Artificial intelligence and mental health

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ABSTRACT
This article presents an overview of AI in mental health care, notably discusses its potential benefits, limitations, ethical implications, and future considerations for the use of AI in mental health care. Carrying out a reflection on the importance that this can have in the quality of life and mental health, emphasizing the uniqueness of the human being, its magical, unpredictability and creative capacity, concluding that AI should never replace the relationship, but on the contrary, be the support. In short, there is the need not to close the doors to reflection.

Keywords: artificial intelligence, mental health.

1 INTRODUCTION

1.1 ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) was originally coined by computer scientist John McCarthy, who defined it as "the science and engineering of creating intelligent machines" (McCarthy, 2007). AI is a rapidly evolving computer science domain that involves the creation of machines and software capable of performing tasks that require human intelligence (Terra et al., 2023). These tasks reproduce human cognitive processes such as learning, reasoning, problem solving, pattern recognition, and predictive inference (D'Afonso, 2020). It can be implemented through hardware or software, in autonomous or distributed systems, and can also manifest as intelligent autonomous agents capable of interacting with their environment and making decisions (Luxton, 2016). Artificial Intelligence can be divided into "weak" AI, designed for specific tasks, and "strong" AI, capable of performing any intellectual task a human being can perform (Terra et al., 2023).

There are already several investigations that suggest that AI may perform as well, or better than that of humans in essential health care tasks, such as diagnosing diseases (Davenport & Kalakota, 2019). Due to the increasing complexity and abundance of data in healthcare, artificial intelligence (AI) is being used more frequently in this domain (Davenport & Kalakota, 2019).

Research on mental health and artificial intelligence (AI) has been increasing rapidly, with deep learning (DL) and machine learning (ML) playing a promising role in the detection of mental illness,

diagnosis, prognosis, treatment support, public health, and clinical research and administration (Zhou et al., 2022). According to Lee et al. (2021), the global burden of mental illness is significant and the shortage of mental health care providers is a major challenge. In this regard, AI can help mitigate this shortage, and the global healthcare AI market is expected to grow significantly.

1.2 USEFULNESS AND BENEFITS

Artificial Intelligence promises to revolutionize diverse sectors of society, including healthcare, transportation, education, and finance, by enabling machines to perform advanced human-like tasks (Abrams, 2021). In mental health services, AI has the potential to support these services by enabling the identification and monitoring of mental health problems in individuals and populations (World Health Organization, 2023).

Applications of Artificial Intelligence in healthcare primarily focus on diagnostic and treatment recommendations, patient engagement and adherence, and administrative tasks (Davenport & Kalakota, 2019). Given the high prevalence of psychiatric disorders and the shortage of mental health care providers, AI has the potential to identify high-risk individuals, provide interventions, and improve the prevention and treatment of mental illness (Lee et al., 2021). Even chatbots, also known as conversational agents or virtual assistants, are gaining interest as a potential mental health tool that offers two benefits: psychoeducation and improved treatment adherence (Vaidyam et al., 2019).

Unlike humans, machines are not affected by factors such as fatigue, burnout or forgetfulness, in this sense, AI offers numerous advantages in performing complex tasks, demonstrating greater efficiency, accuracy and reliability (Luxton, 2016). AI can also be used in monitoring, treatment, prevention, diagnosis, and deep learning by analyzing data from various sources such as wearable devices, electronic health records, and self-reports (Terra et al., 2023).

AI has significant potential to help identify biomarkers and develop better pre-diagnostic screening tools and risk models, it can also contribute to the personalization of mental health care as a long-term goal (Graham et al., 2019). These machines can be programmed with a wide range of evidence-based approaches and administer the most appropriate therapy based on a patient's diagnosis, preferences or treatment progress, as well as increase efficiency and cost-effectiveness (Luxton, 2016; Terra et al., 2023).

Internet-based adjuvant interventions, specifically designed for young people, can be a cost-effective and engaging alternative to avoid losing the benefits of the intervention, as the benefits of these early mental health interventions may not be maintained over time and long-term intervention programmes may be needed to maintain the initial clinical gains (D'Alfonso et al., 2017). Similarly, by harnessing the benefits of social media and examining speech patterns, AI has the potential to aid in the detection of emotional distress and suicidal thoughts, enabling timely support (Terra et al., 2023).

At the societal level, the application of AI technology in care delivery could produce substantial reductions in the long-term costs associated with untreated mental health and behavioural problems (Luxton, 2016).

In short, AI technology offers several advantages, extracts meaning comprehensively from diverse data sources, improves understanding of the prevalence of mental illness and biological factors, monitors treatment progress, and enables remote therapeutic sessions (Graham et al., 2019). These advances also increase human potential in terms of creativity and functionality, increasing productivity (Luxton, 2016). However, artificial intelligence is not without risks (Abrams, 2021).

1.3 IMPLEMENTATION CHALLENGES

Despite strong investments, the implementation of AI in healthcare is still at an early stage (Aung et al., 2021), namely, its application in mental health care and neurobiological research has been limited (Lee et al., 2021). The use of AI in mental health research is still unbalanced, focusing primarily on depressive disorders, schizophrenia, and other psychotic disorders, leaving other mental health conditions understudied (World Health Organization, 2023).

The limited presence of AI in the sector to date and the difficulty of integrating AI into clinical workflows and electronic health record systems have been somewhat responsible for the lack of impact on employment (Davenport & Kalakota, 2019). Furthermore, studies indicate that while AI can help with data analysis and prognosis, it is not likely to fully replace mental health professionals due to the essential human elements in this domain, including empathy, understanding, and the therapeutic relationship with patients (Terra et al., 2023).

While AI can improve diagnostic accuracy and promote understanding of mental illness, the complexity and limitations of data in mental health care pose challenges to the implementation of AI (Lee et al., 2021). According to Aung et al. (2021), one of the main obstacles to implementing AI in healthcare is the availability and quality of data, which is often inconsistent, inaccurate, and lacks normalization, which can limit the scale and accuracy of AI algorithms. In this regard, it is essential that mental health professionals are involved in the development of AI technologies to ensure that algorithms are consistent with validated psychological practices (Abrams, 2021).

AI systems are only as unbiased as the data they are trained with, and if the data is biased, the AI system will perpetuate these trends (Terra et al., 2023). In addition to possible biased outcomes in AI models, data leakage is also a potential problem, with the risk that this information could be used for unintended purposes or accessed by unauthorized individuals (Aung et al., 2021; Terra et al., 2023).

As digital technologies and AI are adopted in mental health care new challenges arise, one of the main challenges is the lack of empirical evidence demonstrating the effectiveness of AI-based interventions in prospective clinical trials, as existing research is mostly preclinical and conducted in

artificial settings (Aung et al., 2021). Similarly, the use of AI in mental health diagnoses raises questions about who is responsible for the accuracy of diagnoses and how decisions are made (Terra et al., 2023). Therefore, it is critical to define clear guidelines for implementing AI and conducting empirical research to demonstrate its real-world benefits (Aung et al., 2021).

AI systems lack the ability to make compassionate, fair, and equitable decisions, fail to self-reflect, self-correct, or consider diversity of perspectives, ethics, and morality (Lee et al., 2021). In this sense, if not mediated, AI can aggravate ethical problems in mental health care, as it entails its own ethical issues, such as equity, inclusion, transparency, accountability, privacy, reliability, and security (D'Alfonso, 2020).

1.4 ETHICAL IMPLICATIONS

In the past, decisions regarding health care were made almost exclusively by humans and the use of intelligent machines to make them or help make them raises questions of accountability, transparency, authorization and privacy (Davenport & Kalakota, 2019). By its nature, mental health care is an area that raises specific ethical and legal considerations, as well as the need for regulation (D'Alfonso, 2020). Thus, the integration of ethics into the development of AI through research and education is necessary and requires adequate resources (Graham et al., 2019).

It is crucial to walk the way forward with the aim of harnessing the potential of AI to support mental health care, while simultaneously addressing the ethical and social implications associated with its use (Lee et al., 2021). It is critical to prioritise the well-being of individuals, alleviate suffering and act ethically and responsibly towards society (Luxton, 2016).

According to Aung et al. (2021), bad decisions made by AI can have serious consequences and therefore it is critical to ensure patient accountability, transparency, privacy and confidentiality when using AI in mental health (Terra et al., 2023).

Ethical concerns such as prejudice, privacy and transparency must be taken into account (Lee et al., 2021). Therefore, psychologists are playing a crucial role in the responsible development and implementation of AI, especially in the area of mental health, notably helping to adapt AI technologies to make them more effective and improve understanding of human behaviour (Abrams, 2021).

Addressing these ethical issues and participating in public debates can lead to the adoption of a universal ethical norm that prioritizes the well-being of patients and ensures a responsible use of AI in healthcare (Aung et al., 2021).

2 FUTURE CONSIDERATIONS

AI represents a paradigm shift, as knowledge and skills are embedded in intelligent machines (Luxton, 2016). It is seen as a key part of the next digital revolution in mental health, but it is important

to consider these issues for the success of its implementation (World Health Organization, 2023). Thus, as digital technologies and AI are adopted in mental health care, it becomes crucial to also explore the concept of therapeutic alliance in digital mental health, since this relationship between a therapist and a patient has a significant impact on therapy outcomes (D'Alfonso, 2020).

Successful integration of AI into mental health care requires careful consideration of stakeholder involvement during the development process, given that AI-based interventions should simplify and speed up processes, rather than increasing the complexity and burden of healthcare professionals (Aung et al., 2021). It is crucial to ensure validity, consider unobserved factors, assess data biases, and identify and mitigate AI errors (Graham et al., 2019).

The field of AI and psychological interventions has yet to be explored, and more research is needed to address the broader ethical and social concerns of these technologies to negotiate the best research (Zhou et al., 2022). It is important that healthcare institutions, as well as government bodies and regulators, create structures to monitor key issues, react responsibly, and establish governance mechanisms to limit negative consequences (Davenport et al., 2019). Collaboration between mental health professionals, ethicists, technologists, and administrators is also crucial to maximize the potential of AI (Luxton, 2016).

Cultivating wisdom requires uniquely human characteristics, such as consciousness, autonomy, and will (Lee et al., 2021). Human input remains crucial, as AI should complement, not replace, the skills and knowledge of healthcare professionals (Aung et al., 2021).
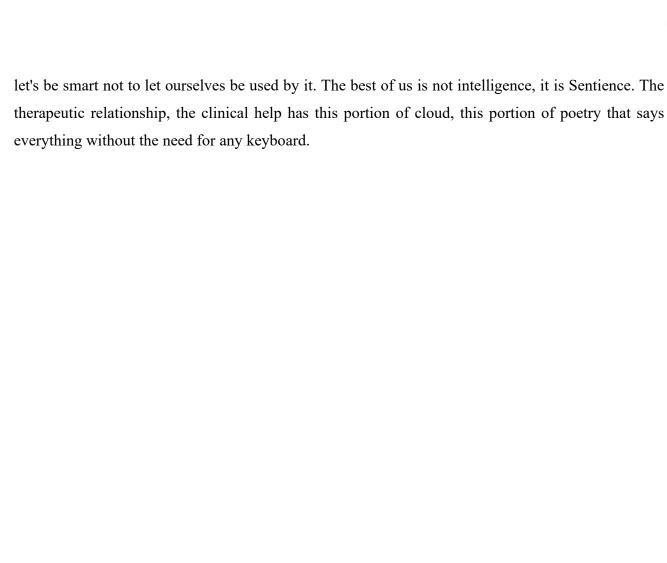
3 CONCLUSIONS

What distinguishes us from the rest of living beings is perhaps the ability to reflect, to create, to leave ourselves to put ourselves in the place of the other. The ability to imagine, to create from something or an idea, to be inspired by looking at a stone and from there to be able to create a castle, a sculpture, an artifact to attach to the chest an amulet, an offering to a loved one, a symbol of resistance, a symbol of struggle, a symbol of a love that is expected, a symbol of a love that is lived, of a love that has been lost, including self-love.

And this ability to connect what is real and what is imaginary, the past the present and the future, which is unique to us, this ability has no name, to try to fit it into any machine, in an application is to crush the human condition, the one that is not measured or defined, the one that cannot be walled off, under penalty of becoming robotic. The one that is not designed with WiFi connections, or Gigabits of memory in the cloud,

This cloud cannot be formatted or fit inside a button, because this cloud is the unique dust that constitutes us, that surrounds us, that becomes consonant with our internal, external experiences, our learning, our pains, our dreams, what we say and the unspeakable. Let's use Artificial Intelligence, but

let's be smart not to let ourselves be used by it. The best of us is not intelligence, it is Sentience. The therapeutic relationship, the clinical help has this portion of cloud, this portion of poetry that says everything without the need for any keyboard.

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