Editorial

Chatbots for Promoting Healthy Habits and Scientific Culture

Chatbots para la Promoción de Hábitos Saludables y Cultura Científica

Iván Suazo Galdames (ID)

Universidad Autónoma de Chile, Chile. Cátedra UNESCO Educación Científica para la Ciudadanía

ABSTRACT

Chatbots are emerging as promising tools in promoting healthy habits and medical education. Research has shown their ability to provide personalized guidance, support in managing chronic diseases, and enhance the quality of patient care. While their benefits are recognized, addressing the need for further research to understand their effectiveness and user experience is essential.

Keywords: Chatbots; Healthy habits; Medical education; personalized interventions

1. Editorial

The use of chatbots to promote scientific culture in health and healthy habits has received significant attention in recent research. Chatbots, also known as conversational agents, have been studied in various healthcare contexts, including the management of gestational diabetes, support for mental health, promotion of physical activity, and management of chronic diseases (Sagstad *et al.*, 2022; Oh *et al.*, 2021; Xu *et al.*, 2021). Research has shown that chatbots have the potential to effectively engage users and provide personalized and on-demand health interventions (Aggarwal *et al.*, 2022). Furthermore, they have been identified as promising tools for reaching and engaging populations during public health emergencies, such as the COVID-19 pandemic (Weeks *et al.*, 2023; Mahdavi *et al.*, 2023).

Studies have highlighted the potential of chatbots to promote healthy behaviors, such as physical activity and a healthy diet, by providing personalized advice and support for habit formation (Oh *et al.*, 2021; Piao *et al.*, 2020). Additionally, their usability and acceptability in healthcare settings have been recognized, indicating their potential to support nursing practice, parental skills, and the management of chronic diseases (Scerri & Morin, 2023; Entenberg *et al.*, 2023; Ruggiano *et al.*, 2021). They have

also been proposed as tools to improve the quality of patient care and increase people's participation in health-related education and interventions (Görtz *et al.*, 2023).

While the literature acknowledges the potential benefits of chatbots in healthcare, it also emphasizes the need for further research to understand their effectiveness, user experience, and theoretical guidance for designing chatbots for lifestyle modification programs (Oh *et al.*, 2021; Zhang *et al.*, 2020). Furthermore, there is a call to promote the implementation of chatbots in healthcare to address existing gaps in evidence and enhance their potential to support public health initiatives (Sagstad *et al.*, 2022; Wilson & Marasoiu, 2022; Mahdavi *et al.*, 2023).

Therefore, it is necessary to incorporate the use of chatbots and similar technologies in medical education to improve communication about healthy habits to the population. It is crucial to consider the effectiveness and safety of these tools. Additionally, it has been suggested that the incorporation of cognitive skills into chatbots can facilitate personalized behavioral activation and remote health monitoring (Rathnayaka *et al.*, 2022). Furthermore, chatbots have been shown to be effective in promoting physical activity and a healthy diet. The literature also emphasizes the importance of empathy in interactions with chatbots, which can facilitate the establishment of an effective relationship with users (Abd-Alrazaq *et al.*, 2020). Additionally, it has been observed that chatbots can be useful for providing personalized education, symptom monitoring, and support in managing chronic diseases (Haque & Chowdhury, 2023). On the other hand, it has been identified that chatbots can be effective in promoting smoking cessation through motivational interviewing (He *et al.*, 2022). It is crucial to consider physicians' perceptions of chatbots in healthcare, as their acceptance and use can influence the implementation of these tools in medical education (Palanica *et al.*, 2019). Furthermore, usability and user experience are important aspects to consider when incorporating chatbots into medical education, as this can affect the satisfaction and effectiveness of communication about healthy habits (Entenberg *et al.*, 2023; Larbi *et al.*, 2022).

In summary, the literature provides evidence of the effectiveness of chatbots in promoting healthy habits and communication in the healthcare field. When considering the implementation of chatbots in medical education, it is essential to address aspects such as personalization, empathy, physicians' perceptions, and user experience to ensure effective communication about healthy habits to the population.

Research literature provides substantial evidence supporting the use of chatbots to promote scientific culture in health and foster healthy habits. Chatbots have demonstrated the potential to attract users, provide personalized health interventions, and support various aspects of healthcare. However, further research is needed to address gaps in understanding their effectiveness and to provide theoretical guidance for designing chatbots to promote healthy behaviors.

References

Abd-Alrazaq, A., Rababeh, A., Alajlani, M., Bewick, B., & Househ, M. (2020). Effectiveness and safety of using chatbots to improve mental health: systematic review and meta-analysis. Journal of Medical Internet Research, 22(7), e16021. https://doi.org/10.2196/16021

Aggarwal, A., Tam, C., Wu, D., Li, X., & Qiao, S. (2022). Artificial intelligence (AI)-based chatbots in promoting health behavioral changes: a systematic review. https://doi.org/10.1101/2022.07.05.22277263

Almalki, M. and Azeez, F. (2020). Health chatbots for fighting COVID-19: a scoping review. Acta Informatica Medica, 28(4), 241. https://doi.org/10.5455/aim.2020.28.241-247

Entenberg, G., Mizrahi, S., Walker, H., Aghakhani, S., Mostovoy, K., Carre, N., … & Bunge, E. (2023). AI-based chatbot micro-intervention for parents: meaningful engagement, learning, and efficacy. Frontiers in Psychiatry, 14. https://doi.org/10.3389/fpsyt.2023.1080770

Görtz, M., Baumgärtner, K., Schmid, T., Muschko, M., Woessner, P., Gerlach, A., … & Hohenfellner, M. (2023). An artificial intelligence-based chatbot for prostate cancer education: design and patient evaluation study. Digital Health, 9, 205520762311733. https://doi.org/10.1177/20552076231173304

Haque, A. and Chowdhury, M. (2023). Transforming chronic disease management with chatbots: key use cases for personalized and cost-effective care.. https://doi.org/10.36227/techrxiv.22579735.v1

He, L., Basar, E., Wiers, R., Antheunis, M., & Krahmer, E. (2022). Can chatbots help to motivate smoking cessation? a study on the effectiveness of motivational interviewing on engagement and therapeutic alliance. BMC Public Health, 22(1). https://doi.org/10.1186/s12889-022-13115-x

Larbi, D., Denecke, K., & Gabarron, E. (2022). Usability testing of a social media chatbot for increasing physical activity behavior. Journal of Personalized Medicine, 12(5), 828. https://doi.org/10.3390/jpm12050828

Mahdavi, A., Amanzadeh, M., Hamedan, M., & Naemi, R. (2023). Artificial intelligence-based chatbots to combat COVID-19 pandemic: a scoping review. https://doi.org/10.21203/rs.3.rs-2565141/v1

Nadarzynski, T., Miles, O., Cowie, A., & Ridge, D. (2019). Acceptability of artificial intelligence (AI)-led chatbot services in healthcare: a mixed-methods study. Digital Health, 5, 205520761987180. https://doi.org/10.1177/2055207619871808

Palanica, A., Flaschner, P., Thommandram, A., Li, M., & Fossat, Y. (2019). Physicians' perceptions of chatbots in health care: cross-sectional web-based survey. Journal of Medical Internet Research, 21(4), e12887. https://doi.org/10.2196/12887

Rathnayaka, P., Mills, N., Burnett, D., Silva, D., Alahakoon, D., & Gray, R. (2022). A mental health chatbot with cognitive skills for personalised behavioural activation and remote health monitoring. Sensors, 22(10), 3653. https://doi.org/10.3390/s22103653

Sagstad, M., Morken, N., Lund, A., Dingsør, L., Nilsen, A., & Sørbye, L. (2022). Quantitative user data from a chatbot developed for women with gestational diabetes mellitus: observational study. Jmir Formative Research, 6(4), e28091. https://doi.org/10.2196/28091

Scerri, A. and Morin, K. (2023). Using chatbots like chatgpt to support nursing practice. Journal of Clinical Nursing, 32(15-16), 4211-4213. https://doi.org/10.1111/jocn.16677

Weeks, R., Sangha, P., Cooper, L., Sedoc, J., White, S., Gretz, S., … & Bar-Zeev, N. (2023). Usability and credibility of a COVID-19 vaccine chatbot for young adults and health workers in the United States: formative mixed methods study. Jmir Human Factors, 10, e40533. https://doi.org/10.2196/40533

Wilson, L. and Marasoiu, M. (2022). The development and use of chatbots in public health: scoping review. Jmir Human Factors, 9(4), e35882. https://doi.org/10.2196/35882

Xu, L., Sanders, L., Li, K., & Chow, J. (2021). Chatbot for health care and oncology applications using artificial intelligence and machine learning: systematic review. Jmir Cancer, 7(4), e27850. https://doi.org/10.2196/27850

RESUMEN

Los chatbots se destacan como herramientas prometedoras en la promoción de hábitos saludables y la educación médica. La investigación ha demostrado su capacidad para brindar asesoramiento personalizado, apoyo en el manejo de enfermedades crónicas y mejorar la calidad de la atención al paciente. Aunque se reconocen sus beneficios, es esencial abordar la necesidad de más investigaciones para comprender su efectividad y la experiencia del usuario.

Palabras clave: Chatbots; Hábitos saludables; Educación Médica; intervenciones personalizadas