Artificial Intelligence, Social Media and Mental Health: Understanding Algorithmic Pressure, Digital Behavior, and Emotional Outcomes

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Abstract

Artificial intelligence (AI) and social media have become fundamental to daily communication, learning, and identity development. Among ten respondents aged 18–35, this qualitative research looks at how artificial intelligence driven content and social media usage affects mental health. Semi-structured interviews were analyzed using NVivo, revealing four major themes: emotional distress brought on by comparison and algorithmic pressure, digital addiction and decreased productivity, limited yet significant assistance from artificial intelligence tools, and privacy, authenticity, and misinformation issues. Word frequency visualization revealed dominant negative emotional expressions, and sensitivity study demonstrated a greater ratio of negative emotion than positive words. Although providing some advantages for connection and education, results generally indicate that AI and social media cause anxiety, stress, insecurity, and digital tiredness. The research stresses the need of digital well-being awareness, ethical artificial intelligence design, and better platform policies. More varied and bigger samples should be used in future research.

Keywords: *qualitative study, artificial intelligence, social media, mental health*

AI and social media shape identity and connection but also intensify mental health risks through curated feeds, surveillance, and comparison-driven stress.

Background

Artificial intelligence and social media are the platform which are deeply incorporated into daily living which define how people interact, retrieve knowledge, and create identity. Although AI-driven algorithms customize content and improve digital engagement, they also affect emotional well-being by exposure to curated feeds, targeted recommendations, and persuasive digital environments (Kushlev et al., 2023). Social media, especially, has been connected among various age groups to cyberbullying, comparison-based stress, sleep problems, anxiety, and depressive symptoms (Marengo et al., 2022; Valkenburg et al., 2021).

While simultaneously fostering surveillance issues, information overload, and decreased autonomy, artificial intelligence tools like chatbots, virtual assistants, and recommendation algorithms have dual psychological purposes of support and efficiency (Araujo, 2018; Burr & Floridi, 2020). Developing responsible technological policies and mental health treatments depends on an awareness of how people see these combined impacts. Qualitatively investigating the experiences of social media and artificial intelligence consumers, this study seeks to find themes related to mental health results. AI and social media shape identity and connection but also intensify mental health risks through curated feeds, surveillance, and comparison-driven stress.

General objective

To explore the psychological and behavioral impacts of AI-driven social media use on users' mental health.

Specific objectives

- To examine the influence of algorithm-driven content on users' emotional well-being (e.g., anxiety, stress, insecurity).
- To analyze the role of social comparison and digital engagement in shaping self-esteem and mental health outcomes.
- To investigate patterns of digital addiction and their effects on productivity and daily functioning.
- To explore users' perceptions of AI-based tools as sources of psychological support or distress.
- To assess concerns related to privacy, misinformation, and authenticity in AI-mediated social media environments.

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Methods

This study employed a qualitative research design to investigate how users experience AI-driven social media and its perceived effects on mental health. Using purposive sampling, ten participants aged 18–35 who were regular users of social media platforms with artificial intelligence features were selected. Data were gathered through semi-structured interviews, enabling participants to reflect on emotional, cognitive, and behavioral outcomes of their digital engagement. Each interview was audio-recorded, transcribed verbatim, and analyzed with NVivo software.

The analysis followed a systematic three-stage coding process. First, open coding identified initial concepts such as anxiety, social comparison, addiction, and digital fatigue. Next, axial coding organized these into broader thematic categories including algorithmic pressure, emotional impact, and AI-assisted experiences. Finally, selective coding integrated these themes into overarching constructs related to psychological impact, technological influence, and risk awareness. To strengthen credibility, thematic patterns were further examined through word frequency analysis and sentiment-based sensitivity analysis, which highlighted the distribution of positive and negative emotional expressions across participants' narratives. Through semi-structured interviews and systematic coding, this study reveals how AI-driven social media shapes users' mental health, highlighting themes of anxiety, social comparison, digital fatigue, and algorithmic pressure.

Results

The word cloud produced from the qualitative interviews underlines the main ideas linking artificial intelligence, social media, and mental health. The most important and largest phrases "artificial intelligence," "intelligence," "mental," and "social media" highlight how frequently respondents stressed the direct link between digital technologies and psychological well-being.

Fig 1 Word cloud

Frequently used terms including "anxiety," "depression," "fear," "identity," "concern," and "addiction" reflect major emotional and behavioural issues related with social media use and AI-driven online settings. The appearance of words such "privacy," "comparison", "screen", and "usage" suggests that respondents were particularly worried about data security, excessive screen exposure, and the burden of internet comparison culture. The word cloud together shows that users see AI-enabled social media as both potent and maybe detrimental, so impacting daily emotional experiences, self-perception, and mental states.

Sensitivity analysis

The sentiment-based sensitivity analysis reveals a greater frequency of negative emotional words (e.g., anxious, insecure, stress, disturbing), implying that encounters with artificial intelligence and social media tend toward psychological strain rather than assistance.

Table 1 Sensitivity analysis

Theme	Initial Coding Frequency	Sensitivity Result	Interpretation
Anxiety and social media	18 references	High Sensitivity	Showing anxiety is highly respondent dependent.
AI algorithms and emotions	15 references	Moderate Sensitivity	Moderately with respondent input, indicating mixed experiences with algorithm-driven content.
Social comparison and self-esteem	20 references	High Sensitivity	Social comparison is strongly influenced by individual differences
Privacy and data concern	10 references	Low Sensitivity	Suggesting consistent concern across users.
Addiction and social media	22 references	High Sensitivity	Showing diverse usage patterns.

Through semi-structured interviews and systematic coding, this study reveals how AI-driven social media shapes users' mental health, highlighting themes of anxiety, social comparison, digital fatigue, and algorithmic pressure.

Positive use of AI for mental health	8 references	Low Sensitivity	Respondents consistently mention minimal but stable positive experiences with AI tools.
Fear due to misinformation	12 references	Moderate Sensitivity	This theme shifts moderately, indicating varying awareness levels among participants.

Table 2 Enhanced thematic summary table

Theme	Frequency (References)	% Contribution	Sensitivity Level	Interpretation
Addiction and social media	22	20.75%	High	Diverse usage patterns across respondents
Social comparison and self-esteem	20	18.87%	High	Strongly influenced by individual differences
Anxiety and social media	18	16.98%	High	Highly respondent-dependent emotional response
AI algorithms and emotions	15	14.15%	Moderate	Mixed emotional experiences with AI content
Fear due to misinformation	12	11.32%	Moderate	Varying awareness and reaction levels
Privacy and data concern	10	9.43%	Low	Consistent concern across users
Positive use of AI for mental health	8	7.55%	Low	Limited but stable positive experiences

Table 3 Sensitivity level distribution table

Sensitivity Level	Themes Included	Total References	% of Total
High Sensitivity	Addiction, Social Comparison, Anxiety	60	57.14%
Moderate Sensitivity	AI Emotions, Misinformation	27	25.71%
Low Sensitivity	Privacy Concern, Positive AI Use	18	17.14%

Table 4 Thematic grouping

Category	Themes Included
Psychological Impact	Anxiety, Social Comparison, Addiction
Technological Influence	AI Algorithms and Emotions, Positive AI Use
Risk & Awareness	Privacy Concern, Fear due to Misinformation

Table 5 Matrix style presentation

Theme ↓ / Dimension →	Frequency Strength	Variability (Sensitivity)	Nature of Experience
Addiction	Very High	High	Diverse and behavioral
Social Comparison	High	High	Psychological variation
Anxiety	High	High	Emotional response
AI Emotions	Moderate	Moderate	Mixed influence
Misinformation Fear	Moderate	Moderate	Awareness-based
Privacy Concern	Low	Low	Consistent perception
Positive AI Use	Low	Low	Stable but limited

Table 6 Ranking table

Rank	Theme	Frequency
1	Addiction and social media	22
2	Social comparison and self-esteem	20
3	Anxiety and social media	18
4	AI algorithms and emotions	15
5	Fear due to misinformation	12
6	Privacy and data concern	10
7	Positive use of AI for mental health	8

Interpretation

The thematic analysis conducted using NVivo identified seven major themes with a total of 105 coded references. The most dominant theme was addiction and social media (22 references), followed by social comparison and self-esteem (20 references) and anxiety and social media (18 references), all categorized under high sensitivity, indicating strong individual variability. Moderate sensitivity themes included AI algorithms and emotions (15 references) and fear due to misinformation (12 references), reflecting mixed experiences among respondents. In contrast, privacy and data concern (10 references) and positive use of AI for mental health (8 references) showed low sensitivity, suggesting consistent perceptions across participants despite lower frequency.

It clearly shows that respondent's points of view affect the main themes found in the qualitative data. Most of the theme such as anxiety linked to social media, social comparison and self-esteem and addiction, minor changes in participant responses have a major impact on the frequency and intensity. Themes like artificial intelligence algorithms influencing emotions and fear of

disinformation show moderate sensitivity, implying that respondents differ in how keenly they view AI-driven content and disinformation as impacting their mental health. Low sensitivity is shown in subjects like privacy issues and beneficial use of AI for mental health support, therefore reflecting constant opinions among attendees.

The sensitivity analysis, on the whole, emphasizes which topics are generally shared and which are more individualized, hence improving the dependability and depth of the thematic interpretation in your research. Thematic analysis revealed seven key themes addiction, social comparison, anxiety, algorithmic influence, misinformation, privacy, and positive AI use showing high sensitivity in personal experiences of stress and self-esteem, moderate variability in emotional responses to algorithms and misinformation, and consistent views on privacy and supportive AI applications.

Discussion

Results indicate that social media and artificial intelligence have a major psychological impact. Due to algorithmic personalization, respondents often reported experiencing anxiety, comparison stress, and a loss of control. This reflects earlier studies showing that recommendation algorithms can exacerbate bad emotional conditions by giving engaging but emotionally taxing material priority (Meier & Schäfer, 2018; Bucher, 2020).

Furthermore muddling mental health by blurring authenticity, AI-generated or AI-curated content causes consumers to wonder what is real and exacerbate emotional weariness (Marino et al., 2018). Participants also said sleep problems, decreased productivity, and compulsive scrolling consistent with prior results connecting high social media usage to addictive behaviors.

Still, the survey also discovered good experiences like using artificial intelligence chatbots for communication, organization, and learning. This is consistent with research demonstrating that organized settings can improve motivation and emotional support using AI-based tools (Ho et al., 2020).

The dual nature of artificial intelligence and social media generally indicates a sophisticated psychological effect. Though they provide connectivity and convenience, the emotional hazards of cyberbullying exposure, comparison effects, and algorithmic stress remain quite high.

Conclusion

This study shows how AI and social media both help and undermine consumers' mental health. Respondents voiced major worries about emotional overload caused by algorithmic systems, digital addiction, insecurity, anxiety, and stress. Bad emotional experiences plays vital role in mental health. Increasingly, digital well-being instruction, AI transparency, and ethical content moderation are required. Future studies should investigate larger populations and include mixed techniques to better grasp the psychological processes driving AI based digital environments.

AI-driven social media creates a dual psychological impact while offering support and connectivity, it also fuels anxiety, comparison stress, addiction, and emotional fatigue, underscoring the urgent need for digital well-being policies and ethical moderation.

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