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Reply to: A response to loneliness and suicide mitigation for students using GPT3-enabled chatbots



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This reply addresses concerns raised in the Matters Arising letter, emphasizing the rigor of our empirical study on student well-being outcomes with ISAs. We clarify methodological decisions, address speculative claims regarding Replika's marketing and usage, and highlight our study's focus on peer-reviewed, evidence-based findings. Ethical considerations and potential conflicts of interest are transparently discussed, reinforcing our commitment to scientific integrity and advancing knowledge in the field of AI and mental health.

We appreciate the opportunity to address the points raised in the Matters Arising letter. Our academic research focused on a rigorous empirical investigation of student well-being outcomes, adhering to established scientific methodology. We address each point raised while emphasizing the importance of maintaining focus on evidence-based findings rather than speculative interpretations.

Regarding Replika's marketing: Our study's scope was deliberately focused on peer-reviewed research and empirical data collection, not marketing analysis. This methodological choice aligns with standard research practices in the field, as exemplified by recent publications in *Nature* and other leading journals. Marketing campaigns, particularly those occurring after data collection, cannot reliably inform conclusions about user demographics or intentions during the study period.

The matter of user demographics: Our study included a diverse participant population with a balanced gender representation (50% male, 37% female, 13% other), as detailed in our Appendix. This empirical data directly contradicts the Matters Arising's speculative assertions about user demographics based on marketing materials. We maintained rigorous scientific standards by focusing on verifiable data, not anecdotal observations.

Regarding ChatGPT comparisons: The suggested comparison with ChatGPT is anachronistic, as our study was conducted in 2021, before ChatGPT's existence. While future research may explore such comparisons, our study's temporal context must be respected when evaluating its findings and methodology.

On company communications: We appreciate the opportunity to clarify that our communications with Replika were limited to essential information required for IRB approval, specifically regarding mental health programming parameters. This interaction followed standard research protocols for ensuring participant safety and ethical compliance.

Regarding potential conflicts of interest: We maintain transparency about professional affiliations while noting important distinctions. The first author's founding of an educational assessment company in 2023 has no financial or intellectual property connection to this research. The suggestion that using machine learning technology constitutes a conflict of interest would imply that nearly all modern technology research faces similar conflicts, an untenable position for advancing scientific knowledge.

Data availability

No datasets were generated or analyzed during the current study.

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Author contributions

B.M., R.P., and A.V. designed the study, A.V. executed participant data collection, and all three jointly coded the data. A.B. and M.C. analyzed the data, and M.C. conducted the statistical analysis. B.M., M.C., and R.P. wrote the main manuscript text. All authors reviewed the manuscript.

Competing interests

After data collection and the first submission, B.M. founded Atypical, an education assessment company. There is no financial or intellectual property connection between this research and the company.

Additional information

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