, ensuring that we build products and

¹⁹⁰ Facebook, Inc. Responses to Questions for the Record from the Comm. on the Judiciary November 17, 2020 Hearing: Breaking the News: Censorship, Suppression, and the 2020 Election, at 124-125 (December 23, 2020), available at <https://www.judiciary.senate.gov/imo/media/doc/Zuckerberg%20Responses%20to%20QFRs.pdf>.

¹⁹¹ Disinformation Nation: Social Media’s Role in Promoting Extremism and Misinformation Hearing Before H. Energy and Commerce Subcomm. on Communications and Technology (March 25, 2021), <https://www.congress.gov/117/meeting/house/111407/documents/HHRG-117-IF16-Transcript20210325.pdf>.

¹⁹² Taylor Hatmaker, *Facebook Knows Instagram Harms Teens. Now its Plan to Open the App to Kids Looks Worse than Ever*, TechCrunch (Sept. 16, 2021), <https://techcrunch.com/2021/09/16/facebook-instagram-for-kids-mosseri-wsj-teen-girls/>.

programs that have a positive impact, keep people safe and serve everyone.”¹⁹³ The Code of Conduct also stated that one of Facebook’s five core principles is to “[k]eep people safe and protect privacy” and emphasized that “we are committed to protecting our communities from harm.”¹⁹⁴

183. Meta’s pattern of intentional concealment came to a head in August 2021, when Frances Haugen , a data scientist and former product manager for Facebook, released numerous Metastudies, along with a trove of other internal Meta documents, to *The Wall Street Journal*. Even these disclosures did not reveal the full scope and extent of Meta’s misrepresentations, discussed elsewhere in this complaint.

184. On August 4, 2021, just weeks before Haugen’s bombshell revelations to the public, Senators Marsha Blackburn and Richard Blumenthal wrote to Mark Zuckerberg. The Senators’ letter observed that “[a]n expanding volume of scientific research shows that social media platforms can have a profoundly harmful impact on young audiences” and noted “grave concerns about [Meta’s] apparent effort to ensnare children into social media platforms at earlier and earlier ages.”¹⁹⁵ The letter concluded by asking Zuckerberg six “pretty straightforward questions about how the company works and safeguards children and teens on Instagram.”¹⁹⁶

¹⁹³ *Keep Building Better: The Facebook Code of Conduct*, Facebook, https://s21.q4cdn.com/399680738/files/doc_downloads/governance_documents/2021/06/FB-Code-of-Conduct.pdf.

¹⁹⁴ *Id.* at 5.

¹⁹⁵ Letter from United States Senator Richard Blumenthal and Senator Marsha Blackburn to Mark Zuckerberg (Aug. 4, 2021), <https://www.washingtonpost.com/context/blumenthal-blackburn-letter-to-facebook/41a4a77e-263a-4eb4-9f6f-ada4b8f0f357/>.

¹⁹⁶ Transcript, *Facebook Whistleblower Testifies Before Senate*, CNN Newsroom (Oct. 5, 2021), <https://transcripts.cnn.com/show/cnr/date/2021-10-05/segment/04>.

185. The Senators’ letter asked whether Meta had ever developed products or features “that it had reason to believe could have a negative effect on children’s and teens’ mental health or well-being.”¹⁹⁷ Meta responded by claiming it had “built many special protections for teens.”¹⁹⁸

186. The Senators’ letter also asked if Meta’s research had “ever found that its platforms and products can have a negative effect on children’s and teens’ mental health or well-being.”¹⁹⁹ Meta responded that the matter was “still being studied,”²⁰⁰ that it was challenging to conduct such research, and that the company was “not aware of a consensus among studies or experts about how much screen time is ‘too much.’”²⁰¹ While Meta reiterated its vague and already public position that “passive” use of social media can correlate with “negative outcomes,” it failed to disclose any more specific findings.²⁰²

187. In its August 17, 2021, written response to Senators Blackburn and Blumenthal, Meta also omitted any reference to the internal research it had conducted demonstrating the negative impact Instagram can have on kids’ mental health.²⁰³

¹⁹⁷ Letter from Richard Blumenthal, U.S. Senator, and Marsha Blackburn, U.S. Senator to Mark Zuckerberg (Aug. 4, 2021), <https://www.washingtonpost.com/context/blumenthal-blackburn-letter-to-facebook/41a4a77e-263a-4eb4-9f6f-ada4b8f0f357/>.

¹⁹⁸ Letter from Facebook, Inc. to Richard Blumenthal, U.S. Senator, and Marsha Blackburn, U.S. Senator (Aug. 17, 2021), <https://www.blumenthal.senate.gov/imo/media/doc/817.21facebookresponseletter.pdf>.

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.*

188. On September 21, 2021, Senator Blumenthal confronted Steve Satterfield (“Satterfield”), Facebook’s Vice President of Privacy & Public Policy, about the conspicuous omissions in Meta’s response to his letter:

Last month, on August 4, Senator Blackburn and I wrote to Mark Zuckerberg and asked him specifically about this issue. We asked, and I’m quoting, “Has Facebook’s research ever found that its platforms and products can have a negative effect on children’s and teens’ mental health or well-being such as increased suicidal thoughts, heightened anxiety, unhealthy usage patterns, negative self-image, or other indications of lower well-being?”

It wasn’t a trick question. It preceded the reports in the Journal. We had no idea about the whistleblower documents that were ultimately revealed.

Facebook dodged the question. “We are not aware of a consensus among studies or experts about how much screen time is too much.”

We are not aware.

Well, we all know now that representation was simply untrue.²⁰⁴

189. Senator Blumenthal went on to ask Satterfield “why did Facebook misrepresent its research on mental health and teens when it responded to me and Senator Blackburn?” After disputing the characterization, Satterfield responded: “The safety and well-being of the teens on our platform is a top priority for the company. We’re going to continue to make it a priority. This was important research.” Senator Blumenthal then went on: “Why did you conceal it?” Satterfield responded: “[W]e didn’t make it public because we don’t, with a lot of the research we do because we think that is an important way of encouraging free and frank discussion within the company about hard issues.”²⁰⁵

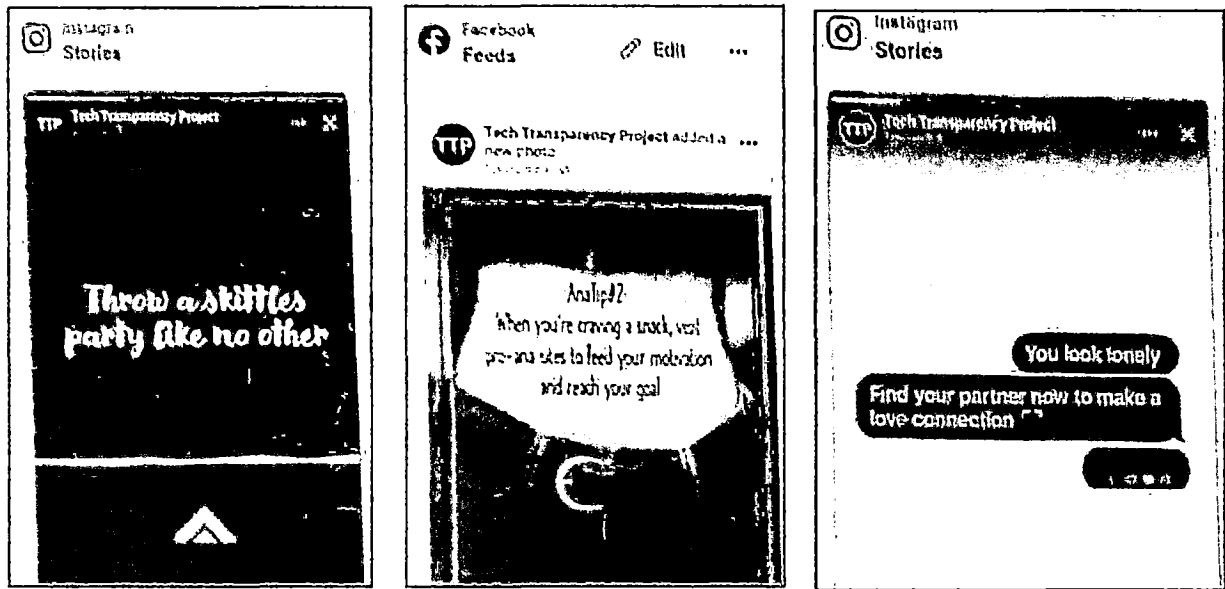
²⁰⁴ Richard Blumenthal, *Blumenthal Demands Facebook Appear at Next Week’s Consumer Protection Subcommittee Hearing to Explain Coverup of its Platforms’ Negative Impact on Teens & Children* (Sept. 21, 2021), <https://www.blumenthal.senate.gov/newsroom/press/release/blumenthal-demands-facebook-appear-at-next-weeks-consumer-protection-subcommittee-hearing-to-explain-coverup-of-its-platforms-negative-impact-on-teens-and-children>.

²⁰⁵ *Id.*

190. Meta unilaterally decided to prioritize “free and frank” internal discussion over honest and transparent responses to direct questions from sitting United States Senators. When it “dodged, ducked, sidetracked, [and] in effect, misled” Senators Blumenthal and Blackburn, Meta deceived the public via its elected representatives.²⁰⁶

191. Notably, Meta’s pattern of concealment did not end after Haugen came forward. On September 30, 2021, Antigone Davis, Facebook’s Head of Safety, testified before the Senate. Ms. Davis represented that, when Instagram “do[es] ads to young people, there are only three things that an advertiser can target around: age, gender, location. We also prohibit certain ads to young people, including weight loss ads.”²⁰⁷ She further testified, “We don’t allow the sexualization of minors on our platform.”²⁰⁸

192. Ms. Davis’s statements were subsequently proven false by Senator Mike Lee. During an October 2021 hearing, Senator Lee explained that a group called the Technology



²⁰⁶ Senate Commerce, Science and Transportation Subcommittee on Consumer Protection, Product Safety and Data Security Holds Hearing on Protecting Kids Online at 8, CQ Transcriptions (Oct. 5, 2021).

²⁰⁷ *Id.* at 20.

²⁰⁸ *Id.*

Transparency Project (“TTP”) alerted the U.S. Senate that it had gained Facebook’s approval to target a series of harmful ads to up to 9.1 million users between the ages of 13 and 17.²⁰⁹ While TTP did not actually run the ads, approval from Meta to do so demonstrates that the company allows harmful targeted advertising toward minors. Senator Lee showed three examples of these Meta-approved ads, shown below:²¹⁰

193. The first ad encourages children to “[t]hrow a skittles party like no other” and displays the suggestion against a background of colorful prescription pills.²¹¹ The second ad promotes an “Ana Tip” (“ana” being a well-documented shorthand for “anorexia”) instructing the viewer to “visit pro-ana sites to feed your motivation and reach your goal” when feeling hungry.²¹² The third ad informs the viewer that they “look lonely” and encourages them to “[f]ind your partner now to make a love connection.”²¹³

194. Senator Lee stated that based on the Meta Defendants’ approval of these pro-drug, pro-anorexia, pro-sexualization ads targeted to children aged 13 to 17, “[o]ne could argue that it proves that Facebook is allowing and perhaps facilitating the targeting of harmful adult-themed ads to our nation’s children.”²¹⁴

²⁰⁹ *Facebook’s Repeat Fail on Harmful Teen Ads*, Tech Transparency Project (Oct. 1, 2021), <https://www.techtransparencyproject.org/articles/facebooks-repeat-fail-harmful-teen-ads>.

²¹⁰ *Id.*

²¹¹ *Pills, Cocktails, and Anorexia: Facebook Allows Harmful Ads to Target Teens*, Tech Transparency Project (May 4, 2021), <https://www.techtransparencyproject.org/articles/pills-cocktails-and-anorexia-facebook-allows-harmful-ads-target-teens>.

²¹² *Id.*

²¹³ *Id.*

²¹⁴ Bryan Schott, *Lee asks whistleblower whether Facebook ads target teenagers*, The Salt Lake Tribune (Oct. 5, 2021), <https://www.sltrib.com/news/politics/2021/10/05/lee-asks-whether-facebook/>.

V. CAUSES OF ACTION

COUNT I

Violations of Arkansas's Public Nuisance Law

195. The State incorporates each preceding paragraph as though set forth fully herein.

196. The State brings this claim as the State in a *parens patriae* capacity, for the benefit of the people it serves, for the protection of their health, welfare, and prosperity, under Arkansas public nuisance law, as to all Defendants.

197. Defendants have created a mental health crisis in Arkansas's communities, injuring the public's health and safety and interfering with the operations, use, and enjoyment of the life and/or the free use of property of entire communities or neighborhoods. This condition affects a considerable and substantial number of persons within the State.

198. Defendants knew, or had reason to know, that use of their platforms and the addictive features contained therein would lead to mental and behavioral health problems for users, including but not limited to addiction, increased rates of depression, isolation, eating disorders, cyberbullying, negative self-image, harmful upward comparisons among vulnerable young users, and increased prevalence of suicidal thoughts and attempts among those users.

199. Citizens within the State, including the youth, have a right to be free from conduct that endangers their health and safety. However, Defendants have engaged in conduct that endangers or injures the health and safety of Arkansans by designing, marketing, and operating their respective social media platforms and targeting youth in the State's communities in a manner that substantially interferes with the functions of the State's operations and impacts the public health, safety, and welfare of the citizens in the State.

200. Defendants intentionally created this nuisance and exposed users to it in violation of the following public rights held in common by the community as a whole:

(a) The right to be free from undisclosed and secret psychological manipulation techniques;

(b) The right to be free from the ravages of addiction;

(c) The right to be free from the negative health and safety effects created by addiction and addictive social media use, including but not limited to increased rates of depression, isolation, eating disorders, cyberbullying, negative self-image, harmful upward comparisons among vulnerable young users, and increased prevalence of suicidal thoughts and attempts among those users; and

(d) The right to full and fair disclosure about the side effects and expected harms that accompany the use of a widely-known product or service.

201. Each Defendant has created or assisted in the creation of a condition that is injurious to the health and safety of the State and its citizens, especially children, and interferes with the comfortable enjoyment of life and property of the citizens of the State of Arkansas.

202. Defendants' interference with these public rights is unreasonable because it:

(a) Has harmed and will continue to significantly harm and interfere with the public health, safety, and welfare of Arkansas citizens, specifically vulnerable teenagers;

(b) Has harmed and will continue to harm Arkansas neighborhoods, communities, and public health programs by promoting addiction and causing other harmful mental health effects which disrupts the community at large and requires an ever-expanding drain of public resources to respond to the growing demand for mental health treatment, counseling, and services by those affected by Defendants' harmful practices;

(c) Is proscribed by the ADTPA, as detailed herein; and

(d) Is of a continuing nature and will produce long-lasting effects.

203. Defendants knew or had reason to know that their conduct would have a significant effect on the rights enjoyed by the public as described in the preceding paragraph.

204. The health and safety of Arkansans, including the children who use, have used, or will use Defendants' platforms, as well as those affected by others' use of their platforms, are matters of substantial public interest and of legitimate concern to the State.

205. Defendants' nuisance-creating conduct was intentional and unreasonable and violated statutes which established specific legal requirements for the protection of others. Defendants' conduct has affected and continues to affect a substantial number of people within the State and is likely to continue causing significant harm.

206. Defendants had control over their conduct in Arkansas, and that conduct had an adverse effect on the public rights detailed herein. Defendants had sufficient control over, and responsibility for, the public nuisance they created – Defendants were in control of the “instrumentality” of the nuisance, namely the operation of their social media platforms, at all relevant times.

207. Defendants' conduct has created an ongoing, significant, unlawful, and unreasonable interference with rights common to the general public, including the public health, welfare, safety, peace, comfort, and convenience of the State of Arkansas and its communities, and has resulted in increasing numbers of addiction, dysfunction, despair, and social unrest within Arkansas families and entire communities.

208. This harm to youth mental health and the corresponding impacts to the public health, safety, and welfare of Arkansas's communities outweighs any social utility of Defendants' wrongful conduct.

209. The rights, interests, and inconvenience to the State's communities far outweigh the rights, interests, and inconvenience to Defendants, who have profited tremendously from their wrongful conduct.

210. But for Defendants' actions, the young people in the State of Arkansas would not use social media platforms as frequently or as long as they do today and would not be deluged with exploitative and harmful feeds and other design features to the same degree, and the public health crisis that currently exists as a result of Defendants' conduct would have been averted.

211. Logic, common sense, justice, and policy, indicate Defendants' unfair and deceptive conduct has caused the damage and harm complained of herein. Defendants knew or reasonably should have known that their design, promotion, and operation of their platforms would cause youth to use their platforms excessively, that their marketing was designed to appeal to youth, and that their active efforts to increase youth use of their platforms were causing harm to youth, including youth in Arkansas's communities.

212. Thus, the public nuisance caused by Defendants was reasonably foreseeable, including the financial and economic losses incurred by the State. Defendants know, and have known, that their intentional, unreasonable, negligent, and unlawful conduct will cause, and has caused, youth to become addicted to their social media platforms, which has a harmful effect on youth mental health.

213. Despite this knowledge, Defendants intentionally, negligently, unreasonably, and unlawfully marketed their platforms to adolescents and children, fueling the youth mental health crisis in the State of Arkansas's communities.

214. Alternatively, Defendants' conduct was a substantial factor in bringing about the public nuisance even if a similar result would have occurred without it. By designing, marketing, promoting, and operating their platforms in a manner intended to maximize the time youth spend

on their respective platforms, despite knowledge of the harms to youth from their wrongful conduct, Defendants directly facilitated the widespread, excessive, and habitual use of their platforms and the public nuisance affecting the State. By seeking to capitalize on their success by refining their platforms to increase the time youth spend on their platforms, Defendants directly contributed to the public health crisis and the public nuisance affecting the State and its citizens.

215. Defendants' conduct is of a continuing nature and has produced a permanent or long-lasting effect, and, as Defendants know or have reason to know, has a significant effect upon the enjoyment of rights held in common by the public.

216. Defendants' intentional, negligent, and unreasonable nuisance-creating conduct, for which the gravity of the harm outweighs the utility of the conduct, includes:

(a) designing, marketing, promoting, and operating their platforms in a manner intended to maximize the time youth spend on their respective platforms, despite knowledge of the harms to youth from their wrongful conduct;

(b) manipulating users to keep using or coming back to their platforms through the use of IVRs;

(c) intentionally marketing their platforms to children and teens and directly facilitating the widespread, excessive, and habitual use of their platforms among youth; and

(d) knowingly designing and modifying their platforms in ways that promote excessive and problematic use in ways known to be harmful to children.

217. Defendants owed the public legal duties, including a preexisting duty not to expose Arkansans to an unreasonable risk of harm and a duty to exercise reasonable and ordinary care and skill in accordance with the applicable standards of conduct in designing and marketing platforms to youth and adolescents.

218. Each Defendant breached its duty to exercise the appropriate degree of care commensurate with marketing and promoting their platforms to youth.

219. Defendants' conduct is especially injurious to the State because, as a direct and proximate cause of Defendants' conduct creating or assisting in the creation of a public nuisance, Arkansans have sustained and will continue to sustain substantial injuries.

220. Each Defendant is liable for creating the public nuisance because the intentional, unreasonable, negligent, and unlawful conduct of each Defendant was a substantial factor in producing the public nuisance and harm to the State.

221. The nuisance created by Defendants' conduct is abatable.

222. Defendants' misconduct alleged in this case does not concern a discrete event or discrete emergency of the sort a state would reasonably expect to occur, and is not part of the normal and expected costs of a state or local government's existence. The State alleges wrongful acts which are neither discrete nor of the sort a state government can reasonably expect.

223. The State has incurred expenditures and has had to take steps to mitigate the harm and disruption caused by Defendants' conduct.

224. Fully abating the nuisance resulting from Defendants' conduct will require much more than these steps.

225. Accordingly, the State requests an order providing for abatement of the public nuisance that Defendants have created, or of which Defendants have assisted in the creation, and enjoining Defendants from future violations.

226. The State also seeks damages as a result of the public nuisance that Defendants have created, or of which Defendants have assisted in the creation, and all other relief available under the ADTPA in an action brought by the State in a *parens patriae* capacity.

227. Defendants are jointly and severally liable because they have acted in concert with each other and because the State is not at fault.

COUNT II

Violation of Arkansas's Deceptive Trade Practices Act (§ 4-88-101, *et. seq.*)

228. The State incorporates each preceding paragraph as though set forth fully herein.

229. Pursuant to Ark. Code Ann. § 4-88-104, the Attorney General brings this action for civil enforcement of the provisions of the ADTPA seeking restitution and an injunction against the Defendants to cease the deceptive trade practices in which they have been engaged.

230. The addictive and harmful qualities of Defendants' products and the algorithms used to foster that addiction are not fully known or appreciated by minor users or their parents.

231. Defendants knowingly and actively sought to design their products in such a way that use of the product would create addiction for the user by:

(a) Implementing addictive features such as the "like" button, heart buttons, photo tagging, and other forms of social approval which are intended to manipulate users' brains by triggering the release of dopamine;

(b) Utilizing an intermittent variable reward system such as the "pull to refresh" feature and to notify users of activity on Meta's platforms that spaces out dopamine triggering stimuli to create anticipation and enhanced craving in the user rather than notifying the user of activity and updates in real time;

(c) The use of wavy dots in chatting programs to indicate to users that the other party to the conversation is currently writing a message to keep the user's attention on the platform

until the message is received and/or to shorten the amount of time the user waits to return to the platform to check for a new message;

(d) Tailoring features to the concept of social reciprocity by which Meta alerts users that messages they have sent have been read and simultaneously prompting the user to return to the platform to check for a response to the message;

(e) Using push notifications and emails to constantly alert users of activity on the platform to induce the users to return their attention to and reengage with the platform; and

(f) Designing and implementing never-ending feeds of photos, videos, comments, or sponsored or promoted content whose function is to keep users scrolling endlessly and eliminate natural ending points or breaks at which users might stop interacting with the platform.

(g) Each and every time the above-described features are deployed upon a citizen of Arkansas constitutes a separate violation of the ADPTA.

232. Defendants knowingly designed and implemented these features into Meta's platforms, including Facebook and Instagram, with knowledge that these features would promote addiction, especially in younger users.

233. With full awareness to the contrary, Defendants publicly denied that Meta's platforms were addictive and asserted that they did not even want Meta's platforms to be addictive.

234. Despite having internal research detailing the addictive nature of the features being developed and implemented into Meta's platforms, the Defendants led users and the parents of young users to believe that their social media platforms were safe for use by young people, specifically teenagers.

235. Defendants also made multiple public statements and assertions touting the importance the Defendants placed on safety, the safe use of their platforms, and the protection of the platforms' users.

236. Defendants crafted an image to the public that their platforms brought people together, fostered connection among individuals and groups, and created positive interactions and engagement among users.

237. Defendants made these statements and crafted this image despite internal research demonstrating that the Defendants were aware of the harms posed to young people by their platforms and that the use of those platforms, as facilitated by the Defendants' own algorithms and artificial intelligence capabilities, actually tended to create the opposite effects, leading to addiction, increased rates of depression, isolation, eating disorders, cyberbullying, negative self-image, harmful upward comparisons among vulnerable young users, and increased prevalence of suicidal thoughts and attempts among those users.

238. Despite knowledge of the risks posed by use of their platforms, the Defendants actually targeted the young users most vulnerable and likely to be affected by the harmful aspects of the Defendants' platforms because of the potential profit Defendants sought to gain by capturing more of the tween and teen market.

239. Defendants refused to warn users, potential users, and parents of users and potential users of the data and research known to Defendants about the dangers posed by use of the Defendants' social media platforms. Defendants actively concealed, omitted, and suppressed these material facts with the intent that users rely upon its concealment, omission, and suppression in order to continue to add users, specifically teen users, in callous and reckless disregard for the known physical and mental health problems that were being created for those individuals who

were using Defendants' platforms. Defendants further misled and deceived the public about the addictive, destructive, and harmful effects their platform had and has on teen users.

240. As described throughout this Complaint, Defendants' deceptive and unconscionable trade practices include knowingly making false representations as to the characteristics – specifically the safety and addictiveness – of Meta's services and platforms in violation of Ark. Code Ann. § 4-88-107(a)(1).

241. Through Defendants' unconscionable and deceptive trade practice of deceiving users and potential users about the truth about the safety and addictiveness of their services, the Defendants knowingly took advantage of vulnerable adolescent users who were reasonably unable to protect their own interests because of their young age, ignorance of the facts which Defendants had in their possession and control, and inability to understand the addictive and harmful consequences of using Meta's platforms which conduct constitutes a violation of Ark. Code Ann. § 4-88-107(a)(8).

242. Through Defendants' unconscionable and deceptive trade practice of deceiving parents of adolescent users, the truth about the safety and addictiveness of their services, the Defendants knowingly took advantage of parents of young users who were reasonably unable to protect their own interests because of their ignorance of the facts which Defendants had in their possession and control and inability to understand the addictive and harmful consequences to their children of using Meta's platforms, which conduct also constitutes a violation of Ark. Code Ann. § 4-88-107(a)(8).

243. Defendants developed the deceptive addictive features that permeate Meta's platforms to increase users' screen time with those platforms and increase frequency of engagement with those platforms to facilitate the sale and delivery of targeted advertising to users, thereby increasing the revenue and profit generated by Defendants.

244. As detailed herein, the Defendants use deception, false pretense, and the concealment, suppression, and/or omission of material facts regarding the safety and addictiveness of their platforms and the features permeating those platforms with intent that other rely upon the concealment, suppression, or omission of those material facts in order to increase the sale of advertisements on their platforms in violation of Ark. Code Ann. § 4-88-108(a)(1)-(2)

245. Defendants concealed, omitted, and suppressed material facts such as their internal data demonstrating the addictive nature and harms posed by use of Meta's platforms with intent that others rely upon the concealment, omission, and suppression in order to maintain users, gain additional users, and likewise increase users' screen time with those platforms and increase frequency of engagement with those platforms to facilitate the sale and delivery of targeted advertising to users, thereby increasing the revenue and profit generated by Defendants in violation of Ark. Code Ann. § 4-88-108(a)(2)

246. All of the conduct described herein also constitutes unconscionable and deceptive acts or practices which Defendants undertook in furtherance of their business, commerce, or trade and attempts to profit at the cost of the decimated mental health of teen users in violation of Ark. Code Ann. § 4-88-107(a)(10).

247. The false representations, fraud, concealments, omissions and suppressions of damaging information were deceptive and constituted a repeated course of unconscionable conduct contrary to public policy and the public's interest which continues to this day.²¹⁵

²¹⁵ An unconscionable act is one that "affronts the sense of justice, decency, or reasonableness, including act that violate public policy or a statute." *Independence County v. Pfizer, Inc.*, 534 F.Supp.2d 882,886 (E.D. Ark. 2008) , *aff'd*, 552 F.3d 659 (8th Cir. 2009). A claim under the catch-all provision of the ADTPA proscribing unconscionable, false, or deceptive acts or practices in business, commerce, or trade does not require knowledge of a false or deceptive practice or specific intent to deceive. *Curtis Lumber Co., Inc. v. Louisiana Pacific Corp.*, 618 F.3d 762, 776-777 (8th Cir. 2010).

248. Pursuant to Ark. Code Ann. § 4-88-113, the State seeks a declaratory judgment that Defendants violated the ADTPA, an injunction enjoining the Defendants' false representations, omissions, concealments, and suppressions described throughout this Complaint, civil penalties of \$10,000 per violation, costs, attorneys' fees, and all other relief available under the ADTPA in an action brought by the State in a *parens patriae* capacity.

COUNT III

Unjust Enrichment

249. The State incorporates each preceding paragraph as though set forth fully herein.

250. Under Arkansas law, unjust enrichment occurs when a party has received something of value to which he or she is not entitled by some operative act, intent, or situation to make the enrichment unjust and compensable.

251. Unjust enrichment can be found when a person has received money or its equivalent under such circumstances that in equity and good conscience he or she ought not to retain.

252. Defendants received a benefit at the expense of Arkansas citizens in the form of advertising revenue derived from time spent on Defendants' social media platforms.

253. Defendants' social media platforms are designed by Defendants to be addictive in nature, thereby monetizing the screen time of Arkansas's citizens and causing harm. Accordingly, the citizens of Arkansas conferred a financial benefit on Defendants but did not receive the expected benefit therefrom.

254. The addictive features and false representations, concealment, omission, and suppression of facts detailed throughout this Complaint were used to generate this ad revenue at the expense of unwary and vulnerable users who were not informed of the harms and dangers associated with the use of Defendants' products and features.

255. Through their use of the deceptive, unlawful, and unconscionable practices detailed throughout this Complaint, Defendants readily accepted and retained these benefits at the expense of the citizens of Arkansas and knowingly benefitted from their unjust conduct and were unjustly enriched.

256. It is unjust and inequitable for Defendants to retain these benefits because they were attained by falsely representing, suppressing, and concealing the true nature of their social media platforms from the State's citizens, who would not have spent excessive time on Defendants' platform, but for Defendants' deception, false representations, manipulations, and concealment.

257. Equity cannot in good conscience permit Defendants to retain the benefits derived from the State and at the expense of the health and safety of Arkansas citizens through their unjust and unlawful acts, and therefore restitution or disgorgement of the amount of their unjust enrichment is required.

258. There is no valid, legal, and binding contract governing this dispute.

259. The State, therefore, seeks restitution of the sum, to be determined at trial, by which Defendants have been unjustly enriched.

PRAYER FOR RELIEF

WHEREFORE, the State prays for judgment as follows:

A. Entering an order that the conduct alleged herein constitutes a public nuisance under Arkansas law;

B. For declaratory judgment that Defendants' conduct is in violation of the ADTPA;

C. For an injunction prohibiting the Defendants from continuing their deceptive and harmful business practices as described throughout this Complaint;

D. Awarding civil penalties of \$10,000 per violation for each of Defendants' deceptive and harmful business practices;

- E. Entering an order that Defendants are jointly and severally liable;
- F. Entering an order requiring Defendants to abate the public nuisance described herein and to deter and/or prevent the resumption of such nuisance;
- G. Enjoining Defendants and any agents, successors, assigns, and employees acting directly or through any corporate or business device from engaging in further actions causing or contributing to the public nuisance as described herein;
- H. Directing Defendants to disgorge and forfeit all profits they have derived as a result of their unfair, unlawful, unconscionable, and deceptive acts and practices as set forth in this Complaint;
- I. Awarding equitable relief to fund prevention education and treatment for excessive and problematic use of social media;
- J. Awarding actual and compensatory damages;
- K. Awarding statutory damages in the maximum amount permitted by law;
- L. Awarding reasonable attorneys' fees and costs of suit;
- M. Awarding pre-judgment and post-judgment interest; and
- N. Such other and further relief as the Court deems just and proper under the circumstances and all other relief available under the ADTPA in an action brought by the State in a *parens patriae* capacity

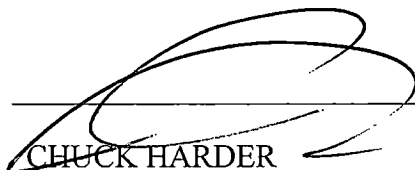
DEMAND FOR JURY TRIAL

The State hereby demands a trial by jury.

DATED: March 28, 2023

Respectfully submitted,

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