

# The Impact of Social Media on Mental Health in the United States: The Role of Algorithms

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## ABSTRACT

Social media has revolutionized how people think, connect, behave, and interact with one another. In this paper, we take a deeper dive into Social Media Addiction (SMA), Problematic Social Media Use (PSMU) and the role that engaging algorithms and an attention-driven economy play in the development of these phenomena. We also look at current American policies on this matter, and conclude with evidence-based policy changes and calls to action.

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## Introduction

The rise of social media has been one of the biggest evolutions of the 21st century. What started as a limited messaging service on platforms such as MySpace and Facebook has now turned into a multi-faceted, trillion-dollar industry encompassing the day-to-day lives of most Americans (Wells, 2024).

While social media has facilitated several positive changes over the past decade, studies show that the downsides of largely unregulated and overpopulated platforms create an environment for addiction, unhealthy comparison, social isolation, and spread of misinformation (Costello et al., 2023).

This article explores the consequences of excessive social media use and concerning trends appearing amongst vulnerable groups, including young adolescents and seniors. Focusing on the United States (US), this article reviews current policies implemented to moderate social media platforms and their limitations, as well as suggestions of policy amendments that facilitate healthy social media usage.

## The Dangers of Social Media

Social Media Addiction (SMA) and Problematic Social Media Use (PSMU) are terms used to describe behavioral patterns where individuals engage with social media excessively, leading to negative outcomes (Kuss and Griffiths, 2017).

SMA: Social Media Addiction is a broad term that refers to an individual's compulsive and uncontrollable use of social media, to the extent that it significantly interferes with their day-to-day functioning. The condition resembles other behavioral addictions and may be linked to compulsive checking of posts, social comparison, and an excessive need for social validation (Zhu et al., 2023).

PSMU: Problematic Social Media Use is a clinical term that refers to patterns of use that

cause harm, such as impairment in psychological functioning, increased anxiety, depression, or social withdrawal. It is typically characterized by emotional distress, an urge to use social media even if it is detrimental to other life responsibilities, and a reduction in real-life social interaction (Lopes et al., 2022).

While SMA treats heavy social media use as an addiction, PSMU describes social media use that causes problems in someone's life, without labeling it as an addiction. PSMU is a broader concept, but the two terms are used interchangeably, both capturing the potential negative impacts associated with excessive use (Varona et al., 2022).

Some of the most significant effects of SMA and PSMU include sleep disturbances, mood fluctuations, and a negative impact on academic and work performance (Henzel & Håkansson, 2021).

A growing body of research has identified that the use of social media may trigger similar mechanisms in the brain to other forms of addiction, particularly by activating the reward systems involved in pleasure and motivation (Zhu et al., 2023).

A framework for evaluating harmful social media use includes the Social Media Addiction Scale (SMAS). The SMAS is a validated self-report tool that assesses dimensions such as salience, mood modification, tolerance, withdrawal, conflict, and relapse; such scales are important for identifying at-risk adolescent populations and informing evidence-based policy and intervention strategies. For instance, research utilizing the SMAS has found that higher scores directly correlate with a 15-20% increase in reported depressive symptoms among heavy users (Boer et al., 2021). By quantifying the severity of use, the SMAS allows clinicians to identify at-risk individuals before they reach a crisis point, providing a standardized metric that could eventually inform government-mandated regulation or usage caps on platforms (Ozkaya et al., 2025).

## Adolescent Vulnerability

The impacts of social media exploitation can be observed most closely with young adolescents. According to surveys conducted in 2023, 1,453 adolescents aged 13 to 17 in the US reported constant use of social media (Arora et al., 2024). Studies further show that teenagers who frequently use image-based social media platforms tend to engage more in appearance comparisons and are more likely to develop addictions to social media and online validation (Costello et al., 2023; Vogels & Gelles-Watnick, 2023). Moreover, frequent engagement driven by immediate social rewards (e.g., likes, comments, peer validation), followed by transient satisfaction and subsequent negative emotional states, can often lead to heightened self-consciousness and maladaptive use of social media (Dombak et al., 2025).

## Young Adults & Senior Vulnerability

These effects have also been observed amongst young adults and seniors. US adults aged between 19-32 years old were surveyed regarding their social media use and their Perceived Social Isolation (PSI). PSI can be defined as an individual's subjective sense of having less meaningful or fewer social connections than desired (Bhatti et al., 2017). It was found that participants who spent more than 2 hours a day on social media had twice the odds of reporting high PSI (AOR = 2.0, 95% CI = 1.4, 2.8, p-value < 0.001) compared to the participants in the lowest quartile who spent up to half an hour per day on social media (Primack et al., 2017). Furthermore, participants in the highest quartile of frequency of SMU had greater odds of increased PSI. Moreover, participants who had visited social media websites and platforms  $\geq 58$  times a week had more than triple the odds of increased PSI compared to those who visited such platforms up to nine times per week (OR = 3.4, 95% CI = 2.3, 5.0, p-value < 0.001) (Primack et al., 2017). PSI

scales provide an important foundation for identifying at-risk populations and informing targeted interventions and policy development.

Social media use amongst seniors has also grown dramatically in the past few years, especially after the COVID-19 pandemic (Ragnhildsløkken et al., 2024). Higher levels of social media use were linked with heightened distress, anxiety, and depression, with the root cause being sensitivity to misinformation (Ragnhildsløkken et al., 2024). This sensitivity may stem from lower digital literacy or reduced familiarity with rapidly evolving online environments, which make it more difficult to critically evaluate content. Studies found a strong connection between passive browsing and increased exposure to negative or misleading content, with the fostering of upward social comparisons that undermine well-being. These patterns suggest that sensitivity to misinformation and consumption of distressing information without critical engagement help explain the correlation between increased social media use and poorer mental health outcomes in this population (Kesner et al., 2024).

## The Attention Economy and Its Consequences: The Role of Algorithms

An attention economy can be defined by the idea that human attention is a valuable resource that can be directly translated into profit and earnings (Staff, 2024). Media platforms capitalize on this concept by designing applications with immediate access to an overload of information, convenient messaging, and user-centered algorithms. This has led to concerning trends such as “doom scrolling”, a behaviour characterized by excessive scrolling through content out of boredom, habit, or anxiety (Arora et al., 2024). Companies target users under 18 through these sophisticated algorithms to maximize user engagement.

These algorithms flood users with content that may promote unrealistic body images and unhealthy habits leading to eating disorders, body dysmorphia, and increased exposure to suicidal behavior (Costello et al., 2023). It is also important to note that algorithms widely vary, with some proving to be more addictive than others. For instance, TikTok's "For You" page relies heavily on "content-based filtering" to maximize immediate dopamine hits, whereas Facebook's algorithm pushes "collaborative filtering" to deepen existing social chambers (Guinaudeau et al., 2022; Narayanan, 2023). These algorithms may be harmful in their own ways as the former may contribute to social media addiction whilst the latter may foster social isolation and a narrowed world view.

### Current Policies on the Issue

- Florida recently passed a law banning children under the age of 14 from accessing social media accounts. Social media sites are now required to delete existing accounts in violation of the recent age restrictions or risk facing a \$50,000 fine. The effectiveness of this policy remains limited as age-verification bypasses are common and the law is currently stalled by First Amendment legal challenges from industry teams (Harvard Law Review, 2025).
- States like Utah have pressured the media companies to conduct internal algorithm risk audits to filter content accessible to minors and other vulnerable groups (Costello et al., 2023). However, a 2024 investigation revealed that platforms continued to serve extreme content to younger groups in particular, as a result of a loose enforcement policy and inadequate self-policing (STRIPED, 2024).

### Call To Action/Future Suggestions

The goal of the proposed suggestions is not to eradicate social media applications, but to ensure a safe and mindful experience for all users.

Based on our findings, we propose a few practical initiatives aimed at ensuring safe access for all age groups.

#### 1. Strengthening Legislation and Enforcement Bodies

Social media providers must report back to independent bodies on regular updates and any new information that should be publicly available to establish accountability and discourage unethical activity. Failure to do so should result in a financial or operational penalty. It is important to acknowledge that auditing these algorithms presents several logistical and technical challenges due to proprietary constraints and the "black box" nature of AI. Therefore, surrounding algorithm transparency with standardized frameworks will also be necessary to allow for third-party verification without compromising intellectual property (Casper et al., 2024).

#### 2. Integrating Digital Wellness Education

Educational institutions must incorporate digital wellness education into their curriculum, focusing on psychological impacts and enabling students to develop essential skills in managing digital interactions and making responsible choices. Curricula can include resources for SMA and PSMU to address addictions and develop healthier relationships with social media (Kuss & Griffiths, 2017). Teaching students how to recognize signs measured by tools like the SMAS or indicators such as PSI can also help them self-identify problematic behaviors at an early stage.

#### 3. Assessment of AI-based Algorithms

Careful assessment and auditing of AI-based algorithms should be enforced through structured input from independent auditors, regulatory bodies, and interdisciplinary experts, including psychologists and data scientists. This input should occur at multiple stages, including during initial design, training data selection, pre-deployment testing, and post-deployment

monitoring, to identify biases, harmful content patterns, and unintended psychological impacts.

## Conclusion

SMA and PSMU are evolving public health issues shaped by widespread social media use and an attention economy that incentivizes platforms to capture and monetize user time and engagement. While there are several policies and regulations that have been implemented by the US government, we highlight the need to improve these strategies by going beyond surface-level efforts. Our analysis suggests focusing on continuous reporting of issues, thorough audits/assessments of AI-driven systems, and the development of a more thorough curriculum for digital wellness.

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