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Letter to the editor: Evaluating ChatGPT as a tool for educating caregivers on malaria vaccination for children

Dear Editor,

In a recent article published in this journal by Emmanuel et al. [1], it was found that caregivers of children under 5 years old living in the southwestern region of Nigeria, who had only a primary school education, had higher rates of malaria vaccine hesitancy [1]. The authors also stated that fear of adverse effects was the main reason for malaria vaccine hesitancy among caregivers and concluded that improving health communication with caregivers is important for increasing vaccine uptake [1].

In a previous review by the Cochrane Library [2], it was noted that parents desired clear and straightforward information on the benefits and risks of vaccination. Additionally, they wanted this information to be accessible from various sources, not limited to health services, and to be available well before vaccination appointments [2]. Considering this, along with the results of the study by Emmanuel et al. [1] and the understanding that ChatGPT, the artificial intelligence (AI) chatbot from OpenAI, can be a readily accessible and effective tool for health-related communication [3], a theoretical exercise was conducted.

ChatGPT-4o mini, the most recent and free to use ChatGPT version, was prompted to play the following scenario regarding health communication: you are a doctor practicing in the southwestern region of Nigeria; you know that RTS,S malaria vaccine is encouraged to prevent malaria in pediatric populations in Nigeria; you are talking to a caregiver who has only primary school education; you want the caregiver of a under 5-year-old child to accept malaria vaccine; you know that fear of adverse effects is the main reason for malaria vaccine hesitancy among caregivers; what do you say to the caregiver? The response from ChatGPT-4o mini is shown in Box 1.

Box 1. Response from ChatGPT-4o mini to the exercise

Doctor: Hello, I hope you're doing well today. I want to talk to you about something very important for your child's health: the malaria vaccine.

I know you might be worried about vaccines because you've heard they can sometimes cause side effects. Let me explain how this vaccine works and why it's so important for your child.

Malaria is a serious disease that can make children very sick. It can cause high fever, chills, and even more serious problems. This vaccine helps protect your child from getting malaria.

Most of the time, the side effects of the vaccine are very mild. It might make your child's arm sore for a day or two, or they might have a slight fever. These are common and usually go away quickly.

The important thing to remember is that the benefits of the vaccine far outweigh these small risks. By giving your child this vaccine, you're giving them a strong shield against malaria, which is a much more serious problem.

We have seen many children who are much healthier and happier because they received the vaccine. It's like giving them a protective armor that helps them stay safe from malaria.

If you have any concerns or questions, please let me know. I'm here to help you understand and to make sure your child stays as healthy as possible.

Several educational tools designed to address vaccine hesitancy were synthesized in a recent review by Lip et al. [4], but they lack the convenience of an AI interface. Could ChatGPT be used as a tool to help educate patients on this topic? The example in Box 1 demonstrates that ChatGPT-4o mini effectively used simple, non-technical language tailored to the caregiver's educational background—primary school education. ChatGPT-4o mini addressed the caregiver's fear of adverse effects by explaining that side effects are mild and emphasizing the importance of the malaria vaccine in protecting the child's health. This empathic dialogue concluded with an open-ended approach, allowing the caregiver to express additional concerns and questions. This finding reflects what some authors have previously discovered: that chatbot health-related responses may be of better quality and more empathic than those of human physicians [5].

In the present example, ChatGPT's conversation was informative and reassuring for the caregiver, but only a trial will determine if it is effective in real-world conditions.

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References

1. Emmanuel BN, Ishaq AN, Akunne OZ, Saidu UF. Evaluating the knowledge, attitude, perception, and readiness of caregivers of under 5-year-old children to accept malaria vaccine in Nigeria. *Clin Exp Vaccine Res* 2024;13:121-31.
2. Ames HM, Glenton C, Lewin S. Parents' and informal caregivers' views and experiences of communication about routine childhood vaccination: a synthesis of qualitative evidence. *Cochrane Database Syst Rev* 2017;2:CD011787.
3. Prazeres F. ChatGPT as a way to enhance parents' communication in cases of oncological pediatric diseases. *Turk J Haematol* 2023;40:275-7.
4. Lip A, Pateman M, Fullerton MM, et al. Vaccine hesitancy educational tools for healthcare providers and trainees: a scoping review. *Vaccine* 2023;41:23-35.
5. Ayers JW, Poliak A, Dredze M, et al. Comparing physician and artificial intelligence chatbot responses to patient questions posted to a Public Social Media Forum. *JAMA Intern Med* 2023;183:589-96.