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Letter to Editor

Artificial Intelligence-Powered Psychological Support for Children with Cancer: Opportunities and Challenges in Implementation

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Dear editor

The psychological toll of cancer treatment on children and adolescents remains a largely neglected domain in paediatric oncology, despite its profound impact on quality of life and treatment adherence. The emergence of generative artificial intelligence (AI), particularly conversational chatbots, offers a promising avenue to deliver continuous, accessible psychological support—especially during nighttime hours when traditional counselling is unavailable. A recent pilot study by Hasei et al. (2025) reported that 4/5 (80%) of paediatric and young adult patients disclosed concerns to a GPT-4–based chatbot that they had never shared with their healthcare team, and significant reductions in anxiety were observed (1). However, given the very small sample size (only five participants) and the lack of a control group, these results should be interpreted as preliminary. Nonetheless, they are encouraging and warrant further investigation in larger, well‑designed studies.

Furthermore, the psychological burden of childhood cancer extends beyond active treatment, as survivors remain at risk for late effects such as second malignancies (2). AI-powered tools could offer proactive monitoring and coping strategies for this growing survivor population, addressing an unmet need in survivorship care.

However, while acknowledging the potential of AI-powered tools, this letter contends that their implementation in paediatric oncology must be approached with caution and guided by rigorous evidence. Several challenges—often overshadowed by the enthusiasm for technological novelty—need to be systematically addressed before these tools can be safely and equitably integrated into clinical practice.

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First, the digital divide remains a formidable barrier. As Puthenpura et al. (2025) have emphasised, disparities in access to technology—driven by socioeconomic status, geography, race, and ethnicity—risk amplifying existing health inequities (3). Without targeted policies to ensure affordable devices, culturally adapted interfaces, and reliable internet connectivity, the benefits of AI chatbots may not reach the most vulnerable populations. Achieving "techquity" requires deliberate investment and multi-stakeholder collaboration.

Second, the statistical evidence base is still nascent. The pilot study by Hasei et al. included only five participants and relied on self-reported outcomes without a control group or long-term follow-up (1). Moreover, many AI studies in healthcare suffer from high risk of bias owing to small samples, lack of external validation, and inappropriate handling of missing data (4). To move forward, large-scale, multi-centre randomised controlled trials with standardised outcome measures, and transparent reporting using established frameworks such as CONSORT-AI and SPIRIT-AI (which are specifically designed for AI interventions), are urgently needed. Additionally, real-world deployment studies should consider the DECIDE-AI framework for comprehensive evaluation.

Third, ethical and clinical integration poses substantial challenges. The sensitive nature of psychological data from children demands robust privacy protections, clear consent procedures, and secure data governance. Furthermore, over-reliance on AI could inadvertently depersonalise care or lead to inappropriate responses in crisis situations. The SchoolCare trial—a Danish randomised study investigating telepresence robots for social and academic support in children with cancer—offers a valuable model for how technology can be integrated while preserving human oversight and connection (5). Similar hybrid models, where AI complements rather than replaces human therapists, are advocated.

Fourth, the long-term sustainability and cost-effectiveness of AI-based psychological support remain under-explored. While proponents argue for potential cost savings through reduced demand for in-person counselling, the initial investments in development, maintenance, and training are considerable, and health economic evaluations are urgently needed.

In conclusion, the cautious and evidence-based exploration of AI chatbots as a supplementary tool in paediatric psychosocial oncology is supported, but it is emphasised that current enthusiasm must be tempered by rigorous validation, equitable implementation, and continuous ethical scrutiny. Future research should prioritise well-designed trials that include diverse populations and long-term outcomes, and should actively involve patients, families, and clinicians in co-designing these technologies. Only through such a balanced, multidisciplinary approach can we ensure that AI fulfils its promise without exacerbating disparities or compromising the quality of human-centred care.

Availability of Data

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Conflict of Interest

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Ethical Considerations

Not applicable (this is a letter to the editor and does not involve human or animal subjects).

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Authors' Contributions

F.M. conceived the idea, drafted the manuscript, and revised it critically. N.N. contributed to literature search, interpretation of evidence, and final approval of the version to be published. Both authors meet the ICMJE criteria for authorship.

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