

# Impact of the AI Dependency Revolution on Both Physical and Mental Health

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*Artificial intelligence (AI) offers capabilities beyond human performance, which has led to the global transformation of various industries, sectors, and other elements of our daily lives. Whether we use an application like Siri to send a text message or facial recognition to access a device, AI is an integral part of everyday technology. Artificial Intelligence has especially been integrated into various healthcare sectors, improving patient health outcomes and overall healthcare delivery. Diagnostic AI systems enhance clinical decision-making, personalizing treatment, and reducing stigma. However, its extensive use raises concerns about dependency, credibility, and its effects on physical and mental health. This research explores the advantages and drawbacks of AI dependency, emphasizing the need to use AI judiciously to safeguard decision-making capabilities. Additionally, trust and confidence in AI is vital for its successful implementation in healthcare. In mental health, AI offers promise for early detection and personalized treatment, addressing accuracy and accessibility limitations. To fully harness AI's potential, ethical concerns, data privacy, and algorithmic bias must be addressed to harness AI's potential in mental health care.*

## INTRODUCTION

Artificial intelligence (AI) is a powerful technology that refers to a machine's ability to stimulate cognitive functions resembling human intelligence. AI surged into the world as early as the 1950s with the application of the Fitts list, which identifies the activities in which men can perform better than technology. (Asan, Bayrak, Choudhury, 2020). Since then, AI applications have exponentially grown as a popular tool in various healthcare deliveries. With capabilities unlike any other technology, AI substantially gained prominence in healthcare settings. Several types of AI technologies are used in the healthcare sector: machine learning and deep learning, language processing, automation, explainable and interpretable AI, and administrative applications (Ergen, 2019). The power of these technologies has increased the use of AI in healthcare due to its contribution to improving patient care, diagnosis, treatment, healthcare system productivity, and ultimately, better health outcomes (Wani, Khan, Thakur, et al., 2022). However, to adopt AI technology in healthcare, building and sustaining trust in its capability to deliver efficient services is crucial. While AI has become an integral part of modern life, it has raised concerns about dependency,

hindering critical thinking and causing overreliance. In the context of mental health, AI, with its machine learning and natural language processing capabilities, offers a promising approach to improving mental health treatment by personalizing care and enhancing accuracy in screening and diagnosis (Graham et al., 2019). Through a collaboration of innovation and ethical values, we can utilize AI to its full potential to provide better healthcare.

## **APPLICATIONS OF ARTIFICIAL INTELLIGENCE**

### **Practical Applications**

The application of artificial intelligence systems can be seen in different sectors ranging from virtual customer service to vehicle transportation, food deliveries, and more (Kennedy et al, 2023). Furthermore, virtual assistants such as Siri and Alexa rely heavily on AI to comprehend and respond to natural language, assisting humans in decision-making, setting reminders, and helping with tasks. Social media applications use AI to elevate features and content, displaying personalized feeds based on one's taste. Today, AI technology is especially being integrated into various healthcare sectors and infrastructure, supporting long-standing challenges faced by healthcare professionals (Davenport et al, 2019). These AI systems have become a part of our society, and although they achieve efficiency, they raise questions and concerns about autonomy and decision-making capabilities. When using AI, educating individuals about its ethical, societal, and psychological implications is extremely important to prevent complications and dependency.

### **Artificial Intelligence in Healthcare**

The demand for healthcare services and professionals is growing exponentially due to increased health concerns in society. Advancements in technology have made it possible for healthcare practitioners to improve patient experience, diagnosis, treatment, and health outcomes. Such technology has also made healthcare accessible by delivering goods and services on apps and online platforms that can be accessed anywhere and at any time. This is highly beneficial to those who do not have nearby healthcare services or specialists nearby. AI-based technology can help reduce US healthcare system costs by USD 150 billion in 2026 (Bohr and Memarzadeh, 2020). AI is not designed to replace the work of physicians entirely; integrating AI applications into healthcare settings is solely beneficial for enhancing the work of physicians and healthcare professionals. It serves as a helping hand in tasks such as clinical documentation, patient outreach, and image analysis.

Precision medicine can be defined as the approach used for disease prevention and treatment that considers the differences in people's genes, environments, and lifestyles (Mesko, 2017). It has been stated, "there is no precision medicine without AI." The combination of AI and the capability of a physician is successful in improving diagnosis. In a competition that consisted of competitors creating computational systems for detecting metastatic breast cancer, the combination of a deep learning algorithm and pathologists' diagnoses increased the pathologist's accuracy to 99.5% (Mesko, 2017). Algorithms can analyze clinical data at larger scales and faster than humans can, aiding healthcare professionals in reducing potential medical errors. With AI, human error is reduced within several data analysis sectors such as data entry, sampling, and data interpretation. Because AI is inhumanly precise and detail-oriented, it has significantly helped reduce human errors, increased patient safety, and improved health outcomes (Choudhury and Asan, 2020). However, to adopt AI technology, it is imperative to first trust its abilities.

## **UNDERSTANDING TRUST IN AI HEALTHCARE**

Trust in AI encompasses clinicians' confidence in the reliability, safety, and ethical compliance in healthcare delivery. Trust is the one psychological mechanism that shapes and evolves the relationship between AI and humans. To understand the definition of trust in the context of AI in healthcare, it is critical to first understand that trust between human beings is defined as a belief in the reliability and ability of someone or something. The same definition must be applied to the context of AI in healthcare because humans are entrusting AI technologies to perform practices that medical professionals do at the same level

of safety and efficiency. The level of trust a user has in an AI system determines the likelihood of the user adopting AI (Asan, Bayrak, Choudhury, 2020). People are more likely to trust an AI system when its system is monitored for accuracy, reliability, and ethical use.

The relationship between AI and humans is much like between a patient and their health care provider. A patient's trust in their healthcare provider (HCP) determines whether they will seek healthcare when needed. Being in a vulnerable state of health requires patients to fully put their trust in the ability of their healthcare providers to deliver the adequate care they need. Without established trust in their HCP, a patient will neglect their health needs, leading to the progression of their health issues. Furthermore, trust is vital for patient compliance with medical treatment, medical advice, and preventative care advised by their HCP. The development of trust in a patient-provider relationship is influenced by the reliability of the provider to accurately diagnose and provide proper treatment plans. Today, it is evident that there is a worldwide decline in patient trust in HCPs. A study conducted at Jimma Medical Center in Southwest Ethiopia found that more than one-third of the patients had low trust in their HCP. This was assumed to be associated with medical negligence and an overall lack of concern from their HCPs (Tegenu Lemma, Tilahun Beyene, Mekoya Jemaneh, et al., 2023). Establishing trust between a patient and HCP is different in every relationship since it is influenced by the unique variety of characteristics of both the patient and HCP individually. Trusting AI should be a reflection of trusting humans. To trust AI, it is imperative to first know what factors are entailed in building trust.

### **Building a Relationship of Trust**

Transparency is viewed as an ethical consideration that helps build trust in AI models. Transparency is necessary for trusting the decision-making of AI, especially when it provides decisions to humans (Liu, 2021). Transparency can be defined as humans' ability to understand an algorithm and how it operates in decision-making. However, when establishing trust in AI systems it is required to understand beyond the algorithm and the whole development of the AI. Albert Meijer proposed three distinct perspectives of AI: virtue, relation, and system. In his proposal, Meijer identified these perspectives on transparency as individual views. However, researchers propose that in the context of AI, transparency should be viewed on three connected levels, the AI system/algorithm, the user interaction, and the social context (Liu, 2021).

To begin improving AI transparency, it is important to understand that the main issue with algorithmic transparency is that AI systems are capable of processing and learning large amounts of data that is humanly impossible to perform. With large datasets at hand, AI systems are prone to producing work riddled with biases. Algorithms are often called "black boxes" because their internal mechanisms are unknown and incomprehensible to users. There are several methods to bring light to these algorithmic black boxes and explain their decision-making (Haresamudram, Larsson, Heintz, 2023).

Furthermore, it is crucial to acknowledge that AI transparency goes beyond comprehending the mechanisms of an algorithm and that it also encompasses human interactions with AI. Transparency in AI falters as AI systems continue to evolve and grow more complex, ultimately affecting the ability of humans to understand how to use AI and the interactions that are made (Haresamudram, Larsson, Heintz, 2023). A lack of a proper understanding of how AI systems operate induces uncertainty in the technology, which leads to a lack of trust. The concept of transparency and trust come hand in hand. If a person does not find AI trustworthy, then there is no reason to use it (Liu, 2021). Reducing uncertainty can be done by making individual-based information about an AI system available for people to explore and understand how the system performs.

Moreover, we can increase AI transparency by looking at the social context of human and AI relationships. Social Transparency (ST) is an approach that incorporates social organizational contexts to enhance the explainability of AI decision-making. It aims to eliminate the perspective of AI algorithms as a "black box". A particular study found that incorporating ST effectively ensures that AI models and their decisions are explained at a level humans can understand (Upol, Vera Liao, Muller, et al., 2021). This information can influence the user's impression of the AI system and their likelihood to adopt the technology (Lin, 2021).

## **PHYSICAL HEALTH**

### **Impact of AI on Physical Health**

Since artificial intelligence is still a relatively new field - and is constantly evolving - there is limited information on how it specifically impacts individuals' physical health; however, this paragraph will delve into some possible implications AI can have on an individual's physical health. The increasing usage of Artificial intelligence in our daily lives can be beneficial and harmful for one's physical health. It is often crucial to limit the usage of AI devices for the betterment of themselves. One can benefit greatly using AI devices as it offers accurate information to their problems and often provides medical diagnosis that helps improve physical health. Furthermore, the introduction of telehealth has made it easier for individuals who don't have a proper commute system or are not in the state to make it to a medical facility to access medical help and consultations when needed. Some examples of AI helping one with physical health are suggesting appropriate meal plans, educating one about physical health, and offering personalized treatment plans (Barth et al, 2022). Furthermore, there are new Artificial intelligence apps that individuals can download to create a personalized meal plan and workout routines based on individual needs. Lastly, through AI applications, one can easily get a complete history of their medical diagnosis, treatment plans, and possible complications without having to transport anywhere to get the results.

Since Artificial intelligence pretty much provides us individuals with all the information we need, it creates a sedentary lifestyle where individuals start neglecting everything and everyone around them and stop prioritizing their personal well-being (Ahmad et al, 2023). This can cause negative consequences such as obesity and other muscular and cardiovascular complications. Rather than working hard to achieve something, individuals tend to rely on artificial intelligence to finish their work, discouraging them to actually use their brain to perform a task (Liu, 2021). Relying on AI websites and softwares results in prolonged screen time for a lot of individuals resulting in body aches, musculoskeletal issues, and obesity. Knowing the difference between using artificial intelligence versus overusing today's generation needs to promote physical well-being.

## **MENTAL HEALTH**

### **Impact of AI on Mental Health**

Shifting the focus from artificial intelligence's impact on physical health, it is crucial to understand and explore its emerging role in mental health and wellness. The increasing dependence on Artificial Intelligence for multiple reasons has beneficially and negatively impacted individuals' mental health. Using AI websites and softwares for research purposes can help individuals gain more knowledge about the topic and give them confidence to talk about it. Furthermore, AI designed mental health apps are often used by people to help cope with their mental health issues without feeling judged providing a safe environment. Since these applications provide solutions to every problem, people can get inspired by this and seek appropriate treatment to help with their mental health (Agapito et al, 2023). Furthermore, AI devices help individuals alleviate stress and have more leisure time as they provide solutions to every problem, causing them to spend less time on things they don't understand.

On the other hand, the increase of Artificial intelligence in businesses results in less manual work and more technology usage, causing people to lose their jobs. Since businesses are relying more on AI devices for business to promote more accuracy and efficiency, employees are losing their jobs causing a toll on their mental health. Most people are dependent on their jobs for financial reasons as they have a family to support and need money for food. Since they are getting jobless, it is causing a toll on their mental health and confidence as they desperately try to find new jobs. Furthermore, sometimes people believe AI for every little detail which can also be incorrect, causing them to be blindsided and educate others with the wrong information. As it is evident that AI affects mental health, AI can ironically contribute to addressing mental illnesses and other aspects of mental health.

## **The Significance of Early Detection in Mental Health**

Mental illness is increasingly recognized as a public health problem, affecting millions of individuals worldwide and causing a significant social and economic burden. Early detection and intervention are critical components of good mental health treatment because they can minimize the total disease burden and improve the well-being of people and communities. In this context, using artificial intelligence (AI) technology such as machine learning and natural language processing presents a viable path for greatly increasing the public health effect of mental health treatment (Graham et al., 2019).

The importance of early detection and treatment in mental health cannot be emphasized in terms of public health. Individuals' quality of life and general functioning can be improved if mental health illnesses are identified and treated as soon as possible. Furthermore, good mental health treatment may relieve the burden on healthcare systems while lowering related economic expenses such as lost productivity and healthcare expenditures. Traditional methods of mental health screening and diagnosis, on the other hand, frequently encounter accessibility, accuracy, and efficiency difficulties, limiting their capacity to fulfill the rising need for mental health services (Ray et al., 2022).

In mental health treatment, artificial intelligence has emerged as a transformational force. Mental health providers may increase their capacity to identify individuals at risk, personalize treatments to their requirements, and improve treatment results by leveraging AI technology such as advanced analytics of data and predictive modeling. Machine learning algorithms can examine massive datasets, such as electronic health records, social media activity, and physiological data, to uncover patterns and indicators linked to mental health disorders (Graham et al., 2019). Natural language processing algorithms may filter through text-based data, such as online interactions or patient narratives, to identify linguistic signs that indicate mental health issues (Ray et al., 2022). One possible use of AI in mental health is screening and diagnosis. According to Taddeo and Floridi (2018), AI-powered screening analyzes vast datasets to find minor patterns indicative of mental health disorders, whereas diagnostic decision support systems enhance clinical decision-making. Given the limits of standard screening procedures, this might lead to more accurate and accessible mental health diagnoses (Taddeo & Floridi, 2018). Having recognized the significance of early detection in mental health and the potential of AI, it's essential to explore how AI's impact on people's mental health shapes our society.

### *AI in Mental Health Screening: The Need for AI in Mental Health*

The rising number of mental health illnesses throughout the world provides a bleak picture of public health. These illnesses show a personal and social toll, ranging from devastating consequences on human well-being to significant economic costs. Untreated or misdiagnosed mental health issues can reduce quality of life, interfere with everyday functioning, and, in the worst circumstances, increase the risk of self-harm or suicide. Given the state of this public health burden, it is becoming increasingly clear that innovative approaches to identifying and supporting people dealing with mental health issues are urgently needed.

Traditional mental health screening procedures, while helpful, are not without flaws. These procedures frequently depend on self-report questionnaires, clinical interviews, or formal assessments during healthcare visits. Unfortunately, these techniques may be prone to biases such as recollection bias, social desirability bias, or underreporting of symptoms due to stigma (Firth et al., 2016). Furthermore, they often provide just a static snapshot of an individual's mental state, collected at a single time. As a result, there is a risk of overlooking small but clinically important changes in mental health status that might occur between sessions.

In response to these flaws, artificial intelligence (AI) has arisen as a ray of hope, promising a powerful solution to the limits of traditional mental health screening. To improve the quality and efficiency of mental health examinations, AI uses predictive models and a wide range of data sources. In this context, machine learning algorithms, a type of AI, are critical. To discover patterns and signs linked with mental health disorders, these algorithms may examine massive datasets containing electronic health records, data from wearable devices, and even information collected from people's social media activities (Ray et al., 2022). AI can detect trends and details that physicians may miss by analyzing large amounts of data over time. For

instance, it can detect subtle shifts in language use, behavioral patterns, or physiological measures that might signify the onset or exacerbation of a mental health disorder.

### **AI-Powered Mental Health Screening**

The capacity of AI to assess a wide range of symptoms and biomarkers to detect underlying mental health disorders is important to its contribution to mental health diagnosis. It may filter through massive databases containing patient records, physiological measures, and psychological assessments to identify patterns and signs associated with certain mental health illnesses (D'Alfonso, 2020). They can, for example, identify individuals at risk of mental diseases such as depression or suicide, and to track their recovery over time (Terra et al., 2023)

Creating diagnostic decision support systems is one of AI's most promising uses in mental health care. These systems use AI's data processing skills to give real-time recommendations to physicians during the diagnosis process. They can provide recommendations based on a patient's medical history, symptoms, and test findings, allowing doctors to make better judgments (Vokinger & Gasser, 2021). Diagnostic decision support systems have the potential to minimize diagnostic mistakes, increase the accuracy of mental health evaluations, and improve overall patient care quality.

Furthermore, AI makes it easier to provide individualized therapy suggestions matched to each individual's specific requirements and circumstances. AI can offer therapies that are more likely to be helpful by assessing an individual's mental health data, including their reaction to various treatments (D'Alfonso, 2020). This individualized approach not only improves treatment outcomes but it also reduces the trial-and-error that is so common in mental health care. AI-based screening solutions have shown to be amazing in terms of accuracy and efficiency. Machine learning algorithms can fast and accurately handle and evaluate massive volumes of data, frequently beating older approaches in diagnostic accuracy (D'Alfonso, 2020). Furthermore, AI can function indefinitely and is not limited by human weariness or prejudice, making it a vital tool for maintaining consistent and objective diagnostic criteria. With a comprehensive understanding of AI-powered mental health screening, we can now shift our focus to the role of AI in mental health diagnosis and its transformative impact on clinical practice.

### **AI in Mental Health Diagnosis**

The use of artificial intelligence in mental health diagnosis is varied. They have transformed clinical psychology and psychiatry by enabling the parsing of large datasets, identifying subtle patterns, and extracting useful insights from various sources (Dwyer et al., 2018). To help detect and categorize mental health illnesses, AI algorithms may examine a wide range of data, including patient history, clinical evaluations, neuroimaging, and genetic information. For example, by evaluating neuroimaging data and recognizing distinct brain activity patterns, machine learning models have proven the capacity to discern between different mental illnesses such as depression and schizophrenia (Dwyer et al., 2018).

One of the most significant contributions of AI to mental health diagnostics is its ability to detect and anticipate problems early on. AI can give insights into mental health disorders by evaluating longitudinal data and tracking changes in patient behavior and symptoms over time (Dwyer et al., 2018). This predictive element of AI is extremely useful in identifying those acquiring mental health issues or relapsing into past conditions. It allows doctors to respond proactively, perhaps preventing symptoms from worsening and improving patient outcomes.

The incorporation of AI into psychiatric practice has been a game changer. Artificial intelligence-powered solutions can help mental health providers by providing diagnostic support, therapy recommendations, and real-time patient monitoring. AI-driven diagnostic decision support systems, for example, may assess patient data and give evidence-based recommendations to physicians during the diagnostic process, thereby improving diagnostic accuracy and clinical decision-making (Dwyer et al., 2018). These systems may be quite useful, especially when dealing with complicated and difficult circumstances.

Furthermore, AI can aid in formulating individualized treatment programs suited to each patient's specific needs. AI can recommend therapy modalities that are most likely to be helpful by assessing a

patient's clinical history, treatment response, and genetic indicators (Dwyer et al., 2018). This individualized approach improves service quality and reduces the trial-and-error that is commonly involved with psychiatric therapy, resulting in more efficient and patient-centered mental health care. As AI revolutionizes mental health diagnosis, its positive impact extends beyond clinical applications, offering numerous benefits that address accessibility, stigma, and efficiency in mental health care.

### **Benefits of AI in Mental Health**

AI-powered mental health technologies can remove obstacles to mental health treatment access. These tools may be implemented through various platforms, including mobile applications and online platforms, making them accessible to a wide range of people (Davenport & Kalakota, 2019). This improved accessibility is especially important in tackling the mental health treatment gap, where a significant percentage of the population lacks access to proper care. AI-powered mental health solutions can help close this gap by giving assistance and services to people who might otherwise go untreated.

Additionally, stigma associated with mental health concerns has long been a barrier to getting assistance and support. AI-based mental health technologies can enable anonymity and privacy, perhaps reducing the fear of judgment and exposure associated with traditional face-to-face encounters (Jansson et al., 2022). Individuals can use AI-powered mental health services in the privacy of their own homes, allowing them to speak up about their problems without fear of societal repercussions. This stigma reduction may inspire more people to seek treatment and support at an earlier stage, thereby avoiding mental health disorders from worsening.

Moreover, AI-based mental health solutions may be scaled up to satisfy the increased need for mental health care. They can help doctors by automating ordinary processes like appointment scheduling and data analysis, which allows mental health practitioners to devote more time to direct patient treatment (Jansson et al., 2022). This enhanced efficiency can assist alleviate mental health personnel shortages and ensure that clients receive timely and effective support. Lastly, AI can evaluate large datasets and provide individualized treatment suggestions based on an individual's unique profile (Davenport & Kalakota, 2019). This tailored strategy increases treatment outcomes, patient participation, and satisfaction. Patients are more likely to follow treatment regimens that are personalized to their requirements and preferences. While artificial intelligence has many benefits, its drawbacks include dependence on AI.

### **AI Dependency**

Recently, artificial intelligence has rapidly advanced and become a prevalent contributing factor in society. AI has positively contributed to new technology advancements and has increased efficiency in various sectors (Eaton, 2023). AI is highly utilized and commonly relied on for simple and mundane tasks, such as decision-making processes has made it a resourceful tool in many areas (Asan et al., 2020). While using AI can increase efficiency and accuracy in completing tasks, it hinders one's critical thinking and cognitive effort. Furthermore, relying on AI for decision-making and answers can affect people's ability to make decisions for themselves. Dependency on AI is most commonly seen in school settings, in which students misuse AI to help them complete assignments rather than relying on their capabilities. (Ayers et al., 2023) Rather than working hard with integrity and their capabilities, students tend to choose the easier path of relying on Artificial Intelligence to complete their assignments to increase efficiency and accuracy. By being dependent on AI, students are depriving themselves of the vital learning opportunities gained from doing homework. Due to this issue, researchers have raised profound questions about our utilization of artificial intelligence and what boundaries we should establish when using it for our benefit. (Ahmad et al., 2023). In the light of creating proper boundaries, it is important to assess the ethical considerations of AI.

## **ETHICS AND LIMITATIONS OF ARTIFICIAL INTELLIGENCE**

### **Ethical Considerations**

One of the most pressing ethical problems with AI in mental health is safeguarding individuals' privacy and the right to informed consent (Naik et al., 2022; Luxton et al., 2016). Access to sensitive personal data, such as medical records, behavioral data, or even biometric information, is frequently required by AI systems. To sustain ethical standards, it is critical to ensure that individuals are completely informed of how their data will be used, who will have access to it, and that their express consent is obtained. Furthermore, to protect against data breaches and unauthorized access, strong data anonymization and encryption mechanisms must be in place (Price & Cohen, 2019).

Informed decision-making and collaborative decision-making procedures between patients and physicians are essential to ethical mental health treatment. Although AI can bring useful insights, it should not replace mental health professionals' function in guiding patients through their care journey (Naik et al., 2022). Ethical issues include ensuring that individuals do not rely too much on AI-generated advice and have access to human knowledge when making key decisions regarding their mental health care.

While ethical considerations underscore the importance of informed and collaborative decision-making in mental health treatment, exploring the limitations of artificial intelligence reveals challenges such as inherent biases that call for preventive measures to ensure equitable healthcare access and foster trust in AI systems.

### **Limitations of Artificial Intelligence**

Inherent biases in AI call for prevention measures and policies to ensure equitable healthcare access and delivery. We can enhance our trust in AI healthcare by ensuring that AI is fair and abides by equality. However, there are instances of inequalities reported across AI algorithms affecting vulnerable groups. These reflections of unfairness impact human interaction with AI technology, which is highly associated with human moral activity, trust. Establishing trust is foundational in placing confidence in AI such delicate tasks in healthcare delivery (Mark, 2020). One of the most adamant challenges in trusting AI to perform like humans do in healthcare is the difficulty in understanding how the AI systems operate. To use technology, it is critical to have a general understanding of how it operates, otherwise it can be difficult to use in some ways. For example, to use a cellphone it is useful to know how its features work so that it is easier to navigate. Any form of technology should be explicable in terms simple enough for the user to comprehend. Another issue that affects trusting AI, is that AI systems are incredibly complex technologies that are prone to creating biases that stem from the properties of their machine learning algorithms. AI can generate biased outcomes due to insufficient or abstracted data.

Overall, bias can arise from various sources and factors incorporated into the foundation of AI systems. Bias can exist in AI because it learns from existing or historical data. If that data consists of biases, then the AI system will learn them and produce them in the tasks it performs. The data collection methods installed into AI systems also contribute to bias production. The datasets that AI systems learn from might favor certain groups, factors, and demographics. This leads to imbalanced datasets that exhibit biases. This is particularly concerning because it can create health inequality and mistrust in AI models (Ganapathi, Palmer, Alderman, et al., 2022).

Bias risk can potentially be unfair and discriminatory to members of groups who are categorized by gender, race, and sexual orientation (Asan, Bayrak, Choudhury, 2020). This issue was seen in a widely used algorithm in AI that was revealed to be exhibiting racial bias, in which Black patients were determined to be sicker than White patients despite being assigned the same level of risk. Authors identified that the algorithm used health costs to determine the level of health needs of the patients. (Obermeyer, Powers, Vogeli, et al., 2019). Such biases are often overlooked, or the clinical user might not be aware of their presence. A lack of trust in AI can also be influenced by transparency, complexity, and reliability. These factors can decrease user trust and adoption of AI technology in healthcare settings.

As we explore the world of artificial intelligence (AI) in mental health care, it becomes evident that we encounter some significant hurdles alongside its promises. One of the most difficult aspects of applying AI

in mental health is assuring the dependability and interpretability of AI systems. Mental health disorders are fundamentally complicated and multidimensional, with few obvious biological signs or well-defined diagnostic criteria. As a result, AI systems may fail to comprehend the data they examine, potentially leading to misinterpretations or false positives (Sun & Medaglia, 2019). The dependability of AI-based predictions and diagnoses becomes critical since incorrect assessments can significantly affect people's lives and well-being.

While AI can potentially improve decision-making processes in mental health treatment, there is considerable worry about over-reliance on AI-driven suggestions. Healthcare providers may be tempted to completely depend on AI algorithms, thus undermining their critical thinking and clinical judgment (Campion et al., 2022). This overreliance may result in a dehumanized approach to care, with the sympathetic and contextual parts of mental health therapy being overlooked in favor of algorithmic solutions. Finding the correct mix between AI assistance and human skill remains difficult.

The use of artificial intelligence in mental health demands the collecting and analysis of sensitive and personal data. While protecting the privacy and security of personal data is critical, it presents a tremendous issue. Unauthorized access, data breaches, and the abuse of mental health data can have serious implications, including stigmatization or discrimination of those suffering from mental illnesses (Sun & Medaglia, 2019). To reduce these dangers, strong data governance and ethical procedures are required.

### **Mitigating Inequities**

AI models are known to potentially exhibit biases due to the values and behaviors embedded within the data it learns from. However, biases are fixable by changing the algorithmic development and the procedures and data that is incorporated into it. The *STANDING Together* (standards for data diversity, inclusivity and generalisability) initiative is an efficient way to address this concern. This initiative aims to develop standards that ensure that health datasets are inclusive and diverse to ensure that AI medical systems have representative data to work with. To achieve this, this initiative identifies who is represented in datasets and how they are represented. *STANDING Together* is an initiative that promotes prioritizing diversity and inclusiveness in health datasets to benefit patients and their health outcomes (Ganapathi, Alderman, Calvert, 2022).

To mitigate potential inequities in AI technology, it is imperative to use strategies to prevent unfairness. It is critical that these solutions ensure that health disparities across vulnerable populations are not advanced and that existing health disparities are eliminated. Mitigating bias begins during the development and implementation of the algorithms within the AI systems. In the initial stage of development, it is important to establish the desired outcomes of the algorithm and to create a hypothesis of the model's performance. Datasets implemented into AI systems are unevenly distributed and representation differs from each dataset. Including diversity and representation in the algorithm design avoids unintentional bias towards vulnerable populations from manifesting. Data diversity and representation can be achieved by incorporating datasets that capture that account for important demographics such as race, ethnicity, social determinants, and culture. (Nazer, Zatarah, Waldrip, et al., 2023).

### **FURTHER RESEARCH**

At last, although a variety of unique information is provided to individuals regarding Artificial intelligence affecting public health, further research regarding this topic is essential as AI is still fairly new and evolving. As healthcare systems are starting to use and rely on AI for certain diagnostics and treatments, it is crucial to investigate its efficiency to prevent further consequences. This research could aid in identifying the most effective strategies to integrate AI into existing healthcare workflows, ensuring seamless collaboration between healthcare practitioners and AI systems. Furthermore, it is critical to investigate the ethical implications of AI in public health. Concerns like data privacy, permission, and the responsible use of AI algorithms in healthcare decision-making should be addressed in research.

## CONCLUSION

In conclusion, trust is fundamental in advancing AI healthcare delivery, emphasizing transparency and building a strong relationship between AI and humans to foster understanding and trust. Simultaneously, the rise of artificial intelligence in daily life has raised concerns about over-dependence, which can lead to reduced decision-making ability and a sedentary lifestyle. To address these issues, we must balance embracing AI's efficiency and preserving human agency, taking ethical measures, promoting transparency, and maintaining personal integrity. The awareness of both the positive and detrimental impacts of AI is crucial for public health, encouraging critical thinking and decision-making skills. In mental health treatment, AI offers promising solutions, including early diagnosis and personalized treatment recommendations, but it's essential to address concerns about AI reliability, interpretability, and privacy. Striking the right balance between AI and human expertise will be vital to realizing AI's potential in transforming mental health treatment and enhancing the well-being of individuals and communities affected by mental illness.

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