



Short Review paper

The hidden costs of over-reliance on artificial intelligence: emotional, intellectual, and societal consequences

Asnani B.^{1*}, Kumari M.² and Wadhvani L.³

¹Junagadh Agricultural University, Junagadh, Gujarat, India

²Acharya Narendra Deva University of Agriculture and Technology, Kumarganj, Ayodhya, Uttar Pradesh, India

³PM Shri Kendriya Vidhyalaya No. 2, Neemuch, Village Hingoria, Neemuch, Madhya Pradesh, India
bhawana_asnani@yahoo.com

Available online at: www.isca.in

Received 10th August 2025, revised 23rd January 2026, accepted 20th April 2026

Abstract

As artificial intelligence (AI) becomes increasingly integrated into daily life and decision-making, its overuse presents profound challenges that extend beyond technical efficiency. This paper investigates the hidden costs of over-reliance on AI, examining its impact on emotional well-being, human connection, cognitive development, and societal structures. The analysis reveals that excessive dependence on AI erodes emotional depth, reduces genuine human interaction, and diminishes vital social bonds, fostering anxiety, loneliness, and isolation. Critically, it also highlights how routine reliance on AI can degrade critical thinking and problem-solving abilities, leading to cognitive atrophy and increased susceptibility to errors and bias. On an economic and organizational level, the paper discusses how over-reliance risks workforce displacement, deepens economic inequalities, and undermines organizational effectiveness and trust. Factors such as automation bias, lack of AI literacy, and misplaced confidence are explored as key contributors to these issues. The paper concludes by recommending strategies for balancing AI's advantages with the preservation of human intellect and social cohesion, advocating for AI literacy, transparency, and a human-centered approach to technology adoption.

Keywords: Artificial Intelligence, Overreliance, Emotional Well-being, Critical Thinking.

Introduction

Artificial Intelligence (AI) has emerged as one of the most transformative technologies of the 21st century, revolutionizing sectors ranging from healthcare and finance to education and entertainment. Its ability to analyze vast datasets, identify patterns, and offer rapid solutions has introduced unprecedented efficiency and innovation. Organizations increasingly integrate AI into their workflows, while individuals regularly depend on AI-powered tools for information, communication, and decision-making¹.

However, alongside these benefits lies a growing concern: the potential for over-reliance on AI systems that can undermine human capabilities and social structures. Unlike traditional technologies that serve primarily as extensions of human abilities, AI often assumes roles involving cognitive and emotional tasks—functions historically considered uniquely human^{2,3}. This shift has sparked debates about the cognitive and emotional consequences of substituting human judgment with algorithmic prescriptions⁴.

The overuse of AI may lead to an erosion of critical skills such as emotional intelligence, empathy, creativity, and independent decision-making. Moreover, it risks weakening social bonds by replacing authentic human interaction with algorithmically

mediated communication^{5,6}. As AI algorithms shape our experiences, perceptions, and choices, the subtle but pervasive effects on mental health, ethical standards, and societal cohesion demand careful examination^{7,8}.

The rapid advancement and integration of artificial intelligence (AI) into daily life have redefined human interactions, decision-making, and workplace practices¹. While AI offers substantial benefits—instant feedback, personalized experiences, and operational efficiency—its overuse poses significant risks to emotional well-being, intellectual development, ethical standards, and overall societal cohesion. This report explores these risks in depth, examining the subtle but critical consequences of excessive AI reliance on emotions, human connection, decision-making, and critical thinking^{3,4,8}.

This paper explores these hidden costs by investigating how excessive dependence on AI influences emotional well-being, intellectual engagement, workforce dynamics, and organizational effectiveness. Drawing on recent research from psychology, behavioral science, and technology ethics, the study seeks to illuminate the risks inherent in unchecked adoption of AI and proposes strategies to balance technological advantages with the preservation of essential human faculties. Recognizing AI as a powerful assistant, not a replacement, for human intellect and connection is crucial to ensuring a future where technology enhances rather than diminishes our humanity^{2,7}.

Methodology

This paper adopts a narrative review methodology to synthesize and analyze existing literature on the psychological, cognitive, societal, and economic consequences of overreliance on artificial intelligence (AI). The aim is to consolidate current findings, highlight emerging risks, and identify strategies for responsible AI integration. Relevant academic and non-academic sources were identified through a systematic search of the following electronic databases and platforms.

Literature-based analysis of AI - overuse

Emotional and Interpersonal Impacts: Reduced Emotional Depth and Understanding: i. Artificial Empathy and Intellectualization of Emotion: AI can simulate empathy through pre-programmed responses but lacks genuine emotional comprehension. Relying on AI for emotional cues may help people identify feelings but may not foster true emotional experience or processing, leading to superficial emotional engagement^{2,6}. ii. Overstimulation and Burnout: Constant interaction with AI-driven platforms creates a culture of overstimulation. The pressure to remain digitally connected can result in emotional exhaustion and hinder overall well-being^{3,6}.

Decline in Human Connection and Social Skills: i. Substitution of Human Interaction: AI chatbots and virtual companions are increasingly used to fulfill emotional needs, risking the erosion of real-life communication skills and nuanced social interaction^{5,6}. ii. Reduced Empathy and Compassion: Over-dependence on AI reduces practice in reading body language and understanding complex emotional situations, ultimately diminishing empathy and compassion⁶. iii. Increased Isolation: Paradoxically, AI companionship may foster loneliness. By replacing meaningful social encounters with algorithmic interactions, users may become more isolated and detached from their communities^{2,3}.

Mental Health Consequences: i. Anxiety, Loneliness, and Depression: The absence of authentic support through genuine human interaction is linked to higher rates of anxiety and depression. Social media platforms—often driven by AI algorithms—intensify these issues through exposure to cyberbullying and unrealistic self-comparisons^{5,8}. ii. Erosion of Community Bonds: The fragmentation caused by AI-mediated interactions weakens community ties, leading to a diminished sense of belonging and social support^{3,6}.

Intellectual and Cognitive Effects: Decline in Critical Thinking and Decision-Making: i. Cognitive Degradation: Over-reliance on AI for routine and complex decisions can erode the ability to think critically and make independent judgments. Users who default to AI recommendations often demonstrate reduced cognitive engagement and decision-making skill^{2,4}. ii. Mental Outsourcing: As AI systems become more capable, individuals may defer intellectual tasks to

machines, resulting in what some experts term “cognitive atrophy.” Workers and students using AI extensively for analysis and problem-solving report decreased confidence in their own abilities and diminished motivation to think deeply or creatively^{2,3}. iii. Susceptibility to Errors and Bias: Overtrust in AI can lead to acceptance of erroneous or biased recommendations, which may undermine ethical standards and cause harm in sensitive contexts such as healthcare, finance, and justice^{4,8}.

Economic and Societal Implications

Workforce and Economic Disparities: i. Job Displacement: AI's automation of both routine and knowledge-based jobs may render many roles obsolete, leading to employment redundancy and widened economic inequality. The new opportunities AI creates often require highly specialized skills, exacerbating the gap between skilled and unskilled workers⁷. ii. Erosion of Meaningful Work: The loss of mentally stimulating occupations diminishes avenues for intellectual fulfillment and societal contribution^{1,7}.

Social and Psychological Consequences: i. Loss of Purpose and Identity: As AI assumes more creative and analytical roles, the personal and cultural value once derived from human-centered occupations may decline, negatively affecting self-esteem and life satisfaction^{2,7}. ii. Emotional Recession in Leadership: Leaders may struggle to develop emotional intelligence and empathetic decision-making skills if real-world problem-solving is replaced by algorithmic processes. This limits their ability to inspire, build trust, and foster innovation^{4,6}.

Mechanisms and Risks of Overreliance

Contributing Factors: i. Lack of AI Literacy: Limited understanding of AI's capabilities and limitations causes users to place unwarranted trust in AI outputs^{2,5}. ii. Automation Bias: The tendency to favor AI-generated information over one's own expertise, even in the face of evidence to the contrary, increases risk of error^{4,5}. iii. Confirmation Bias and Cognitive Shortcuts: Users may be more likely to accept AI recommendations that align with their expectations or emotional state, further embedding automation bias⁴.

Organizational Consequences: i. Decreased Team Performance: Ineffective human-AI synergy results from lack of critical oversight, diminishing collaboration and efficiency across teams⁷. ii. Erosion of Trust: Discoveries of AI errors or bias—such as in the COMPAS judicial risk assessment algorithm—can erode public and professional trust in AI technologies^{4,8}. iii. Critical System Failures and Cascading Errors: In high-stakes sectors, overreliance on AI without sufficient human oversight may precipitate systemic failures with far-reaching consequences^{4,7}.

Strategies for Mitigating Overreliance: i. AI Literacy and User Education: Equip users with knowledge about how AI

works, its strengths and limitations, and methods for verifying outputs^{5,7}. ii. Transparency and Explainability: Promote openness in AI systems by providing clear explanations for recommendations, as well as visibility into underlying data and logic^{1,7}. iii. Cognitive Forcing Mechanisms: Integrate prompts and feedback loops that encourage users to question AI guidance before acting⁴. iv. Personalization with Caution: While adapting AI experiences to user need, maintain transparency to prevent false impressions of competence or understanding^{3,7}. v. Promoting Human-Centered Design: Encourage the use of AI as a complementary tool that enhances rather than replaces human expertise, creativity, and emotional intelligence¹⁻³.

Conclusion

The unchecked adoption of AI, while promising, presents substantial hidden costs. From diminished emotional depth and mental health to erosion of critical thinking and worsening economic disparities, overreliance on AI can have far-reaching consequences for individuals and society. To safeguard the unique qualities of human intellect and connection, AI must be used with vigilance, transparency, and a commitment to nurturing human capacities alongside technological advancement.

References

1. Stanford Institute for Human-Centered Artificial Intelligence (2025). Artificial Intelligence Index Report 2025. Stanford University. Website address: https://hai.stanford.edu/assets/files/hai_ai_index_report_2025.pdf. Accessed on: 30/05/2025.
2. Ghaffar, A. (2024). Erosion of human intellect: The hidden costs of over-reliance on AI. *Soft Skills Chronicals*. Website address: <https://www.linkedin.com/pulse/erosion-human-intellect-hidden-costs-overreliance-ai-abdul-enyqf/>. Accessed on: 12/04/2025.
3. Klimova, B., and Pikhart, M. (2025). Exploring the effects of artificial intelligence on student and academic well-being in higher education: A mini review. *Frontiers in Psychology*. Website address: <https://www.frontiersin.org/journals/psychology/articles/10.3389/fpsyg.2025.1498132/full>. Accessed on: 25/07/2025.
4. Klingbeil, A, Grutzner, C., and Schreck, P. (2024). Trust and reliance on AI- An experimental study on the extent and costs of over-reliance on AI. *Computers in Human Behaviour*. Website address: <https://www.elsevier.com/locate/comphumbeh>. Accessed on: 12/04/2025.
5. Anonymous. (2024). Over-reliance on AI: Addressing automation bias today. *Lumenova Blog*.
6. Chawla, A. (2025). Impact of emotional recession by AI on Gen Z. *India Employer Forum*.
7. Organisation for Economic Co-operation and Development (OECD) (2025). The effects of generative AI on productivity, innovation and entrepreneurship. OECD Publishing.
8. The Editorial Team (2024). "AI et al." The perils of overreliance on artificial intelligence by scientists. *Trends in Cognitive Sciences*. Website address: <https://www.sciencedirect.com/science/article/pii/S258891412400011X>. Accessed on: 12/04/2025.