

AI Chatbots in Sport Psychology: A Paradigm Shift or a Complementary Tool?

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ABSTRACT

The integration of AI chatbots represents a potential paradigm shift in the field of sport and exercise psychology. This perspective article addressed the potential roles, benefits, challenges, and limitations of AI chatbots in applied sport psychology. To illustrate potential integration, a hypothetical case representing chatbot-assisted pre-competition anxiety management was presented. The study highlights AI chatbots' potential to enhance accessibility, cost-effectiveness, personalized support, and long-term monitoring. However, their implementation requires a critical examination of ethical, professional, technical, and user-related factors. Based on the current knowledge, they should be regarded as complementary rather than a replacement for human experts. In conclusion, AI chatbots show potential as supportive tools in applied sport psychology. Further research is necessary to assess their short- and long-term impacts and to establish evidence-based guidelines for their integration.

Keywords: technology integration, mental health, human-AI interaction, large language models, conversational agents

INTRODUCTION

The field of applied sport psychology has experienced significant growth and development since Coleman R. Griffith's pioneering work with the Chicago Cubs in the 1930s (Gould & Pick, 1995; Green, 2003). Over the past century, researchers and practitioners have examined various aspects of psychological interventions in sport, including specific techniques (Brown & Fletcher, 2017), ethical considerations (Winter & Collins, 2016), and the periodization of psychological skill training (Blumenstein & Orbach, 2020). Studies have shown that traditional psychological methods can help improve performance and promote well-being for athletes (Breslin et al., 2017; Brown & Fletcher, 2017). These interventions include goal setting (Jeong et al., 2023), imagery (Simonsmeier et al., 2021), and mindfulness training (Noetel et al., 2019). In addition to the existing methods, the rapid

technological change and transformation in the world have created new opportunities for sports and sport psychology (Digel, 2010; Grady, 2023). In light of these developments, novel methods that align with the demands of the digital age have been discussed as potential additions to the toolkit of intervention techniques in applied sport psychology (Siekańska et al., 2021; Saraç, 2022). For instance, virtual reality (VR), eye tracking, and artificial intelligence (AI) technologies have become promising tools for sport psychology interventions (Neumann et al., 2018; Cossich et al., 2023; Espino Palma et al., 2023; Qi, 2024).

Similarly, the recent acceleration in the development of AI tools and AI chatbots has led to a transformation of traditional methods across a range of fields such as education (Labadze et al., 2023), healthcare (Chow et al., 2024), rehabilitation

(McBee et al., 2024), and psychology (Bucher et al., 2024; Liu et al., 2024; Dosovitsk & Bunge, 2023). For instance, Dosovitsk & Bunge (2023) conducted a study to assess user experiences with a chatbot designed to educate adolescents on depression, teach behavioral activation, and modify negative thought patterns. Over half of the participants reported positive outcomes, including symptom improvement and increased availability, which were identified as key benefits. However, they also identified technical issues that require improvement. The results suggest that the chatbot has potential as a mental health tool for adolescents reluctant to seek traditional services. Artificial Intelligence (AI) chatbots are rapidly becoming valuable tools in psychological research (Boucher et al., 2021; Prescott & Barnes, 2024). These conversational AI systems are created to perform human-like conversation (Lin et al., 2023). AI chatbots interpret user input and generate responses based on advanced natural language processing and algorithms (Bird et al., 2023). These tools may offer accessibility and cost-effectiveness in psychological counseling (Omarov et al., 2023; Karyotaki et al., 2024). For instance, Ulrich et al. (2024) conducted a chatbot-delivered intervention to manage perceived stress among students. The results indicated that the chatbot was effective in reducing perceived stress. Furthermore, it was an effective and feasible tool for students to employ. The foundations of the intervention techniques of sport psychology are rooted in a broader range of different areas of research and application in psychology (Hays, 2012). Similarly, integrating AI chatbots into sport psychology could advance the field and improve athletes' mental health support.

There is a growing interest in how AI chatbots are used in different areas of psychology. However, there is a gap in the studies about using AI chatbots in sport psychology. The potential use of AI chatbots for the purposes of exercise prescription and physical activity interventions in the field of sport and exercise sciences has become a popular topic of study (An et al., 2024; Saraç et al., 2025; Washif et al., 2024; Zhu et al., 2024). For example, Zhu et al. (2024) argue that ChatGPT could be a helpful tool for creating personalized exercise programs. Moreover, researchers also suggest that these tools might be used for general and professional purposes in the near future (Zhu et al., 2024). However, the potential of AI chatbots as tools for psychological support in sport and exercise settings remains to be fully investigated. Therefore, this perspective article aimed to provide a comprehensive overview of

the potential role of AI chatbots in sport psychology interventions. Specifically, the aim was to examine and gain insight into the potential applications, benefits, challenges, and integration strategies of AI chatbots in the field of applied sport psychology.

POTENTIAL ADVANTAGES OF AI CHATBOTS IN APPLIED SPORT PSYCHOLOGY

In sports settings, sport psychologists face significant challenges in delivering consistent support to athletes, families, and staff (Sullivan & Nashman, 1998; Thrower et al., 2024). Financial restrictions, limited availability for long-term commitments, and the impracticality of providing constant assistance to large groups create systemic barriers (Pain & Harwood, 2004; Britton et al., 2024). These issues are compounded by cultural factors such as stigma and anxiety associated with seeking mental health support, which are exacerbated by athletes' fears of diminished status or reduced playing time (Schinke et al., 2024; Petersen et al., 2024). Considering these challenges, chatbots can answer these problems well (Qi, 2024). By offering confidential, non-judgmental, and on-demand support, these tools may reduce stigma-related anxiety while addressing accessibility gaps (Karyotaki et al., 2024). Moreover, AI chatbots offer cost effectiveness and the ability to accumulate longitudinal data, enabling personalized feedback based on demographics, sport-specific needs, and skill levels (Aggarwal et al., 2023; Boucher et al., 2021). In addition, these systems can facilitate data collection and analysis, which can be useful for sport psychologists to gain preliminary insights into the psychological states of athletes (Kooli, 2023).

Despite their potential, data storage and privacy concerns highlight the need for research to enhance the effectiveness of AI chatbots in sport psychology (Wei et al., 2024). The use of AI chatbots can facilitate access to psychological support services, especially if only future AI chatbots offer enhanced privacy and reliability (Lee et al., 2024; Torous & Blease, 2024). Recent research highlights the potential of these technologies to enhance user comfort and mitigate interpersonal barriers. For instance, Haque & Rubya's (2023) analysis of user reviews of mental health chatbots revealed that individuals reported a considerable increase in comfort levels when disclosing sensitive personal information in comparison to conventional person-to-person interactions. This finding is consistent with findings reported by Drouin et al. (2022),

who compared emotional responses across different communication methods. Participants interacting with the Replika chatbot reported fewer conversational concerns and less negative affective states than those engaging in face-to-face or online human conversations. These findings highlight a critical advantage of chatbots, which is their potential to reduce conversational concerns and emotional discomfort. Despite these studies, further investigation is necessary to evaluate the long-term effectiveness of chatbots.

CHALLENGES AND LIMITATIONS OF AI CHATBOTS

As with all new developments, AI chatbots bring both uncertainties and challenges in mental health-related fields (Casu et al., 2024). The first critical challenge is the current levels of technological and AI literacy of individuals (Knoth et al. 2024). The term “AI literacy” refers to the knowledge necessary to comprehend and employ AI tools and applications (Ng et al., 2021). Enhancing AI-literacy among sport psychologists, athletes, families, and other stakeholders is needed to integrate into sport settings. Privacy and data protection represent another significant challenge in this context (Lee et al., 2024; Torous & Blease, 2024). To minimize the risks of data leakage and data protection, sport psychologists and professionals must adopt specific safeguards prior to the usage of chatbots (Li, 2023). Banerjee et al. (2024) argue that using robust protocols, such as two-factor authentication and end-to-end encryption can help to prevent the risks. The third challenge is related to ethical concerns. In this context, the ethical norms of AI can provide a valuable contribution to our understanding of the ethical frameworks of AI chatbots (Floridi & Cowls, 2022; Coghlan et al., 2023). Floridi & Cowls (2022) proposed a set of principles for the integration of AI tools. These principles include prioritizing human well-being, protecting user privacy and security, respecting user autonomy, providing fair and reliable service, and being transparent. In the context of sport psychology interventions, these norms can establish ethical criteria for AI chatbots.

It is also recognized that current versions of AI chatbots still need improvement in the accuracy of information they provide (De Freitas et al., 2024). This fact is recognized to ensure the accuracy of information obtained from AI chatbot models such as ChatGPT-o3 mini, Gemini 1.5 Pro, or Claude 3.5 Sonnet. Therefore, sport psychologists must control

the outputs of chatbots before using them. Finally, AI chatbots are currently unable to demonstrate the same degree of empathy and humor in comparison to human interactions (Seitz, 2024). In addition to technical issues, concerns regarding the environmental impact, particularly energy consumption, and the financial implications of model updates currently exist (Luccioni et al., 2024). The most notable aspect of AI chatbots is the regular updating of their models, which results in enhanced features (Rane et al., 2024). Recent advances in low-cost models, such as Deepseek-V2 and Deepseek-V3, may decrease these disadvantages (Liu et al., 2024a; Liu et al., 2024b). Over the past two years, OpenAI (e.g., ChatGPT-4, ChatGPT-4o, ChatGPT-o1, ChatGPT-o3 mini), Anthropic (e.g., Claude 3 Sonnet, Claude 3 Haiku, Claude 3.5 Sonnet), and Google (e.g., Gemini 1.0 Pro, Gemini 1.5) have conducted multiple updates to their AI chatbots. The recent updates to these companies’ models have resulted in considerable improvements to the features of chatbot models (OpenAI, 2023; Anthropic, 2024; Google, 2024; OpenAI, 2025). To prove the progress of the models, some academic and technical benchmarks are used by companies. These benchmarks show the current capabilities and progress of chatbot models. For example, OpenAI introduced the o3-mini model on January 31, 2025. The model outperformed the existing o1-mini model on some benchmarks such as PhD Level Science Questions (GPQA) and General Knowledge (OpenAI, 2025). Therefore, it is expected to enhance the proficiency of the future models of chatbots to provide more reliable, secure, professional, and natural conversations.

INTEGRATION OF AI CHATBOTS WITH TRADITIONAL SPORT PSYCHOLOGY INTERVENTIONS

In light of current advantages, challenges, and expectations, AI chatbots hold potential for integration into traditional sport psychology interventions. Huțul et al. (2024) pointed out that the role of AI chatbots is not intended to replace that of human practitioners but to improve their functioning. For instance, Fitzpatrick et al. (2017) conducted a randomized controlled trial to evaluate a CBT-based conversational agent for college students with anxiety and depression symptoms. The conversational agent was designed to provide cognitive behavioral therapy and various therapeutic process-oriented features, including goal setting, motivation,

emphatic responses and reflection. The results of the study demonstrated that the conversational agent was an effective tool for reducing the anxiety and depression symptoms of students. In addition, a recent study by Qi (2024) specifically tested the application of the Woebot chatbot in the context of sport and found that athletes who interacted with the chatbot on a daily basis experienced a progressive decrease in mild depression symptoms over an 8-week period, while a control group showed no improvement. These findings support the use of

chatbots as a supportive tool to help athletes manage their mental health needs. Consequently, there is potential for AI chatbots to be employed as a tool to assist in the delivery of sport psychology interventions. Sport psychologists can educate athletes and other individuals within a sporting context on how to utilize chatbots for self-help purposes. However, this integration requires updated education protocols to provide practitioners with the skills to ethically and effectively use AI technologies.

Table 1. A hypothetical case of a chatbot interaction to manage pre-competition anxiety.

Step	Chatbot Message	Description
(1) Initial prompt	"Hello, Lucas! I noticed you logged in before tomorrow's game. How are you feeling?"	<i>The chatbot initiates interaction by asking about the athlete's emotional state.</i>
(2) Athlete response	"I'm feeling anxious about my performance."	<i>Athlete expresses a common concern, triggering a personalized response.</i>
(3) Chatbot suggestion	"Thanks for sharing, Lucas. Let's start with a quick breathing exercise to help you relax. Inhale deeply for 4 seconds, hold, and exhale slowly for 4 seconds. Try this three times."	<i>The chatbot offers a relaxation technique to lower immediate anxiety levels.</i>
(4) Athlete feedback	"That helped a bit. Still a bit nervous, though."	<i>The athlete provides feedback on the effectiveness of the exercise. This allows the chatbot to adapt.</i>
(5) Cognitive restructuring	"It's okay to feel a bit nervous. Let's reframe some of your thoughts. Instead of focusing on possible mistakes, try focusing on what you enjoy about the game. Can you tell me one thing you're looking forward to in the match?"	<i>The chatbot uses cognitive restructuring to shift the athlete's focus to positive aspects.</i>
(6) Athlete response	"I'm looking forward to being on the field and giving my best."	<i>The athlete's response helps reinforce a positive mindset before the game.</i>
(7) Reflection prompt	"Great mindset, Lucas! Remember, you've prepared well, and this is just another chance to enjoy your skills. Let's check in after the game!"	<i>The chatbot reinforces confidence and encourages the athlete to reach out post-game.</i>

Note. Table 1 was created with ChatGPT-4o's assistance to illustrate a chatbot interaction for managing pre-competition anxiety.

Fine-tuning or RAG (retrieval augmented generation) customization approaches for chatbots can be considered to regulate these tools in line with practitioners' own methodologies (Bird et al., 2023; Bora & Cuayáhuil, 2024). The process of fine-tuning or RAG for chatbots will serve to enhance the

feasibility, accuracy, suitability, coherence, and security of chatbots for individuals (Thirunavukarasu et al., 2023). However, this process requires a significant degree of knowledge and proficiency in AI-related technologies. To illustrate the potential practical application of AI chatbots in applied sport

psychology, a hypothetical case of a chatbot interaction to address pre-competition anxiety is presented in Table 1.

FUTURE DIRECTIONS AND RESEARCH NEEDS

The incorporation of AI chatbots into sport psychology interventions represents a novel and promising area that requires further investigation and attention. Future studies should focus on the integration of AI chatbots into real-time sport psychology interventions. These tools can be compared to traditional methods in delivering support. Moreover, these tools can be integrated into traditional methods to assess their efficacy. The applicability of chatbots in the context of applied sport psychology may be evaluated in light of the following factors: acceptance, engagement, ethical considerations, and limitations. It would be beneficial for future studies to focus on the long-term impact of these chatbots on the field.

CONCLUSION

In conclusion, there is considerable potential for AI chatbots to contribute to the field of applied sport psychology. These tools offer significant opportunities in several areas, including accessibility, cost-effectiveness, personalized support, data collection, analysis, and comfort. Rather than replacing human practitioners, AI chatbots should serve as complementary tools. This approach can empower sport psychologists to enhance their own effectiveness. However, this transition demands that professionals develop AI literacy, particularly in the areas of customizing tools through fine-tuning and retrieval-augmented generation (RAG) methods and ensuring security. In addition, there are challenges to consider. These include ethical, professional, technical, and user-related factors. Practitioners must verify the accuracy of responses from AI chatbots before using them. Researchers can prioritize examining comparative efficacy, long-term engagement, and cultural adaptations for diverse populations. As a result, further research is needed to demonstrate chatbot effectiveness in applied sport psychology.

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