EMERGING SCENARIO

The role of artificial intelligence in psychiatry

Dr. M Sree Prathap, MBBS, MRC Psych.[1]

1. Chief Psychiatrist & Medical Director, Shadithya Hospital, Chennai

The artificial intelligence revolution is now transforming the healthcare industry and beginning to have a significant impact in various domains of healthcare, including psychiatry. Using artificial intelligence in psychiatry has both advantages and disadvantages. In this article, I have discussed the pros and cons of utilising artificial intelligence in psychiatric practice.

The list of possible advantages is given below:

Aid in the diagnostic process: Artificial intelligence can help to improve the diagnostic process and assessments. With the assistance of artificial intelligence, we can analyse 'various assessment data' that includes patient histories, corroborative information from family members, interviews, psychometric assessments, reports of various resources, studies of medical records, laboratory tests, and neuroimaging results. This can aid in diagnosing mental health disorders more effectively.

Precise Interpretation of imaging: Artificial intelligence has the capability to examine medical images like X-rays, CT scans, MRI scans, and EEG results. This can aid psychiatrists in identifying different psychiatric disorders and ruling out organic causes. It proves beneficial by delivering precise and prompt diagnoses while also reducing the chances of misinterpretations.

Role of chatbots and virtual therapists: Chatbots and virtual therapies provide round-the-clock support, assisting individuals dealing with mental health issues. Virtual therapists are capable of

- Offering 24/7 online assessment, therapy and support.
- Aiding in symptom monitoring using rating scales like BDI, GHQ, BPRS etc.
- Offering resources for self-help during crisis situations such as suicide risks (e.g. suicide help lines, contacts of NGO organisations etc).
- Providing positive coping strategies

Reducing burden to mental health care professionals: Virtual healthcare assistants can help reduce the burden on psychiatric teams by providing additional support, assistance and help relieve mental health professionals of certain routine tasks. A few examples are given below

- Interacting with patients 24/7.
- Assess and quantify the severity of symptoms using rating scales. E.g. by administering, HAM-D, GAD-7, MADRS etc
- Monitor progress regularly by repeating them periodically.eg repeating MMSE periodically for patients with cognitive difficulties
- Evaluating the therapeutic efficacy of medications
- Checking for medication side effects and monitoring side effects of medications like extra pyramidal symptoms using questionnaires such as Simpson Angus scale etc.
- Addressing their questions and concerns
- Assisting with appointment scheduling and reduce dropout rates
- Offer timely medication reminders and enhance patient compliance which is important for psychiatric patients. By doing so, they can help relieve healthcare providers of certain routine tasks.

These processes are typically time-consuming, and AI can streamline and effectively manage them, helping to improve efficiency in patient care.

***Address for Correspondence:**

Sree Prathap M. Chief psychiatrist & medical director, Shadithya Hospital, Chennai. Email: drsreeprathap@gmail.com

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REDUCING STIGMA AND FEAR

Artificial intelligence can also help reduce stigma, as some individuals may prefer engaging with virtual healthcare assistants, thereby helping to reduce the stigma associated with seeking support for mental health issues. By sharing their symptoms with virtual healthcare assistants, through AI, individuals can do so without fear of judgment, particularly beneficial for those with low self-esteem and reduced confidence levels.

EFFECTIVE TRIAGE SYSTEM

Artificial intelligence can function as a triage system, whereby more intensive care is directed to patients in greatest need by qualified mental health professionals, while less intensive care is allocated to virtual assistants through artificial intelligence.

PSYCHOLOGICAL THERAPIES

In terms of offering psychological therapies, AI can administer cognitive behavioural therapy, behavioural therapies, relaxation training, deep breathing, mindfulness training and problem-solving therapies to assist patients in managing their mental health. There is a wide range of mental health apps driven by artificial intelligence that are available and are effectively used for therapy.

EARLY INTERVENTION

AI can identify specific patterns and markers that can predict the onset of mental health conditions like depression, anxiety, mood disorder and psychosis. By collecting data from various sources such as social media variables and electronic health records, AI can also alert healthcare providers to offer early intervention and help prevent more severe episodes of mental health conditions like depression, anxiety, or psychosis.

RISK MANAGEMENT

Many wearable devices and smartphone applications today are powered by artificial intelligence, enabling continuous monitoring of individuals' data. For example, in patients with dementia who are living alone such devices can be used to monitor the risk of falls, wandering etc.

HELP WITH LIFESTYLE CHANGES

They can assess lifestyle habits to create customized therapy strategies for individuals. AI can also monitor medication side effects by looking for features of metabolic syndrome, (weight, Pulse rate, Blood pressure, Lipid profile, waist circumference, activity levels etc) alerting patients and assisting mental patients in improving their lifestyles.

Artificial intelligence also has the potential to streamline administrative tasks, resource allocation and staff scheduling, ensuring that resources are deployed efficiently. They can help with inventory management and improve healthcare operations.

Access to resources in rural areas: In rural areas with limited access to resources, particularly in developing nations, there is a notable shortage of mental health specialists. In such situations, artificial intelligence can be leveraged to provide services to patients and improve access to psychiatric care.

RESEARCH

AI can play a significant role in supporting new research and new drug development in psychiatry by analysing vast amounts of biomedical data. It can help in identifying potential drug targets and discovering new therapeutic compounds.

Artificial intelligence brings many advantages, but it also comes with various challenges and possible downsides that need to be considered.

LACK THE HUMAN CONNECTION

AI applications such as chatbots or virtual therapists may lack the human connection and empathy that human providers can offer. These virtual assistants cannot fully replicate the understanding and compassion derived from human interactions. In mental health assessments, softer skills such as eye contact, rapport building, establishing therapeutic relationships, and keen observation of patients' emotions and behaviours are crucial. These elements may be lacking in virtual assessments conducted by AI-powered healthcare assistants, potentially compromising the therapeutic rapport patients have with their mental health providers. Unlike artificial intelligence, human beings possess real intelligence and emotions. Virtual assistants lack the spontaneity in interactions and the ability to experience and respond to emotions.

POSSIBILITY OF ERRORS

Artificial intelligence, being algorithm-based, can potentially introduce errors in diagnosis based on the data it processes. Psychiatry, as a specialty, requires intricate clinical judgment bearing in mind individual factors and cultural considerations which AI may struggle to accurately interpret.

DIFFICULTY IN HANDLING COMPLEX CASES

AI systems may not effectively handle complex cases or patients from diverse cultural backgrounds, particularly in psychiatric conditions that lack well-defined diagnostic criteria. Relying heavily on artificial intelligence may result in incorrect treatment plans or unnecessary interventions for patients. They may not be able to tailor their approach to match the cultural nuances of various patient groups, which are instrumental in fostering patient affinity and enhancing overall communication.

ETHICAL CONCERNS

Furthermore, ethical concerns surrounding privacy, data security, and consent are essential considerations in leveraging AI in mental health care. Protecting the confidentiality and responsibly managing sensitive mental health data is crucial. Establishing regulations is vital to uphold trust and safeguard patients' rights in an era marked by increasing reliance on online services and databases, thereby protecting patient privacy amidst potential risks such as data breaches, unauthorized monitoring, and security vulnerabilities in cloud devices storing personal health information.

LACK ACCOUNTABILITY

In the realm of artificial intelligence practice, there are also concerns regarding the legal implications that arise in cases of errors or potential harm to patients, raising questions about responsibility for such outcomes. There is a need for clear guidance to address liability and accountability in situations where technology malfunctions, as the current scenario often lacks defined measures to hold software developers accountable for losses incurred.

LOSS OF JOBS

Increased reliance on AI systems in psychiatric practice could bring about issues such as job displacement and disruptions within the mental health workforce.

Need for Adequate training requirements: Psychiatrists and other mental health professionals require support to enhance their knowledge and receive adequate training on how to effectively integrate tools like ChatGPT into their practice.

Overall, AI applications should be approached with caution in psychiatric care, aiming to 'complement human healthcare providers' rather than entirely replace them. AI is designed to 'augment human capabilities', not to compete with or wholly substitute human intelligence. Establishing a clear AI framework is vital. There is crucial need for collaboration among various stakeholders, including mental health professionals, healthcare administrators, technologists, entrepreneurs, ethicists, and others. This collective effort is imperative to fully grasp the potential of AI and collectively tackle the challenges associated with its application in the mental health domain.

In conclusion, while the use of AI in mental health care holds promise for improving diagnosis and treatment, there are important ethical considerations that must be addressed.

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