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FIRST, DO NO HARM: THE DANGERS OF SOCIAL MEDIA SYSTEMS FOR MINORS

TREO Paper

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Abstract

Can an information system like a social media app become addictive? Are there other negative consequences of social media use, especially for minors? There is increasing scientific support for the “addiction by design” claim and mounds of anecdotal evidence to support it. There are also steps that society can take to address the risks.

Keywords: Social media, abuse, addiction, sextortion.

His is a name you’ve probably never heard — CJ Dawley. As a young teen living in Wisconsin in 2013, CJ appeared normal with a part-time job and hobbies. By his senior year, CJ was promised a free ride to colleges, including top-tier universities. But CJ had one negative aspect of his life — a social media (SM) addiction. He had started using Facebook (FB), Instagram (IG), and Snapchat at age 14, where he posted content about himself. He could not stop looking at his phone and was awake until the early hours of the morning, sometimes messaging others and exchanging compromising photos of himself. Sleep deprivation and body image issues soon followed, but his parents did not notice any apparent warning signs of depression or suicidal ideation. However, CJ fatally shot himself on January 4, 2015. His last moments were spent on SM. He was found with his bloody phone still on and a suicide note written on the envelope of a college acceptance letter. In 2022, CJ’s parents filed a lawsuit against Meta and Snap. Though SM companies have a broad legal liability shield (known as Section 230 of the U.S. 1996 Communications Decency Act) for posted content on their platforms, CJ’s parents and others are hoping for legal consideration based on new allegations that the SM systems are “designed” to be addictive.

1 Addiction by Design

There is scientific support for the “addiction by design” claim. In 2004, researchers found an association between early television exposure and subsequent attentional problems in children (Christakis et al. 2004). Later groundbreaking brain imagery revealed that screens and their apps are indeed *engaging* by design and employ techniques that get individuals to use the product for as long as possible and concluded that fast-paced media is an *uncontrolled experiment* on the next generation of children. SM platforms have continued this experiment by offering innovative and practically indispensable (“*killer*”) apps that can indeed be useful, if controlled and properly applied. However, the initial promise that SM provides more *connectivity* to others has morphed into something else. The immediacy and vast geographic reach of SM via the Internet allow digital connections to far more than just friends and family and come with negative effects.

Sadly, this experiment is not going well. In 2012, brain imaging studies conclusively showed that addiction from excessive screen exposure can neurologically damage a youth’s developing brain, causing the dense gray matter in the prefrontal cortex of the brain (which helps with regulation, control, and consequential thinking) to *shrink*, mitigating decision-making abilities (Lin et al. 2012). The brain’s myelin sheath (which allows electrical impulses to transmit quickly and efficiently along the nerve cells) is abnormal in substance and immersive screen abusers. In 2016, researchers scanned teenagers’ brains

while they scrolled through their IG feeds, finding that the reward systems in the teens' brains lit up and stimulated the release of dopamine, a brain chemical involved in cravings and desire. When a group of teens in their research saw a SM photo with many *likes* compared to another group who viewed the same photo with just a few *likes*, the teens in first group had a significantly higher probability of *liking* it themselves, reacting differently to information believed to have been endorsed by their peers, even strangers (Sherman et al. 2016). In 2018, the National Institutes of Health sourced a study that would scan the brains of 11,000 nine- and ten-year-olds for a decade to see the effects of screen time. Preliminary results found significant differences in the brains of some who used screens for hours daily versus those who did not (CBS News 2018). A study of 12-year-olds concluded that kids who check SM often (up to 20 times per day) may “enter a pathological psychological state, swinging from joy to dread, craving positive electronic reinforcement and fearing any disapproval mirrored in their screens,” confirming that seeing *likes* from posts can become an addiction as it spikes dopamine, resulting in quick pleasure (Maza et al. 2023).

These sources reveal that psychological disturbances in youth are often created or exacerbated by SM machine learning recommender algorithms that personalize SM content, including Meta's FB feed ranking on engagement or MSI (Meaningful Social Interaction), a negative feedback loop exposing more content based on previous interactions (CBS News 2021). IG's algorithms exacerbate users' vulnerabilities, like body image or a need to be liked, to keep them engaged on the app and increase young girls' suicide rates (CBS News 2021), as its Feed algorithm bumps up interactive posts.

2 Other Dangers of Social Media Systems

In mid-2023, the Surgeon General of the U.S. issued an advisory about the mental health of U.S. youth and its negative correlation with SM use, citing a growing amount of research. Individual dangers of excessive SM use include affective and cognitive well-being decreases due to envy (Krasnova 2015), higher risk of sleep disturbances (Arginteanu 2023), atrophy of interpersonal social skills, antisocial behavior, stress (Zhong et al. 2021), isolation, social overload, aggression (Fowler et al. 2020), narcissism, ADHD (Kardaras 2017), psychosis, self-harm (Memon et al. 2018), prelude to social contagion (Henderson 2023) (e.g. TikTok Tourette Syndrome (Frey et. al 2022) phenomenon) with faster and exponentially larger reach than television ads in prior decades, and atrophy of one's ability to read, write, and remember. When a youth sees posts, pictures, and videos of others who they think *look* (or *are*) better than them, it can result in anxiety, depression, depression contagion (Xu et al. 2013), and suicide (Coyne et al. 2021). Meta's own research confirmed that suicidal thoughts and eating disorders were related to SM use. Human trafficking, illicit drug sales, censoring, disinformation, sextortion, data security risks (as evidenced by TikTok being banned in India, Bangladesh, Pakistan, Nepal, and China), and child sexual abuse material (CSAM) are also negative effects of SM. CSAM increases each year, with 20 million Meta instances in 2022 and more than 36 million total instances in 2023.

CSAM on SM platforms was the topic at a hearing of the U.S. Senate Judiciary Committee on January 31, 2024. The CEOs of Meta, TikTok, X (formerly Twitter), Snap, and Discord testified before the committee, with three CEOs subpoenaed. YouTube's CEO was missing from the hearing even though more kids use Google's YouTube than any other platform (Anderson et. al 2023). The committee chair showed a video of victims of online child sexual exploitation. Parents of such children were also there, raising signs with images of children lost to suicide or who died after purchasing unsafe drugs on Snapchat. Activist teens wore tee-shirts which read, “I am worth more than \$270” in response to Meta's CEO, Zuckerberg, who suggested that Meta estimates the lifetime value of a teen user at \$270, while one senator replied: “Children are not your priority. Children are your product” (PBS.org 2024). Zuckerberg repeatedly retorted that Meta's job was to make industry-leading tools, suggesting that absolved Meta from the responsibility of protecting its users. However, it would be incredulous for a company in another industry, like Boeing in the aerospace industry, to suggest that the company's job was to manufacture industry-leading jets but not make the *safety* of those machines and their travelers a

top priority, as the FAA could ground such jets. Yet, no such governmental” agency exists for the SM industry, and individuals who have been harmed by one of the SM giants cannot easily sue the company because of Section 230. SM companies do not have the motivation to put minors’ safety first on their platforms. Their tools and algorithms are optimized for *sustained user engagement*, not safety.

3 New Legislative Actions, Lawsuits, and Best Practices

Multiple televised hearings have been held on SM abuses at the federal level. On the Senate Judiciary Committee, bipartisan agreement is *unanimous* on protecting minors from SM dangers. Yet, neither legislation nor meaningful reforms have been passed into law. The Kids Online Safety Act would require tech platforms to provide user safeguards, restrict access to minors' personal data, provide tools to supervise minors' platform use, control privacy, disclose details of personalized recommendation systems, allow users to report specific harms, ban advertising of age-restricted products or services to minors, and report on current and predicted risks of SM harm to minors, while the STOP CSAM Act would make it easier for victims of child exploitation to sue tech companies and increase accountability and transparency for platforms (<https://www.congress.gov/bill/118th-congress/>).

The SM industry could be regulated. Legal immunity via Section 230 could be removed, as it has prevented individuals from suing SM companies for a harmful product, unlike virtually every other industry in the U.S. In 2023, 33 U.S. states filed lawsuits against Meta, alleging it had deliberately engineered IG and FB to be addictive to minors via its infinite scroll and constant alerts, all while falsely assuring the public that the platforms were safe. Another suit was against YouTube, which collected data from children younger than 13 without parental consent, in violation of the Children's Online Privacy Protection Act. Meta responded that it would hide inappropriate content from teens’ accounts on IG and FB (including posts of suicide, self-harm, and eating disorders), restrict minors from receiving messages from anyone not a followee or connection on IG and Messenger, and provide “nudges” to discourage users from viewing IG content late at night; yet it would not force minors to close the app.

New policies and best practices could immediately reduce the dangers of SM for minors, including:

- 1) Provide educational programs on SM dangers and equip parents with easy-to-use tools to monitor usage, like #TakeItDown (a service of ncme.org) which removes unwanted nude images online;
- 2) Require SM companies to place risks and warnings on SM (like those on tobacco and alcohol);
- 3) Assign a new position to the FCC, the Federal Trade Commission's Bureau of Consumer Protection (BCP), or a new agency to regulate SM companies;
- 4) Require SM companies to release the source code of their recommender algorithms, making the code public and transparent so individuals can see how the algorithms work and request changes;
- 5) Require SM companies to verify the age and identity of users (with a birth certificate or passport) when new accounts are started and display the identity of users instead of aliases;
- 6) Ban all SM for U.S. users under age 14, like Florida has legislated with HB 3 (FLSenate.Gov 2024) and the UK is contemplating, require parental consent for those 14 or 15, and require verification before access is given to minors for pornographic material;
- 7) Require training, testing, and graduated licensing before granting full SM privileges to youth; and
- 8) Ban TikTok due to its Beijing-based parent company ownership unless it divests of its Chinese ownership, its access to U.S. user data, and its abilities to surveil individuals’ sensitive data, use devices for espionage purposes, and spread influence propaganda.

SM companies should first do no harm when disseminating their products to minors. Society should act to prevent more victims of SM addiction, sextortion, or other abuses. As a senator told the SM CEOs recently: “You have blood on your hands (PBS.org 2024),” in part, because they have led the public to believe that their products are safe for minors. The U.S. Congress should hold SM companies accountable for their products, and U.S. citizens must hold Congress accountable. Children should not be the victims of an ongoing uncontrolled experiment. For the sake of our kids and societal flourishing, our technology must not become greater than our humanity.

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