OXFORD JOURNAL
OF STUDENT
SCHOLARSHIP

What are the Benefits of Artificial Intelligence in Mental Healthcare?

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ABSTRACT

Globally, millions of people are affected by mental health issues like anxiety, depression, and stress-related disorders. Mental health services are highly sought after, but this access poses a big problem. Patients suffer from long queues, high cost of treatment, and insufficient skills. This review investigates how artificial intelligence (AI), particularly conversational agents, machine learning models, and predictive analytics, can support the care of common mental health conditions including anxiety, depression, and stress-related disorders. Specifically, this review examines how AI is being used to improve accessibility to mental health services, support early detection and diagnosis, and provide personalized treatment interventions. The sources were mainly academic from databases like PubMed, Google Scholar, which contain peer-reviewed journal articles. The search was carried out between December 2025 and May 2026. The findings of the selected studies indicate that AI can have tangible impacts on mental health services. The three general outcomes reported in the literature continually were increased access to care, improved detection and diagnosis of mental health conditions, and the support of personalized care interventions. The studies included in this report illustrate that AI conversational agents can have significant short-term effects on reducing depressive symptoms and psychological distress, especially if used over time (Abd-Alrazaq et al., 2023). AI is also important in enhancing early detection and diagnosis of mental illnesses. Machine learning models are able to process a large amount of data within a short period of time and identify patterns that may not be visible to human clinicians. This helps to identify disorders as early as possible, which is very important for effective intervention. The other significant advantage of AI is that it can aid in individualized treatment. The absence of human connection is one of the key issues that may decrease the efficiency of emotional support offered by AI systems. Although there are tools that seek to emulate empathy, they cannot completely recreate human interaction. The issue of privacy and data security also plays a major role, with AI systems often basing themselves on sensitive personal data. Further studies on AI in mental health care ought to aim at enhancing the long-term effectiveness and reliability of these technologies. AI should be considered as a tool, not a replacement for a clinician, overall.

INTRODUCTION

Worldwide, millions of individuals are suffering from mental health disorders such as anxiety, depression and stress-related disorders. The global prevalence of mental disorders is approximately 1 in 8 people, with the most common disorders being depression and anxiety (World Health Organization, 2023). Mental health concerns are common; in any given year, 1 in 5 people in Canada will have a mental health concern (Government of Canada, 2023).

Mental health services are in high demand, however, access to services is a serious issue. Long queues, costly treatment, absence of qualified personnel is experienced by most patients. Such barriers can delay treatment and exacerbate the outcomes, particularly for patients in under-resourced and/or rural environments. Moreover, there is still significant stigma surrounding mental illnesses such as anxiety and depression. Many individuals fear judgment or discrimination when seeking help, causing them to delay or avoid treatment altogether.

In more recent years, artificial intelligence (AI) has emerged as a possible solution to many of these barriers, and especially in aiding access to mental health services, effective early detection of symptoms, and limited availability of mental health professionals (Luxton, 2019; Torus et al., 2024). AI technologies, such as machine learning algorithms, chatbots, and predictive analytics, are becoming more and more integrated into mental health care systems (Shatte et al., 2021). These technologies are evaluated using measures such as reductions in depression and anxiety symptoms, diagnostic accuracy, user engagement, patient satisfaction, and accessibility to mental health services. Such tools may help in screening, diagnosis, treatment and continuous monitoring of the patient. An example is that AI chatbots can be used to provide immediate emotional support, and machine learning models can be used to analyze large datasets to identify patterns related to mental illness (Abd-Alrazaq et al., 2023).

This review seeks to investigate how AI applications, including conversational agents, machine learning models, and predictive analytics, can improve care for anxiety, depression, and stress-related disorders. Specifically, this review synthesizes recent literature examining how these technologies improve accessibility to mental health services, support early detection and diagnosis, and provide personalized treatment interventions. By bringing together findings from recent studies, this review aims to provide a clearer understanding of the practical benefits and current limitations of AI in mental health care.

METHODS

The approach that will be taken in this study is a literature review approach, which is aimed at investigating the previous studies conducted in the field of using AI in mental health care. Academic

sources were mainly retrieved from PubMed and Google Scholar databases, both of which have access to peer-reviewed journal articles.

The search was carried out between around December 2025 and May 2026. The keywords used were: AI in mental health, artificially intelligent therapy, mental health chatbots, machine learning mental health, and AI psychiatry. The choice of these keywords was aimed at covering a broad spectrum of research in both clinical and technological facets of AI in mental healthcare.

Studies included in the review were chosen with criteria that were clearly stated in the study. To ensure the information was current and relevant, eligible studies were original research papers and systematic review papers published from 2021 to present. Studies included were those that explicitly addressed the use of artificial intelligence for mental health care and that focused on one of the themes examined in this review. Studies also needed to provide quantifiable results of anxiety and depression outcomes, such as symptom reduction, improved diagnostic accuracy, and treatment effect (Shatte et al., 2025). Any research not specifically focused on mental health, non-academic/non-peer-review publications (blog, opinion articles, dissertations or public service annals), absence of a methodology or results section, or duplicate/overlapping publications were excluded.

The selection process started from reading the title of articles and their abstracts for determining their relevance. Around 150 titles were initially found. Full text articles were screened for a total of 50. Of these, 12 studies were finally selected for the final analysis for relevance, quality, and being related to the research question.

RESULTS

Emotional support and accessibility

The findings of the selected studies indicate that AI has tangible impacts for mental health care. Three common findings emerged across the literature: greater access to mental health care, facilitation of identification and/or diagnosis of mental health problems, and provision of personalized interventions.

AI tools can universally support mental health services by improving access via cost, location, and stigma, including by an app or chatbot, which were demonstrated (Abd-Alrazaq et al., 2023; Zhou et al., 2025; Lim et al., 2025). A meta-analysis also reveals short-term decreases in depression, anxiety and stress with conversational agents, with other improvements limited to areas of overall well-being. Likewise, studies that specifically targeted youth showed moderate improvements in depression symptoms and less impact on anxiety and overall mental health.

Early detection and diagnosis

With regard to detection, many studies have found that machine learning models can detect patterns associated with mental health disorders when dealing in large-scale datasets. These systems were found to be effective for the diagnosis, monitoring, and prediction of various conditions such as depression and anxiety (Shatte et al., 2025). Some of these models analyze text, social media communications, speech data and behavioral data derived from online engagements such as text messaging, online posts, questionnaires, or voice recordings. According to research, these inputs can be used to identify the early stages of mental illness and enhance prediction accuracy, such as for clinical outcomes, with the help of AI systems (De Choudhury et al., 2013; Chandrashekar, 2021).

Personalized care

The literature also showed that AI can be applied to aid in personalized care, which can review the information for each individual patient and suggest treatment options. Several studies have found that the more empathetic or tailored the response in an AI system is, the better the user engagement (e.g., easier to use and satisfy) and the better the user outcomes (e.g., higher satisfaction and positive feelings) were (Abd-Alrazaq et al., 2023).

Results however were not consistent in the studies. Although there were general improvements in depression among individuals who utilize AI tools for mental health care, there were differences in results regarding anxiety, and overall well-being. Other studies also indicated that the efficacy of AI interventions might decrease with time (Abd-Alrazaq et al., 2023).

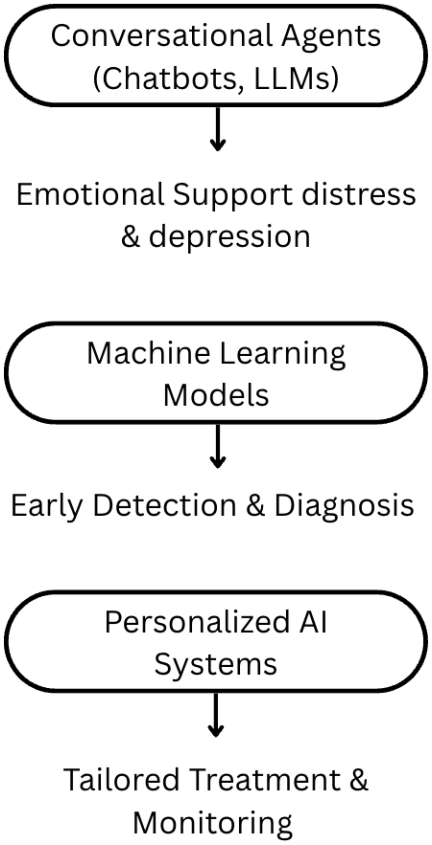

Figure 1: Flowchart of different AI models and their respective uses

DISCUSSION

Accessibility

Increased accessibility is one of the greatest benefits of AI for mental healthcare. AI tools, such as chatbots that mimic supportive conversations and share coping strategies, or mobile apps that enable users to monitor their mood and engage in therapeutic exercises and receive tailored feedback, provide ongoing and instant support for app users (Torous et al., 2024). Many users use chatbots as a "first-line emotional support", which are more like an unjudgemental friend, or a simple therapeutic assistant, that lets users have a scaffolding conversation, provide them with thoughts for reflection to help provide coping skills, and then take them away. These kinds of chatbots simply are not intended for diagnostic therapy, but solely for general therapy and guidance. This is especially crucial for anyone who might not be able to go to traditional therapy for cost, location or stigma reasons.

The studies included here show that AI-driven conversational agents (AIs) have a substantial, short-term impact on decreasing depressive symptoms and psychological distress, especially when utilized consistently over time (Abd-Alrazaq et al., 2023). Scale scores before and after using the intervention for depression and anxiety symptoms are usually compared on standardized scales prior to and following use. Numerous studies document symptom improvement with interaction with chatbots, though generally improvements in other measures of health and wellbeing are modest or do not occur (Zhou et al., 2025). In a related study, Lim et al. (2025) identified moderate treatment benefit for AACs to decrease depressive symptomology in adolescents and young adults (12 to 25 years). But the same review found that anxiety, stress and mental health more broadly had weaker effects, indicating that there may be weaker effects of AI interventions for anxiety than for depression so far.

But don't assume that an accessible design will be an effective design. The user often feels supported and understood, but some research indicates that while symptom reduction can lead to some mental health benefits, they are not necessarily seen long-term (Lim et al., 2025). That means AI tools need to be used alongside conventional therapy to best effect, not as a therapy in themselves.

Early Detection and Diagnosis

AI plays a crucial part in improving the early diagnosis and detection of mental health disorders, too. Machine learning models can process a massive amount of data within a short timeframe, and find patterns that may be hard to spot with human clinicians. This allows detection of disorders at an early stage which is crucial for effective intervention.

The reviewed literature showed that AI has advanced to the point of recognizing depression and anxiety symptoms with various data sources, including written text (through pattern recognition of language), speech (understanding through interviews or phone assessments), and behaviour (tracking digital interactions like smartphone usage or social media activity) (Shatte et al., 2025; Chandrashekar, 2021). Early diagnosis may result in faster treatment, which may lead to better long-term results. Moreover, predictive models can be used to identify people at risk prior to the onset of severe symptoms.

This field, however, still needs additional studies, especially for accuracy in various populations. They could be inaccurate because of the presence of bias in the training data used, which may in turn result in an unequal outcome (De Choudhury et al., 2013).

Personalization

The other significant advantage of AI is that it can aid in individualized treatment. AI can adapt traditional mental health care strategies based on individual responses, mood tracking sessions, engagement metrics, and the nature of the conversation. This may enhance the effectiveness of treatment and patient involvement.

Empathic and personalized AI systems are commonly shown to have better success in fostering positive outcomes in particular, from prior research. It has been reported that people have the feeling of being understood when systems communicate either in their own language or with an emotionally correct response (Abd-Alrazaq et al., 2023; Zhou et al., 2025). Conversational agents that respond to the feedback of the user, and offer recommendations over time, can provide better assistance in keeping users engaged and regulating their emotions. Additionally, AI can support medical care by assessing the reactions to treatment and proposing treatment adjustments.

LIMITATIONS

Although these benefits are promising, there are a number of significant limitations to AI in mental health care. The absence of human connection is one of the key issues that may decrease the efficiency of emotional support offered by AI systems. Although there are tools that seek to emulate empathy, they cannot completely recreate human interaction. The issue of privacy and data security also plays a major role, with AI systems often basing themselves on sensitive personal data. It is possible that such data may be abused or otherwise mishandled. Also, AI systems can be biased and therefore will not yield equal results in the case that the data used to train such models lacks high generalisability (Shatte et al., 2024). The ethical issues, including informed consent, transparency, and accountability also remain unaddressed. For example, patients might not have a clear understanding of how AI systems use their data, and it might not be clear who is responsible in case an AI system makes an error.

FUTURE DIRECTIONS

Further studies on AI in mental health care ought to aim at enhancing the long-term effectiveness and reliability of these technologies. Although most of the studies demonstrate positive short-term results, there is an evident necessity to conduct longitudinal research to determine whether AI-based interventions can be effective over long periods of time.

The other significant direction is the creation of more transparent and explainable AI systems. Most of the existing models are black boxes and as such, clinicians and patients have not been able to interpret how decisions are made. Future steps in work should focus on explainability to gain more trust and make the use ethical.

It is also important to address bias and enhance inclusivity in AI systems. In future research, training data should reflect a wide range of populations to minimize the chances of unequal results. This involves taking into account the differences in age, gender, culture, language, and socioeconomic status when designing and testing AI tools.

Secondly, further studies are needed on how AI can be successfully incorporated into the current healthcare systems. Instead of substituting human clinicians, AI must be employed to support and

improve care. Research needs to be conducted on how cooperation between AI tools and medical professionals can enhance patient outcomes and efficiency of the system.

Lastly, more stringent laws and ethical principles will be required as AI keeps growing in the mental health care sector. More work should be done in the future to develop clear standards of data privacy, informed consent and accountability to ensure that these technologies are used safely and responsibly.

CONCLUSION

AI has the capabilities to improve accessibility to mental healthcare, provide personalization to user healthcare experiences and aid in early detection and diagnosis for mental health issues such as depression and anxiety. The literature reviewed suggests that AI, more specifically conversational agents and language models, can reduce symptoms of depression and assist clinicians in identifying patients that are at risk of developing mental disorders. However, limitations such as bias, transparency, privacy and lack of human empathy continue to remain important concerns. Overall, AI should be viewed as a tool that can assist clinicians, rather than a substitute. Continued research is essential to ensure AI is used safely and effectively in healthcare environments.

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