

**Testimony of Jenny Radesky, MD**  
**Vermont General Assembly – Senate Institutions Committee**  
**February 25, 2025**

I wish to thank Senator Harrison for inviting me to speak here today to support S.69, as well as Chair Benning and Vice Chair Rodgers and other members of the Senate Institutions Committee.

I am a tenured Associate Professor of Pediatrics and Director of the Division of Developmental Behavioral Pediatrics at University of Michigan Medical School. I am a practicing Developmental Behavioral Pediatrician, with expertise in developmental delays, ADHD, autism, and behavior. I run an NIH-funded research lab examining mobile and interactive media use by children and their parents, with a particular focus on family relationships, child social-emotional development, and digital designs that monetize children's experiences through ads, purchase pressure, data collection, or prolonging use. I am also co-Medical Director of the AAP Center of Excellence on Social Media and Youth Mental Health. In addition, for the past 8 months I have been serving the US Federal Trade Commission on a part-time basis as a behavioral expert. My testimony today reflects my expertise as a researcher and clinician, and does not reflect the views of the University of Michigan, American Academy of Pediatrics, Federal Trade Commission, or any of the commissioners.

In this testimony, my goal is to describe online harms to minors, their prevalence, and how they are caused by a combination of problematic designs, data profiling, and youth developmental vulnerabilities.

There is global consensus that online harms to minors occur and need to be mitigated. The Organization for Economic Cooperation and Development,<sup>1</sup> World Economic Forum's Global Coalition for Digital Safety,<sup>2</sup> National Academies of Science Engineering and Medicine,<sup>3</sup> US Surgeon General,<sup>4</sup> and the Interagency Task Force on Kids Online Health and Safety<sup>5</sup> have all released reports in the last several years that describe these harms. Today I will bucket them into 3 broad categories – contact harms, privacy and profiling, and emotional wellbeing – and describe how digital designs contribute to their development.

**Contact harms** include harassment, grooming, sextortion, and child sexual exploitation material.

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<sup>1</sup> Organization for Economic Cooperation and Development (2020). Protecting Children Online: An Overview of Recent Developments in Legal Frameworks and Policies. OECD Digital Economy Papers, No. 295. Available at: [https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/06/protecting-children-online\\_0c385619/9e0e49a9-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2020/06/protecting-children-online_0c385619/9e0e49a9-en.pdf)

<sup>2</sup> World Economic Forum. Toolkit for Digital Safety Design Interventions and Innovations: Typology of Online Harms. Insight Report, August 2023. Available at: [https://www3.weforum.org/docs/WEF\\_Typology\\_of\\_Online\\_Harms\\_2023.pdf](https://www3.weforum.org/docs/WEF_Typology_of_Online_Harms_2023.pdf)

<sup>3</sup> National Academies of Sciences, Engineering, and Medicine. 2024. Social media and adolescent health. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27396>.

<sup>4</sup> Social Media and Youth Mental Health: The U.S. Surgeon General's Advisory (2023). <https://www.hhs.gov/sites/default/files/sg-youth-mental-health-social-media-advisory.pdf>

<sup>5</sup> Online Health and Safety for Children and Youth: Best Practices for Families and Guidance for Industry. Kids Online Health and Safety Task Force (2024). <https://www.samhsa.gov/sites/default/files/online-health-safety-children-youth-report.pdf>.

1. **Cyberbullying and harassment** has been reported by nearly half (46%) of U.S. teens<sup>6</sup> and 60% of teens who play video games.<sup>7</sup> Bullying is facilitated by design features such as **weak privacy settings** that allow teens to be contacted by strangers added to large group chats, **anonymous** chats that embolden harassers, and **social quantification metrics** such as “likes” that reinforce public bullying by giving it more attention.

2. **Unwanted sexual solicitation, grooming, and sextortion** can occur through social media and multiplayer video games. A nationally representative survey of U.S. young adults found that 22.5% reported that they had been sexually solicited online as a child or teen and 10.3% had been threatened or coerced into sending sexual images.<sup>8</sup> In a survey of U.S. college students, over 20% reported having online grooming interactions as minors. Of these, 28% met up with the adult in person, and of these, 68% went on to have sex with the adult when they were still a minor.<sup>9</sup> Sextortion, in which perpetrators threaten to release intimate images unless money, more images, or sex is provided, has been climbing in incidence and was reported by 5% of middle and high school students in the U.S., according to a nationally representative study.<sup>10</sup> Reports of sextortion to the National Center for Missing & Exploited Children more than doubled between 2019 and 2021<sup>11</sup>.

3. **Child sexual abuse material or child sexual exploitation material (CSAM/CSEM)** is extremely damaging to victims.<sup>12</sup> Self-generated CSEM, in which minors create sexual photos, videos, or live streaming,<sup>13</sup> increased by 77% in 2020 compared to the year before, driven by an increase among 11-13-year-old girls; in 2021 there was a three-fold increase among 7-10-year-olds.<sup>14</sup> A research study from Stanford University found that social media **recommender systems** recommend self-generated CSEM accounts to predators and potentiate this harm. Other design features that contribute to these harms include **weak privacy settings** and **social quantification metrics** that make children want to ‘friend’ as many people as possible

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<sup>6</sup> Vogels, E. 2022. Teens and cyberbullying 2022. Pew Research Center. <https://www.pewresearch.org/internet/2022/12/15/teens-and-cyberbullying-2022/>

<sup>7</sup> Anti-Defamation League. “Hate is no game: harassment and positive online experiences in online games in 2021” (New York: Anti-Defamation League, 2021). Available at: <https://www.adl.org/resources/report/hate-no-game-harassment-and-positive-social-experiences-online-games-2021>

<sup>8</sup> Finkelhor, D., H. Turner, and D. Colburn. 2022. Prevalence of online sexual offenses against children in the US. *JAMA Network Open* 5(10):e2234471–e2234471.

<sup>9</sup> Greene-Colozzi, E. A., Winters, G. M., Blasko, B., & Jeglic, E. L. (2020). Experiences and perceptions of online sexual solicitation and grooming of minors: A retrospective report. *Journal of child sexual abuse*, 29(7), 836-854.

<sup>10</sup> Patchin, J. W., and S. Hinduja. 2020. Sextortion among adolescents: Results from a national survey of U.S. Youth. *Sexual Abuse* 32(1):30-54.

<sup>11</sup> National Center for Missing & Exploited Children, CyberTipline 2021 Report. <https://www.missingkids.org/gethelpnow/cybertipline/cybertiplinedata>

<sup>12</sup> Chauviré-Geib, K., & Fegert, J. M. (2024). Victims of technology-assisted child sexual abuse: A scoping review. *Trauma, Violence, & Abuse*, 25(2), 1335-1348.

<sup>13</sup> Bloxsom, G., McKibbin, G., Humphreys, C., Davidson, J., & Halfpenny, N. (2024). Five Forms of Coerced “Self-Produced” Child Sexual Exploitation Material: A Critical Interpretive Synthesis. *Trauma, Violence, & Abuse*, 15248380241271376.

<sup>14</sup> Internet Watch Foundation Annual Report, 2022. Available at: <https://www.iwf.org.uk/about-us/who-we-are/annual-report-2022/>

to have stronger social status.<sup>15</sup> In one study out of the UK, children and teens reported that, in order to get more engagement and validation for their posts through **likes** and **followers**, they posted more risky, shocking or attention-grabbing posts, which puts them at further risk of grooming.<sup>16</sup>

**Privacy harms** involve data collection about minors and profiling them based on a number of identifiers<sup>17</sup> making inferences about their age, preferences, purchasing details or responses to nudges for marketing purposes. It has been estimated that ad tech companies collect an average of 72 million data points about a child before they turn 13.<sup>18</sup>

4. **Profiling of minors** can lead to several harms. In addition to the recommendation of youth accounts to predators mentioned above, profiling can lead to unfair video game practices, in which sophisticated analysis of player data is used to optimize the type and scheduling of purchase pressure;<sup>19, 20</sup> for example, a game can profile a teen to know what time of day, who they are playing with, and what type of trigger is mostly likely to lead to a purchase. Profiling can also lead to targeted advertising for harmful or illegal activities for minors, such as alcohol<sup>21</sup> or gambling - particularly for teens who follow sports accounts on social media, of whom 37% to 45.7% regularly see gambling ads.<sup>22, 23</sup> Research from the Australia Gambling Commission suggests that teens are intentionally targeted with gambling ads.<sup>24</sup>

**Harms to wellbeing** stem from problematic and compulsive media use, sleep disruption, and negative social comparison.

#### 5. **Problematic, compulsive, addictive-like** use of digital media, video games, and

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<sup>15</sup> OfCom. (2022) Research into risk factors that may lead children to harm online. Available at: <https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/online-research/keeping-children-safe-online/risk-factors-that-may-put-children-at-harm-online/children-risk-factors-report.pdf?v=328565>

<sup>16</sup> Ibid.

<sup>17</sup> Complaint at 12, *United States v. Bytedance Ltd.*, No. CV 24-06525-OWD (RAO) (C.D. Cal. August 2, 2024). Available at: <https://www.justice.gov/opa/media/1362606/dl?inline>

<sup>18</sup> Based on an analysis by SuperAwesome's ad exchange Rex. See: <https://www.thedrum.com/news/2017/12/13/adtech-firms-collecting-vast-amounts-data-kids-despite-online-regulations>

<sup>19</sup> Consumer Financial Protection Bureau. (2024). Banking in video games and virtual worlds. <https://www.consumerfinance.gov/data-research/research-reports/issue-spotlight-video-games/>

<sup>20</sup> King, D. L., Delfabbro, P. H., Gainsbury, S. M., Dreier, M., Greer, N., & Billieux, J. (2019). Unfair play? Video games as exploitative monetized services: An examination of game patents from a consumer protection perspective. *Computers in Human Behavior*, 101, 131-143.

<sup>21</sup> Backholer, K., Pathirana, N.L. (2024). #DigitalYouth: How children and young people are targeted with harmful product marketing online. Deakin University. Available at: <https://iht.deakin.edu.au/wp-content/uploads/sites/153/2024/06/Digital-Youth-brief-Final-2.pdf>

<sup>22</sup> Gambling Commission. Young people and gambling 2020. (2020). Available at: <https://www.gamblingcommission.gov.uk/statistics-and-research/publication/young-people-and-gambling-2020#files>

<sup>23</sup> Rossi R, Nairn A. What are the odds? The appeal of gambling adverts to children and young persons on Twitter [Internet]. University of Bristol. 2021. Available from: <https://www.bristol.ac.uk/media-library/sites/management/documents/what-are-the-odds-rossi-nairn-2021.pdf>.

<sup>24</sup> VicHealth. "Dark marketing tactics of harmful industries exposed by young citizen scientists." (2023): <https://www.vichealth.vic.gov.au/media-and-resources/citizen-voices-against-harmful-marketing>

social media is defined as use that impairs functioning, over which the user has no control, and which gets in the way of other daily activities and has been estimated to occur in 4-6% of children 5-9 years old,<sup>25</sup> up to 19% of teens,<sup>26</sup> and 9-11% of a college-aged sample.<sup>27</sup> In a nationally representative U.S. sample of 11-15-year-old girls, over one-third stated that they felt “addicted” to social media<sup>28</sup> and many teens report feeling like they spend more time online than they intended.<sup>29</sup> When validated rating scales are used, social media addiction has been found in 5-7% of teens globally,<sup>30</sup> and Gaming disorder in 5-9% of teens.<sup>31</sup>

6. **Sleep disruption** is extremely common in the U.S. According to data from the Centers for Disease Control and Prevention from 2021, 35% of children under 14 years have insufficient sleep<sup>32</sup> and 77% of U.S. high schoolers do not sleep the recommended 8-10 hours overnight.<sup>33</sup> A large body of evidence links longer digital media use to shorter sleep duration, later bedtimes, more overnight awakenings, and daytime sleepiness.<sup>34</sup> A large-scale experiment in 12-19-year-olds found that reducing the use of screen media after 9 pm for 2 weeks improved teens’ sleep onset, total sleep duration, and daytime attention.<sup>35</sup>

7. Designs that influence compulsive use, prolonged use, and poor sleep include message **notifications**<sup>36 37</sup> which can be delivered through the night or school day, often from

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<sup>25</sup> Rega, V., Gioia, F., & Boursier, V. (2023). Problematic media use among children up to the age of 10: a systematic literature review. *International Journal of Environmental Research and Public Health*, 20(10), 5854.

<sup>26</sup> Pontes, H. M., Kuss, D. J., & Griffiths, M. D. (2015). Clinical psychology of Internet addiction: a review of its conceptualization, prevalence, neuronal processes, and implications for treatment. *Neuroscience and Neuroeconomics*, 11-23.

<sup>27</sup> Moreno, M. A., Eickhoff, J., Zhao, Q., Young, H. N., & Cox, E. D. (2019). Problematic internet use: a longitudinal study evaluating prevalence and predictors. *The journal of pediatrics: X*, 1, 100006.

<sup>28</sup> Nesi, J., Mann, S. and Robb, M. B. (2023). Teens and mental health: How girls really feel about social media. San Francisco, CA: Common Sense. Retrieved from [https://www.commonensemedia.org/sites/default/files/research/report/how-girls-really-feel-about-social-media-researchreport\\_final\\_1.pdf](https://www.commonensemedia.org/sites/default/files/research/report/how-girls-really-feel-about-social-media-researchreport_final_1.pdf)

<sup>29</sup> Weinstein, Emily, and Carrie James. *Behind their screens: What teens are facing (and adults are missing)*. MIT Press, 2022.

<sup>30</sup> Boer, M., Van Den Eijnden, R. J., Boniel-Nissim, M., Wong, S. L., Inchley, J. C., Badura, P., ... & Stevens, G. W. (2020). Adolescents' intense and problematic social media use and their well-being in 29 countries. *Journal of adolescent health*, 66(6), S89-S99.

<sup>31</sup> National Academies of Sciences, Engineering, and Medicine (2024). Social media and adolescent health. Washington, DC: The National Academies Press. <https://doi.org/10.17226/27396>.

<sup>32</sup> Centers for Disease Control and Prevention: <https://www.cdc.gov/sleep/data-research/facts-stats/children-sleep-facts-and-stats.html>

<sup>33</sup> Centers for Disease Control and Prevention: <https://www.cdc.gov/sleep/data-research/facts-stats/high-school-students-sleep-facts-and-stats.html>

<sup>34</sup> Brautsch, L. A., Lund, L., Andersen, M. M., Jennum, P. J., Folker, A. P., & Andersen, S. (2023). Digital media use and sleep in late adolescence and young adulthood: A systematic review. *Sleep medicine reviews*, 68, 101742.

<sup>35</sup> Perrault, A. A., Bayer, L., Peuvrier, M., Afyouni, A., Ghisletta, P., Brockmann, C., ... & Sterpenich, V. (2019). Reducing the use of screen electronic devices in the evening is associated with improved sleep and daytime vigilance in adolescents. *Sleep*, 42(9), zsz125.

<sup>36</sup> Alonzo, R., Hussain, J., Stranges, S., & Anderson, K. K. (2021). Interplay between social media use, sleep quality, and mental health in youth: A systematic review. *Sleep medicine reviews*, 56, 101414.

<sup>37</sup> Scott, H., Biello, S. M., & Woods, H. C. (2019). Identifying drivers for bedtime social media use despite sleep costs: The adolescent perspective. *Sleep Health*, 5 (6), 539-545.

social media platforms<sup>38</sup> that tailor notifications to when they will be most effective. Teens point to design features like **infinite scroll, autoplay, algorithms trained to optimize engagement, ephemeral designs, impression and like counts, and push notifications** as mechanisms that extend their use, induce fear of missing out, make them feel compelled to return to media and displace other things they meant to do.<sup>39</sup> Nearly three-quarters of teenagers believe that technology companies manipulate users to spend more time on their products.<sup>40</sup>

8. **Eating disorders** occur in 2.7% of children in the US<sup>41</sup> and body dissatisfaction ranges from 18-56.6% globally.<sup>42</sup> Experts agree that eating disorder predisposition is worsened by social media **algorithmic recommendations** through a process some companies call “preference amplification” in which dieting or fitness content starts to dominate their feed.

9. **Negative social comparison** of popularity, appearance, and happiness commonly occurs in youth using social media, and research suggests it may mediate associations between social media use and negative mood<sup>43</sup> or depression symptoms.<sup>44</sup> Meta’s internal research shows that design features that contribute to negative social comparison include **algorithms trained on engagement** (i.e., so they show more trending accounts like celebrities or beauty influencers) as well as **social quantification** such as like counts<sup>45</sup> In Project Daisy, an internal Meta experiment in which Instagram users were randomly assigned to visible or hidden Like counts, there was a reported 2% reduction in negative social comparison in the users with hidden Like counts. Teen users reported that hiding Like counts made them less likely to care about likes or compare the number of Likes they received with others.<sup>46</sup>

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<sup>38</sup> Radesky, J., Weeks, H.M., Schaller, A., Robb, M., Mann, S., and Lenhart, A. (2023). *Constant Companion: A Week in the Life of a Young Person's Smartphone Use*. San Francisco, CA: Common Sense. Available at: [https://www.common sense media.org/sites/default/files/research/report/2023-cs-smartphone-research-report\\_final-for-web.pdf](https://www.common sense media.org/sites/default/files/research/report/2023-cs-smartphone-research-report_final-for-web.pdf)

<sup>39</sup> OfCom. (2022). *Research into risk factors that may lead children to harm online*. Available at: <https://www.ofcom.org.uk/siteassets/resources/documents/research-and-data/online-research/keeping-children-safe-online/risk-factors-that-may-put-children-at-harm-online/children-risk-factors-report.pdf?v=328565>

<sup>40</sup> Rideout, V., & Robb, M. B. (2018). *Social media, social life: Teens reveal their experiences*. San Francisco, CA: Common Sense Media. Retrieved from <https://www.common sense media.org/sites/default/files/research/report/2018-social-mediasocial-life-executive-summary-web.pdf>

<sup>41</sup> National Institutes of Health. *Eating Disorders*. Available at: <https://www.nimh.nih.gov/health/statistics/eating-disorders>.

<sup>42</sup> Martini, M. C. S., Assumpção, D. D., Barros, M. B. D. A., Mattei, J., & Barros Filho, A. D. A. (2022). Prevalence of body weight dissatisfaction among adolescents: a systematic review. *Revista Paulista de Pediatria*, 41, e2021204.

<sup>43</sup> Nesi, J., & Prinstein, M. J. (2015). Using social media for social comparison and feedback-seeking: Gender and popularity moderate associations with depressive symptoms. *Journal of abnormal child psychology*, 43, 1427-1438.

<sup>44</sup> Cataldo, I., Lepri, B., Neoh, M. J. Y., & Esposito, G. (2021). Social media usage and development of psychiatric disorders in childhood and adolescence: a review. *Frontiers in Psychiatry*, 11, 508595.

<sup>45</sup> Wallace, E., & Buil, I. (2021). Hiding Instagram Likes: Effects on negative affect and loneliness. *Personality and Individual Differences*, 170, 110509.

<sup>46</sup> Harvard Kennedy School Shorenstein Center on Media, Politics and Public Policy. (2023). *Discussion Paper: Case Study on Youth Online Harms – Project Daisy*, Appendix A (p.15-16). Available at: [https://shorensteincenter.org/wp-content/uploads/2023/11/Discussion-Paper\\_Youth-Online-Harms-and-Project-Daisy\\_For-Shorenstein-Publication.pdf](https://shorensteincenter.org/wp-content/uploads/2023/11/Discussion-Paper_Youth-Online-Harms-and-Project-Daisy_For-Shorenstein-Publication.pdf)

As you can see, these design features work together, often tapping into child and teen developmental vulnerabilities, to create pressure to engage, make it hard to disengage, and worsen minors' experiences online. I have heard repeatedly from parents, academics, and other experts that **technology design change is needed to improve children and teens' mental health**, rather than expecting children and families to shoulder all the burden. Design changes to consider for minors include:

- Setting minors' accounts to private by default
- Data privacy and protections against profiling
- Hiding social quantification
- Removal or more options for recommendation feeds, with algorithms trained on wellbeing
- Status settings that normalize being away from platforms
- Batching, muting of notifications overnight or during school hours
- Options to increase the time that ephemeral content is available
- Options to remove designs that prolong engagement

Thank you for your consideration of this testimony and S.69.