

Chapter 11

AI Chatbots in Mental Health: Are We There Yet?

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ABSTRACT

People with mental health problems often struggle in getting the suitable treatment regarding not only the type of interventions available but also the conditions required for a proper treatment, mainly cost, locality, and frequency. The use of AI chatbots for this population is a new trend and can reduce the gap between the need for mental health care making them accessible in a cost-effective way. Although chatbots are not a substitute for formal treatments, they are sometimes used in tandem with other treatments with positive results. This chapter provides a review on the subject, presenting several chatbots for mental health problems and also addressing some concerns such as privacy, data security, AI limitations, and ethical implications. Future research directions are also discussed.

INTRODUCTION

In 2017, the tech giant IBM stated that Artificial Intelligence (AI) will transform the delivery of mental health care over the next five years by helping clinicians better predict, monitor and track conditions, and that “what we say and write will be used as indicators of our mental health and physical wellbeing” (IBM, 2017). In 2021, we are already seeing some of those promised transformations and positive impacts.

Chatbots, as part of AI devices, are natural language processing systems acting as a virtual conversational agent, mimicking human interactions. While this technology is still in its developmental phase, health chatbots could potentially increase access to healthcare, improve doctor–patient and services–patient communication, or help to manage the increasing demand for health services such as remote testing, medication adherence monitoring or teleconsultations. The chatbot technology allows for activities as specific as health surveys, setting up personal health-related reminders, communication with clinical

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teams, booking appointments, retrieving and analysing health data or the translation of diagnostic patterns considering behavioural indicators like physical activity, sleep or nutrition. Such technology could potentially alter the delivery of healthcare systems, increasing uptake, equity and cost-effectiveness of health services while narrowing the health and well-being gap, but these assumptions require further research.

The development of Cognitive Behavioural Therapy (CBT) chatbots, which mimic normal conversational style to deliver CBT interventions (Kirkpatrick et al., 2017; Inkster et al., 2018) are being developed, however the outcomes are still unclear given the initial stage of research. These advanced chatbots rely on AI techniques to implement the conversational style that mimics a normal conversation as if it were a human being on the other side interacting with the user.

The use of AI chatbots may also increase accessibility by overcoming some barriers associated with stigma in the demand for services. Due to stigma, individuals with psychopathology tend to have reduced social support, being mostly supported by family members. However, users are more prone to perceive chatbots as non-judgmental (Lovejoy et al., 2019). AI chatbots are increasingly being seen by psychiatrists, psychologists, therapists, politicians and tech companies as having a significant role in future mental health treatment and care, with developments in the field being driven by their particular agendas and goals. Nonetheless, it appears that key stakeholders are currently excluded from the discussions about AI in mental health – service users, carers, and families. If rights-based guidelines for ethical AI (AI HLEG, 2019) are to be implemented in mental health, then the implications of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) needs to be considered. The UNCRPD have said that it is essential to involve disabled people (including those with psychosocial disabilities (Szmukler, Daw, & Callard, 2014) and their representative organisations in developments and decision-making that will affect their lives. It is therefore time to assess the situation, to question those who are driving this transformative agenda forward and to listen to excluded experts – those whose lives will be ultimately impacted by these technologies (Carr, 2020).

On the other hand, the current limitations of AI and chatbot technology and lack of knowledge about the real capabilities of the available tools may lead to an inappropriate usage of these technologies as a serious approach to solve mental health issues. Most of the tools and applications available focus on specific subjects or problems e.g. applications to cope with stress, anxiety, addictions are publicly available in the market, but consolidated applications that aim for mental health on its broader spectrum do not exist. This problem is directly related to the maturity level of conversational AI and chatbots, a metric that is described by different authors using different methods and perspectives. Bosek (2018) describes it as a 4-level pyramid based on the features the system delivers, Gadiyar (2020) describes it as a 3-level schema based on the automation and communication skills of the system, Garga (2020) uses a multi-layered ellipse to describe the technology in three major vectors: interaction, intelligence and integration. These three analyses help to demystify a broader romanticized understanding of AI and chatbots that only exist in science fiction and that were popularized by Hollywood movies like “Her” (2013) and “I, Robot” (2004), describing the real limitations and scope of conversational AI.

Data privacy is also a main concern when it comes to healthcare applications. Most of these tools collect, process and store data, in most cases sensitive data such as mental health status that raises all kinds of ethical, legal and moral questions. What software companies do with this data should be a subject of analysis. Even if the main goal is to provide a service with the aim of helping the user, more and more frequently the collected data is used for different purposes, sometimes with little or no knowledge and lack of explicit consent of the user. Moreover, news of data leaks that expose sensitive data of the same users that put trust in an application to collect and store their own personal data, are becoming increas-

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