

# Let's Chat About Chatbots: Additional Thoughts on ChatGPT and Its Role in Plastic Surgery Along With Its Ability to Perform Systematic Reviews

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We read with interest the recently published *Aesthetic Surgery Journal* article on OpenAI's ChatGPT chatbot (OpenAI; San Francisco, CA).<sup>1</sup> Gupta and colleagues introduce a unique case of leveraging ChatGPT to write cosmetic surgery systematic reviews, and in this way generate novel ideas for research in areas that have not been investigated. We commend the authors for their innovative use of ChatGPT to address potential knowledge gaps in aesthetic surgery and the *Aesthetic Surgery Journal* for its receptiveness to such an important article. However, we want to highlight some of the implications and limitations of ChatGPT.

One of the primary reasons that ChatGPT presents an interesting ethical dilemma is that the chatbot itself is unable to fulfill authorship criteria and serve as an author. This presents challenges to use of its content in professional publications. The International Committee of Medical Journal Editors (ICMJE) guidelines highlight four criteria that ChatGPT cannot participate in fully.<sup>2</sup> The unfulfilled criteria include final approval of the work and agreement to be held accountable for the work and its accuracy. Moreover, the additional requirements of identifying coauthors' specific contributions to the work and having confidence in these coauthors are not possibilities for the chatbot. At best, according to the ICMJE, ChatGPT should receive an acknowledgement, and in our opinion should have any OpenAI material presented verbatim in the work inside quotation marks and appropriately cited.

ChatGPT is impressively able to execute tasks in seconds, reducing the time and resources needed to develop

abstracts, manuscripts, and ideas. The overall burden of conceptualizing research projects may be significantly more manageable. However, authors should be cautious, and avoid the temptation to submit articles without appropriate references and demarcation of the chatbot's contributions (Appendix, demonstrating that ChatGPT can generate a response letter).<sup>3</sup> We suggest that authors using ChatGPT make it clear they used the chatbot and continue to use it responsibly.

We want to emphasize the limitations that ChatGPT presents because of its inherent inaccuracies. Its information may be outdated in some cases, as demonstrated by the article written by Gupta et al, which presents challenges to authors and the community at large. ChatGPT also struggles to develop reference lists, and its selection criteria for

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favoring one article over another can be difficult to understand. The accuracy and reference limitations may be addressed in additional updates of the technology. Particularly fascinating is ChatGPT's ability to state it cannot write a full manuscript when prompted to write one. It acknowledges that it is unable to and provides alternative solutions, such as writing an outline for the desired article. It would be possible to ask ChatGPT a series of questions and compile those individual questions to develop a full manuscript. In its current state it seems this would be the most feasible way to execute such a task. However, it brings to light an interesting question: how ethical is it to use ChatGPT for research purposes, and can our current peer review system filter out articles written by chatbots? This would be an interesting ethical question to pursue, in addition to other issues that using ChatGPT surfaces.

Along with possible inaccuracies and authorship issues, ChatGPT presents a unique challenge to journals and the research community. Anti-artificial intelligence programs may be a way to overcome this, because these programs are able to detect plagiarism and may play a heightened role for journals in the future. Some of the available tools that can do this are OpenAI AI Text Classifier, OpenAI GPT-2 Output Detector Demo, GPTZeroX (GPTZeroX, Princeton University; Princeton, NJ), and DetectGPT (DetectGPT, Stanford University; Stanford, CA)—and there are more under development.<sup>4,5</sup> Notably, no single tool is foolproof or 100% accurate in every scenario; there are both false positives and false negatives. Nonetheless the capabilities of ChatGPT and software that detect its use are impressive.

With more and more authors using ChatGPT and highlighting its power in the literature, the community will need to decide where it draws the line with chatbots. With the inception of new chatbots such as Bard by Google's LaMDA (Google; Mountain View, CA) and LLaMA by Meta (Meta; Menlo Park, CA), we look forward to seeing what is on the horizon for artificial intelligence. Nevertheless, we urge caution when using ChatGPT.<sup>6-9</sup> We also look forward to future articles showcasing the powers of chatbots such as the one by Gupta et al.

## Disclosures

Dr Dorafshar has invented a technology under a licensing agreement between KLS Martin (Jacksonville, FL) and the Johns Hopkins University (Baltimore, MD), receives royalties on a book he published under a licensing agreement with

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