The Impact Of Artificial Intelligence On The Human Brain And Human Life

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***Abstract*—Artificial Intelligence (AI) has expanded beyond domain-specific data analysis to influence human cognition, education, psychological care, and everyday decision-making. Although AI-based tools offer personalized learning, automate complex tasks, and improve access to preliminary mental health support, their increasing use raises concerns regarding cognitive offloading, over-reliance, privacy, and algorithmic bias. This study presents a structured secondary literature review and comparative analysis of research examining the potential impacts of AI on human cognition, psychological well-being, and higher education, with particular attention to studies conducted by researchers affiliated with Indian academic institutions. The review examines how AI can support learning and higher-order thinking by reducing unnecessary cognitive effort and providing timely assistance, while also considering whether excessive reliance on AI-generated information may reduce opportunities for independent reasoning, knowledge retention, and problem-solving practice. It further evaluates the opportunities and limitations of AI-based conversational agents and clinical decision-support systems in mental health care, emphasizing the importance of professional supervision, privacy protection, and ethical safeguards. In higher education, the study explores AI literacy, responsible adoption, and academic integrity in the context of India's educational development goals. A comparative analysis of 10 selected peer-reviewed studies and relevant clinical guidelines will examine their research objectives, methodologies, study populations where applicable, principal findings, and limitations. The review aims to identify research gaps, particularly concerning generative AI use among multilingual Indian student populations, and propose recommendations for responsible AI literacy, human oversight in clinical applications, and assessment practices that encourage independent learning.**

***Index Terms*—Artificial Intelligence, Cognitive Offloading, Working Memory, Human Cognition, Mental Health Informatics, AI Literacy, Higher Education, Academic Integrity.**

I. INTRODUCTION

Artificial Intelligence (AI) has become an important part of modern human life. It is used in education, healthcare, banking, transport and many other areas. AI is a system that can perform tasks like pattern recognition, language understanding, predictions and decision making. By using technologies like machine learning, Natural language processing and deep learning. AI allows computers to perform these tasks which usually require human intelligence.

The use of AI is increasing in everyday activities of humans. Students use AI tools to do assignments, solve programming problems and understand difficult topics. In healthcare AI is used for disease diagnosis and clinical decision making.
That raises the question about its influence on the human brain and behaviour. Human cognition has attention, memory, learning, decision making, creativity and problem solving. But AI gives information quickly and reduces the mental efforts which lead to laziness of the human brain and loss of creativity and problem solving, uniqueness.

As heavy dependence on AI may create challenges like cognitive offloading in which mental tasks are transferred to perform by external systems. AI should not automatically be considered as either harmful or beneficial depending on the purpose of it used. This paper considers the impact of AI on cognition, psychological wellbeing and higher education. While using AI in daily life it is lasting damage to the brain. It is important to consider likely impacts, benefits, limitations and research gaps on it.

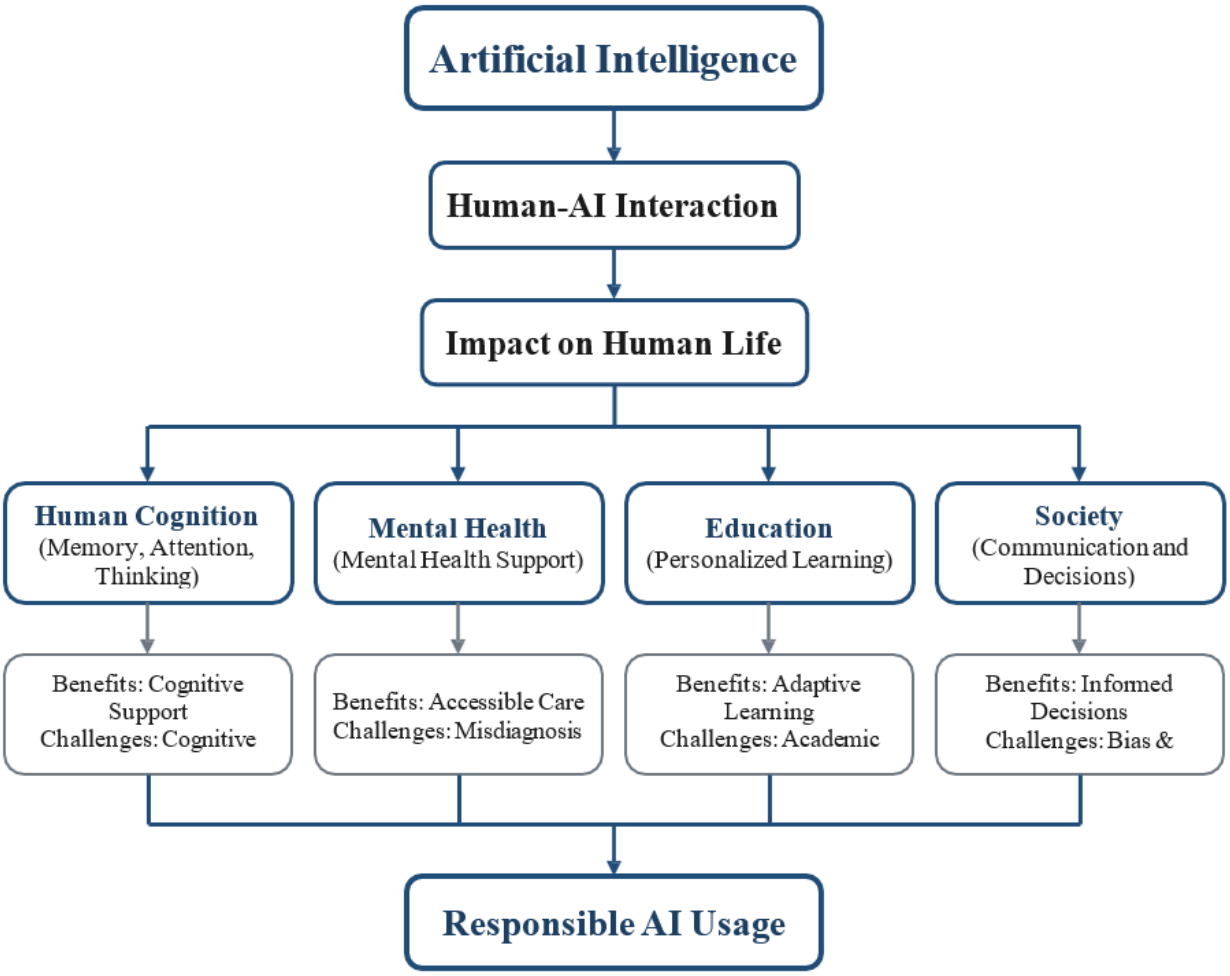


Fig 1. AI's impact on cognition, mental health, education and society.

A. Problem statement

The increasing use of AI in human daily activities has created questions about influence on human cognition and social behaviour. This study review and compare existing literature review to understand the benefits, potential risks, limitations and research gap associated with this topic.

B. Aim

To study the impact of Artificial Intelligence on the human brain and human life by reviewing existing research on cognition, mental health, education.

C. Objectives

- To understand the influence of AI on human cognitive processes, including memory, attention, and decision-making.
- To examine the relationship between AI usage and cognitive offloading.
- To examine the role of AI in higher education and personalized learning.
- To identify the opportunities and challenges associated with AI in everyday human life.
- To identify research gaps and suggest directions for future studies.

II. LITERATURE REVIEW

Artificial Intelligence (AI) has become an important area of research as its influence on human education, healthcare and everyday activities increases. Researchers have examined how the use of intelligent technologies affect people's ability to remember knowledge, decision making, problem solving etc. Although it provides several benefits, growing use raises concern on the dependency on technology and its effect.

A. AI and Human Cognition

In Yadav and Kulkarni [10], the impact of AI on humans is discussed. This includes impacts on attention, memory, decision making, emotions and social interaction. It has been identified that whilst AI can increase efficiency, there are concerns around dependency, and lack of engagement.

In Patra [9] the impact of AI on the human brain is discussed. This highlight benefits of AI to provide individualised and easy access to information. However, excessive dependency, overload of information and effects on mental health have also been raised as concerns.

The impact of AI on humans in Singh [2] is discussed. This outlines various applications of AI in different parts of society, and highlights the importance of balancing AI development with responsible usage.

The application of AI, challenges and trends within human life are discussed in Mulik et al. [3]. The significant increase in AI in different sectors is noted. In addition, technical, social and ethical issues must be considered.

An overview of the impact of AI on society is presented in Mehta and Neti [11]. Opportunities, ethical issues, challenges and future ideas of AI are presented. Overall, this paper contributes towards an understanding of the impact of AI (as a technology) on individuals and society.

Overall, the research indicates that AI can have positive impacts for humans; however, the overall impact of AI will depend on how it is adopted and used by individuals/institutions.

B. AI and Mental Health

Joshi et al. discuss how AI based interventions can be used to treat individuals with depression and anxiety. However, challenges are also discussed. [5]

Beg et al. reviews current and future applications of AI in psychotherapy. This paper discusses how AI can be used to provide efficient and tailored support for patients, with AI being used to treat individuals with anxiety and depression. Ethical issues in using AI in this context are discussed, along with the need to ensure that these interventions are effective and safe. [6] Singh et al. provides guidelines on how AI and digital devices can be used in mental health care to improve wellb eing. Guidelines include making sure they are safely used with awareness, and with the right guidance. [4]

Singh discusses how ChatGPT and other AI can provide both opportunities and challenges within mental healthcare. While AI does have potential to improve mental healthcare, there are concerns regarding reliability, data security and responsibility. [1]

Giri et al. reviews the application of AI in mental health. This has included machine learning, natural language processing and chatbots. Guidelines for human centred, ethical applications of AI and validation are discussed. [13]

C. AI and Higher Education

Rehman et al. [8] provide a literature review on AI literacy in higher education within the context of India’s Viksit Bharat 2047 vision. Benefits to learners include personalisation, adaptive testing, and enhanced research. However, issues include skill development, digitisation and ethical concerns.

Bera et al. [12] examined the acceptance of AI in young people in India using the MIMIC approach. Primarily it focused on students in generation Z (aged between 18-24) in urban areas of India. Other respondents were included. Factors influencing AI acceptance by young people include intention to perform, social influence, digital interaction and perceived ease of use. Evidence was found in regard to behaviour in acceptance of AI. This does not measure any change in recollection and independent thought.

D. Overall Review of Existing Literature

The selected studies cover several dimensions of AI's influence on human life. Studies in cognition explore how users cognitively offload tasks, how attention is affected, effects on memory and decision making. Studies in mental health explore the use of AI in interventions, applications within psychiatry and guidelines. Studies in education explore AI literacy, student adoption, personalization of learning and ethical issues.

However, studies were varied in methodologies and outcomes. They were systematic reviews, narrative reviews, clinical guidelines and empirical studies exploring technology adoption. Therefore, their findings should be interpreted according to the type of evidence each study provides.

III. METHODOLOGY

A. Research design

This paper has a narrative literature review design. Information was gathered from existing sources. The following types of sources were used: research papers, review papers, theoretical papers and authoritative guidance. No new experiments, questionnaires or trials were conducted on human participants. The paper therefore does not contain any novel data on human participants, nor does it make causal deductions from novel experiments.

B. Data Sources

The study uses 16 selected research papers, review articles, and clinical guidelines published between 2020 and 2026.

- AI and human cognition.
- AI applications in psychiatry and mental health.
- AI-supported psychotherapy.
- AI literacy and higher education.
- AI adoption among young Indians.
- Social and ethical implications of AI.

C. Data Collection

Relevant publications were selected according to their relationship with the research topic. Priority was given to studies addressing human cognition, mental health, higher education, AI adoption, and the broader effects of AI on society.



Fig. II. Flow of the structured narrative literature review.

IV. COMPARATIVE ANALYSIS OF SELECTED RESEARCH PAPERS

No.	Author(s) and year	Research focus	Type of study
1	Yadav & Kulkarni (2026)	AI and cognitive transformation	Literature synthesis
2	Patra (2026)	AI and the human brain	Review/discussion
3	Ray et al. (2022)	AI applications in psychiatry	Overview/review
4	Joshi et al. (2025)	AI psychological interventions for depression and anxiety	Systematic review
5	Beg et al. (2024)	AI in psychotherapy	Review
6	Singh et al. (2024)	AI and gadgets for mental health	Clinical practice guidelines
7	Singh (2023)	ChatGPT and mental healthcare	Editorial
8	Singh (2024)	AI impact on human life	Review/discussion
9	Rehman et al. (2025)	AI literacy in higher education	Systematic review
10	Mulik et al. (2026)	AI applications and challenges	Review
11	Mehta & Neti (2026)	AI and society	Comprehensive review
12	Bera et al. (2026)	AI adoption among young Indians	Empirical study using MIMIC model
13	Giri et al. (2025)	AI in mental health	Comprehensive review

V. FUTURE SCOPE

Further research could be carried out in this area by primary data collection and experimental investigation.

Investigating the correlation between level of independent thinking and using generative AI in college students in Nashik, Maharashtra.

- Data could be collected from college students via a questionnaire.

- Comparison between students with different levels of AI use.
- Problem solving and critical thinking skills could be assessed with appropriate tasks.
- Correlation between reliance on AI and independent working in learning.

In an experimental study, the performance in specific tasks could be compared between students completing tasks alone and students using AI assistance. Ethical approval, appropriate consent from participants, and clear research design would be required.

Further research could also examine differences across age groups, educational backgrounds, languages, and levels of digital literacy.

VI. ACHIEVED MILESTONES

1) Finalized the research topic: The Impact of Artificial Intelligence on the Human Brain and Human Life.
2) New research areas identified: cognition, mental health, higher education, and society.
3) Selected 16 relevant research publications from 2020–2026.

Classified the selected publications according to their research focus and study type.

VII. LIMITATION OF STUDY

1) It is based on secondary data and does not include any participant data.
2) The selected Publications use different methodologies and populations for research.
3) This study does not directly measure brain activity, cognitive performance and changes in neurons.
4) The literature review includes different publications, guidelines reviews.
5) The finding should not be considered as the use of AI necessarily Improves or Damages Human intelligence.

VIII. CONCLUSION

1) Artificial Intelligence (AI) is transforming human life by influencing education, healthcare, communication and decision making in everyday activities.
2) At the same time, increasing dependence on AI raises important concerns about cognitive offloading, independent thinking, privacy, reliability, and ethical responsibility.
3) However, studies do not show that there are always adverse effects on long term cognition or brain function, but highlight the importance of understanding how different usages of AI may affect human behaviour.
4) AI literacy should be increased, AI should be responsibly used, monitored by humans, and follow ethical guidelines.

In conclusion, the impact of AI on human brains and human life will depend on how it is designed, implemented and used.

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