Embracing artificial intelligence in the field of psychology

Adopción de la inteligencia artificial en el campo de la psicología

Sarah Frances Gordon [1]
https://orcid.org/0000-0001-5131-8519
Universidad Iberoamericana, Mexico City, Mexico

Bernardo Turnbull
https://orcid.org/0000-0001-9663-913X
Universidad Iberoamericana, Mexico City, Mexico

Artificial Intelligence (AI) has become a favourite toy as well as a metaphorical threat to the intellectual world. The place once occupied by nuclear holocaust, or terminal natural disaster, is now replaced by AI, which is now on our doorstep as it sneaks into our lives at 70% of the speed of light and through a 9 μm optical fibre. For as long as humans have managed to make things, the fear of our own creations outsmarting us, going rogue, and getting the better of us has been around in the literature and tradition. Machines start very simply; we then try to improve them and eventually become so sophisticated that they become threatening. Some authors have philosophised the impossibility of creatures turning against their creator: Maelzel's chess playing machine was a ruse, Coppelio fell for his own doll because he was mental, and Isaac Assimov's rules of robotics were to be followed. However, others have dismissed this and went on to produce media that reflects all kinds of dystopic worlds in which our own creations harm and dispose humans for good. Thus, fear of our machines is not new.

As the field of psychology advances, it has become increasingly intertwined with technological advancements, particularly the integration of AI, which presents a new challenge for psychology scholars and researchers. Despite the apprehensions surrounding AI, it has the potential to change the way psychological research is conducted and represents an exciting and evolving frontier for psychologists. This editorial explores the role of AI in psychological research and emphasises how it can be integrated into the existing research and practice.

The increased use of natural language processing (NLP) techniques and large language models (LLMs), such as GPT-4, BARD, and Perplexity, have indicated that AI is no longer exclusive to computer scientists, engineers, and data analysts (Alqahtani et al., 2023). AI has changed how we interact with digital devices to receive personalised recommendations online. These advances have significantly impacted psychology, as researchers leverage the power of AI to enhance their work, from research to patient care and even email management. With the aid of AI-driven tools and techniques, psychologists are delving deeper into the intricacies of human behaviour and cognitive processes by analysing large datasets, extracting meaningful insights, and developing predictive models.

One of the most notable contributions of AI to psychology is its ability to process and analyse large amounts of data (Salah et al., 2023). Using machine-learning algorithms, AI can quickly analyse big data and identify patterns and correlations. This has led to more sophisticated insights into human behaviour and mental processes. For example, AI algorithms can aid in content analysis, thematic analysis, natural language processing, and machine learning analysis, helping psychologists gain deeper insights into social media posts, online forums, and other text-based data sources.

In a recent study, researchers developed an algorithm called "Suicide Artificial Intelligence Prediction Heuristic (SAIPH)" that can predict future suicidal ideation and behaviour by analysing social media users' Twitter accounts (Roy et al., 2020). This study represents a unique contribution to our understanding of how longitu-

dinal environmental factors contribute to individual risk for suicidal thoughts and behaviours. The use of AI to analyse social media data to predict the onset of mental illness was previously unheard of, and the new insights gained by AI have expanded our understanding of psychological disorders.

AI is also changing the treatment of mental health disorders. For example, AI-powered chatbots and virtual therapists are increasingly being used to provide cognitive behavioural therapy, however, we believe there is still no replacement for a well-trained and empathetic human psychologist. Despite our personal beliefs, AI chatbots can make therapy more accessible and affordable (Abrams, 2023). They can help eliminate the stigma associated with seeking mental health treatment by providing therapy in the privacy of their own homes. AI tools can also be programmed to provide personalised treatment plans based on an individual's unique needs and circumstances. However, these chatbots are not replaced by human therapists, but they have the potential to increase efficiency and help psychologists manage administrative tasks (Abrams, 2023).

AI plays a crucial role in cognitive psychology. The development of AI models that can mimic human cognition is helping researchers explore cognitive processes such as decision-making, problem-solving, and memory. Moreover, AI enables the creation of virtual environments for psychological experiments, thereby providing a more controlled and immersive setting for studying human behaviour.

Despite the advances in the field brought on by AI, its use also raises important ethical and methodological questions that must be addressed. AI models are known for generating misinformation and making errors by "hallucinating"; therefore, we need to be cautious. Researchers in the field of AI and health argue that accountability for the errors generated by AI remains a gray area, with no clear entity seen as responsible (Iqbal et al., 2023). These legal issues make the use of AI in mental health services more contentious, as we need to ensure a well-established framework that protects patients from harm (Iqbal et al., 2023). Other ethical issues include privacy concerns, data protection, algorithm transparency, and potential for bias in AI algorithms (Iqbal et al., 2023; Kelly et al., 2019; Terra et al., 2023). AI models also struggle to grasp the social context, which can be a limitation if they are using AI models to augment psychological research (Salah et al., 2023). As researchers and practitioners, we are responsible for carefully considering AI's implications of AI for our work and ensuring that these tools are used responsibly and ethically. It is therefore important that if we want to combine AI with our psychological research and practice, that we are up to date with the latest ethical guidelines, best practices, and technological advancements (Salah et al., 2023),

Furthermore, the use of AI in psychology raises important methodological questions regarding the validity and reliability of research findings. As AI algorithms become more sophisticated, there is a risk that researchers may rely heavily on these tools without fully understanding the underlying assumptions and limitations of the algorithms. This could lead to biased or inaccurate results and undermine the credibility of the psychology field. Therefore, researchers need to be transparent about their use of AI and carefully consider the potential limitations and biases of these tools in their research.

As we embrace the opportunities presented by AI, we must remain vigilant and proactive in addressing the associated threats. Our repertoire of responses can start with panic. We can bring back these film images and fear creating a world in which AI takes over and does our job. Our fear that AI can easily replace us at work, and as a result, we could lose our jobs and become obsolete, therefore losing our value in society, is natural. A few options exist. We can desperately try to stop the advances of AI and go back to the pre-AI century, like teachers who banned the ballpoint pen, convinced of the evil it would do to their students' handwriting and thinking. However, it would be ridiculous to imagine that we can control or supervise the research process to ensure that it is not performed by AI. We could adopt the dogmatic arrogance of stating, with no evidence to our name, that "no machine will ever be able to replace the human mind". While this may very well be true, without a certain foresight that we lack, there is no way to be sure. The other option that we suggest is to take a step back to honestly question what it is we are doing and what it is that a machine cannot do. AI should be used to complement and advance research and practice. We need to ask ourselves: How can AI further the discipline of psychology and help treat mental-health problems? As AI takes over some of our functions, we may have more time to perform what we excel at. We must now determine what that may be.

Therefore, despite the challenges and hesitations surrounding AI, psychologists must embrace the opportunity to become AI-literate. Collaboration with computer scientists, engineers, and data analysts is crucial for

ensuring that AI technologies align with the field's needs and ethical standards. AI offers the opportunity to create innovative methods for studying and treating mental health problems.

In closing, thank everyone who has had the patience to read this far, and now we invite you to try to spot the paragraph of this editorial that was written by AI.

REFERENCES

Abrams, Z. (2023). AI is changing every aspect of psychology. Here's what to watch for. *Monitor on Psychology*, *54*(5), 46. https://www.apa.org/monitor/2023/07/psychology-embracing-ai

Alqahtani, T., Badreldin, H. A., Alrashed, M., Alshaya, A. I., Alghamdi, S. S., bin Saleh, K., Alowais, S. A., Alshaya, O. A., Rahman, I., Al Yami, M. S., & Albekairy, A. M. (2023). The emergent role of artificial intelligence, natural learning processing, and large language models in higher education and research. *Research in Social and Administrative Pharmacy*, *19*(8), 1236–1242. https://doi.org/10.1016/j.sapharm.2023.05.016

Iqbal, J., Cortés Jaimes, D. C., Makineni, P., Subramani, S., Hemaida, S., Thugu, T. R., Butt, A. N., Sikto, J. T., Kaur, P., Lak, M. A., Augustine, M., Shahzad, R., & Arain, M. (2023). Reimagining Healthcare: Unleashing the power of artificial intelligence in medicine. *Cureus*. https://doi.org/10.7759/cureus.44658

Kelly, C. J., Karthikesalingam, A., Suleyman, M., Corrado, G., & King, D. (2019). Key challenges for delivering clinical impact with artificial intelligence. *BMC Medicine*, *17*(1), 195. https://doi.org/10.1186/s12916-019-1426-2

Roy, A., Nikolitch, K., McGinn, R., Jinah, S., Klement, W., & Kaminsky, Z. A. (2020). A machine learning approach predicts future risk to suicidal ideation from social media data. *Npj Digital Medicine*, *3*(1), 78. https://doi.org/10.1038/s41746-020-0287-6

Salah, M., Al Halbusi, H., & Abdelfattah, F. (2023). May the force of text data analysis be with you: Unleashing the power of generative AI for social psychology research. *Computers in Human Behavior: Artificial Humans*, *1*(2), 100006. https://doi.org/10.1016/j.chbah.2023.100006

Terra, M., Baklola, M., Ali, S., & El-Bastawisy, K. (2023). Opportunities, applications, challenges and ethical implications of artificial intelligence in psychiatry: a narrative review. *The Egyptian Journal of Neurology, Psychiatry and Neurosurgery*, *59*(1), 80. https://doi.org/10.1186/s41983-023-00681-z