

Addictive Algorithms: The Science, Impact, and Solutions

Christian Chang, Dedeeep Singu, Devarshee Roy, John
Whiteside, Nameera Nadeem, William Lee



INTRO: An Analysis of Social Media's Role in Shaping User Behavior

1. Social media platforms use addictive algorithms to maximize user engagement.
2. These algorithms exploit psychological triggers, leading to compulsive usage.
3. Concerns include mental health impact, loss of productivity, and ethical concerns.
4. Governments and researchers are debating possible solutions.

How Do Addictive Algorithms Work



Step 1.

Social media analyzes user behavior to refine recommendations



Step 2.

Infinite scrolling, autoplay, and push notifications encourage continuous use



Step 3.

Dopamine-driven feedback loops make platforms hard to quit



Step 4.

The "attention economy" prioritizes engagement for ad revenue

Psychological & Mental Health Effects

Dopamine-driven

Interactions lead to dependency and compulsive checking.



Excessive Use

Increased anxiety, depression, and sleep disturbances linked to excessive use.



Low-Esteem

Social validation (likes, shares) fuels comparison and low self-esteem.



Addicted

Young users are particularly vulnerable to these addictive patterns.

Ethical and Legal Concerns



10%

33.19 Million

Are addicted to social media



+54%

User Vulnerability

54% of teenagers find it challenging to give up social media, indicating heightened susceptibility among younger users



\$16.1
million

Exploitation

In 2023, TikTok was fined for misusing children's data and failing to enforce age restrictions effectively.



2.4hrs

Growing Concerns

Screens are not going away any time soon. Screen time has increased by 2.4 hrs over the last four years.

Legislative Actions & Policies



KOSA

Kids Online Safety Act aims to limit harmful algorithmic content

Failure

Wide lawsuit against Meta accuses them of designing addictive features

Consent

Attorney General proposals suggest parental consent for minors' social media

Research

Governments exploring AI oversight and content moderation requirements

Continuing the debate...



Addictive algorithms shape user behavior and mental health outcomes.



Ethical and legal concerns highlight the need for oversight



Policymakers, tech firms, and users must collaborate on responsible solutions



How much control should be placed on tech companies?



REFERENCES

- **Kids Online Safety Act (KOSA):** Aims to limit harmful algorithmic content. [Read More](#)
- **Attorney General's Proposal:** Requires parental consent for minors' social media use. [Press Release](#)
- **Meta Lawsuit:** A coalition of 42 states alleges that Meta knowingly designed its platforms with addictive features, contributing to a youth mental health crisis. [News Coverage](#)
- **Colorado Teen Social Media Study:** Reports increasing daily screen time among young users, correlating with higher levels of disconnection and substance use risks. [Study Overview](#)
- **WHO Report on Teenage Social Media Addiction:** Indicates a near-doubling of problematic social media use among 13-year-old girls in Scotland between 2018 and 2022. [WHO Report](#)
- **Spain Social Media and Mental Health Study:** Identifies correlations between social media addiction and increased rates of anxiety (55%), depression (52%), and aggression (48%). [Research Findings](#)