

Utilization of *Chatbot AI* to Improve the Accessibility and Effectiveness of Guidance and Counseling Services in the Digital Era: A Literature Review

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Abstract

Guidance and counseling (GC) services across educational, public health, and industrial contexts face core challenges: limited professional workforce, geographical barriers, and stigma that impede user access. This systematic literature review analyzes the potential of AI chatbots as a supportive solution for GC services in the digital era. Data were collected from 32 scientific journals (2018–2025) and practical reports, then analyzed using a thematic approach. The findings reveal that AI chatbots improve service accessibility through three key avenues: (1) 24/7 availability without location restrictions, (2) up to 40% reduction in operational costs for service providers, and (3) stigma mitigation via anonymous interactions. Additionally, chatbots equipped with natural language processing (NLP) algorithms and psychological data training enhance service effectiveness by delivering initial mental health symptom screening (78% accuracy based on a case study in Indonesian secondary schools), simple coping guidance, and referrals to professionals when necessary. However, the study identifies critical challenges: the risk of misinterpreting emotional context, limitations in addressing complex cases (such as severe depression), and user data privacy concerns. Based on these results, the study recommends a collaborative model between AI chatbots and GC professionals, as well as the implementation of strict data regulations to ensure service safety and relevance. This review concludes that AI chatbots are valuable supportive tools for expanding the reach of GC services but cannot replace the human role in addressing complex emotional needs.

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1. INTRODUCTION

The digital era has transformed public access to public services, including guidance and counseling), but has also exacerbated access gaps in remote areas and among vulnerable groups. Data from the Indonesian Ministry of Education, Culture, Research, and Technology (2024) shows that the ratio of counselors to students in secondary schools remains at 1:3,500, far below the ideal standard of 1:500. In the public health sector, stigma against mental health issues leads to 60% of mild depression cases going undiagnosed (Indonesian Ministry of Health Report, 2023), while in industry, employee time constraints hinder access to corporate counseling services.

In Indonesian culture, the relationship between counselor and client relies heavily on strong emotional and interpersonal bonds. In communication, politeness, respect for seniority, and mutual appreciation are the main foundations of social interaction. In many cases, Indonesians are more comfortable speaking directly to a human counselor who can demonstrate empathy, rather than

interacting with a machine, even if it's sophisticated. Trust in technology chatbot AI, especially in sensitive contexts like mental health, remains very low in some communities. However, AI can improve the accessibility of counseling services for Indonesians in remote areas or those with limited access to licensed counselors.

Presence of *chatbot* AI, as an interactive tool, has the potential to address these challenges, particularly with its ability to provide services without time and location constraints. However, the application of chatbot counseling and tutoring services still faces concerns regarding the accuracy of emotional interpretation, data security, and the relevance of services to the Indonesian cultural context. Previous literature studies have largely focused on global contexts, thus under-recognizing solutions tailored to local needs (e.g., regional language processing or screening for mental health symptoms specific to Indonesian adolescents).

According to Davis (1989) Technology Acceptance Model (TAM), user acceptance of technology is influenced by two main factors, namely perceived ease of use (*perceived ease of use*) and perception of usefulness (*perceived usefulness*). In the context of guidance and counseling services, these two aspects are the key to success in integrating chatbot AI-based services in education and mental health environments.

This systematic literature study aims to: (1) analyze the impact of chatbot AI on the accessibility and effectiveness of tutoring and counseling services in three main contexts (education, public health, industry); (2) identifying technical and ethical challenges in its implementation; and (3) developing recommendations for collaborative models between *chatbot* AI and tutoring and counseling professionals relevant to the Indonesian context. The significance of this research lies in its contribution to developing a practical framework for service providers and policymakers, as well as enriching the literature on the integration of AI technology in applied psychology.

2. METHOD

This study uses a systematic literature review approach to analyze the potential of chatbot AI in improving the accessibility and effectiveness of guidance and counseling services. The research procedure is divided into four stages: Source Selection Criteria Source Type: Indexed scientific journal (*Scopus*, *Sinta*, or *Web of Science*), practical reports from research institutions (e.g., the Indonesian Institute of Sciences/LIPI), and field case studies in Indonesia (2018–2025) Inclusion Criteria: Contains analysis of *chatbot* AI in the context of tutoring and counseling. The article is not based on empirical data, the study focuses on chatbot non-AI (e.g., *chatbot static* rule-based without NLP algorithms), and uses incompletely accessible sources. Database Search: *Google Scholar*, *Scopus*, and archives of reports from the Indonesian Ministry of Health. Search Keywords: "chatbot AI for guidance and counseling", "accessibility of digital counseling services", "NLP in applied psychology", and "mental problems of Indonesian adolescents". Evaluation of methodological clarity and contextual relevance resulted in 32 sources used in the final analysis (including 5 case studies from Indonesian high schools).

3. RESULTS AND DISCUSSION

3.1. Impact *Chatbot* AI on the Accessibility of Tutoring and Counseling Services

Chat AI is a transformative solution to address the gap in access to guidance and counseling services in Indonesia. Based on empirical evidence and literature studies, and field cases, its main impacts include fully addressing time and location constraints through the 24-hour availability of easily accessible platforms, reducing operational costs and eliminating financial barriers for informal workers, and anonymous interactions, reducing the stigma of accessing mental health services by 30%, making users more confident in seeking help without fear of judgment. Although its effectiveness has been proven, *chatbot* AI still requires

collaboration with counseling professionals to handle complex cases and ensure safety for users.

Comparison of findings across journals shows consistency in accessibility benefits, but significant differences in the local Indonesian context:

- a. Global journal (*Journal of Telemedicine and e-Health*, 2023): Reported operational cost reductions of up to 45% for institutions in Europe, with a focus on integration of chatbots in public health services.
- b. Indonesian Journal (*Indonesian Journal of Educational Psychology*, 2024): Reveals a 40% cost reduction (lower than the global context) due to development costs; *chatbots* adapted to regional languages (e.g., Bugis, Minangkabau) require additional investment.
- c. Case study of Indonesian secondary schools (Hasanuddin University, 2025): Demonstrates a 65% increase in access to services for students in remote areas (e.g., Southeast Sulawesi), compared to an average of 50% in the global context (*Journal of School Counseling*, 2023).

This is related to an availability *chatbot* on the popular messaging platform (*WhatsApp*), which is easily accessible to Indonesian teenagers.

3.2. Effectiveness of Chatbot AI in Supporting Tutoring and Counseling Services

Comparison of accuracy and function chatbots, revealing differences based on training data:

- a. *Chatbot* with global psychological data training (*Journal of Medical Internet Research*, 2022): Had a screening accuracy of 82% for depressive symptoms, but failed to recognize specific symptoms of Indonesian adolescents (e.g., refusal to follow customs due to school pressure).
- b. *Chatbot* with local data training (Gadjah Mada University, 2024): Has a screening accuracy of 78% (lower than global), but successfully recognizes 90% of symptoms of culturally related mental health problems (e.g., family pressure to become a migrant worker). This supports the findings of the Indonesian Journal of Social Psychology (2023,) which stated that cultural relevance is more crucial than technical accuracy for implementation in Indonesia.

Platforms like Woebot, Wysa, and Replika use cognitive behavioral therapy (CBT) to help users understand and manage their feelings. *This* type of counseling can significantly help reduce symptoms of anxiety and mild depression, while also helping users be more open about their own psychological issues. According to research conducted by Inkster et al. (2018), AI-based counseling services promise convenience and security because they are anonymous and accessible at any time. This is a distinct advantage for those who are hesitant or embarrassed to consult a professional. Fulmer et al. (2018) state that digital-based support can increase individual participation in mental health services and reduce barriers such as shame or concerns about social stigma.

Reference function: BMC Journal *Public Health* (2023) reported that 70% *chatbot* globally directly refers to professionals without guidance, whereas *chatbot* Indonesia (Ministry of Health Report, 2024) includes guidelines, coping based on local values (e.g., talking to parents or teachers) before referring, which increased user compliance by 55%.

3.3. Implementation Challenges Chatbot AI

Artificial intelligence (AI) technology is starting to be applied in guidance and counseling. *Chatbot* AI can help counselors detect behavioral patterns and provide more tailored intervention recommendations. However, ethical challenges related to privacy and the human connection in counseling remain a major concern.

Data privacy issues: A global journal (*Computers in Human Behavior*, 2023) cites the risk of data breaches by third parties, while the Indonesian journal (*Jurnal Ilmu Komputer dan*

Informasi, 2024) mentions an additional risk: misuse of data by school institutions to assess student achievement, which exacerbates stigma.

Limitations of handling complex cases: All journals (global and local) agree that a chatbot cannot handle severe depression, but the Indonesian Industry Case Study (2025) adds that chatbots in the plantation sector failed to recognize symptoms of stress due to worker exploitation, because training data did not include the informal work context.

Comparative findings show that the superiority of chatbot AI in Indonesia lies in its ability to address access gaps in remote areas, but its effectiveness depends on culturally based data training. Mismatching global data with local contexts (e.g., symptoms of mental health issues related to customs or informal work) is a major cause of differences in accuracy and user response. Data privacy challenges in Indonesia are also more complex due to the interconnectedness of local institutional policies, which are not addressed in global studies. Recommendations for collaborative models (*chatbot+ professional*) proposed in this study is a crucial solution to overcome technical limitations, especially in handling complex cases that require human emotional judgment.

4. CONCLUSION

Conclusion

This systematic literature study research concludes three core findings related to the utilization of chatbot AI in guidance and counseling services: Accessibility of services has increased significantly in the Indonesian context, especially for vulnerable groups (remote area students and informal workers), thanks to the availability of *chatbot* on popular platforms (such as *WhatsApp*) and reduced operational costs by up to 40%. A 65% increase in access in selected areas of Southeast Sulawesi demonstrates the benefits of local adaptation not found in global studies of *chatbot*, which *relies* on the relevance of culturally based data, although screening accuracy (78%) is lower than *chatbot* globally (82%). *Chatbot trained* with local psychological data successfully recognized 90% of the symptoms of mental health problems related to customs or family stress, which increased user compliance with the guidelines. *Coping based* on local values, while Indonesia's specific challenges require separate handling, including data misuse by school institutions and limitations of *chatbots* in dealing with cases of stress due to the exploitation of informal workers. Collaborative model *chatbot*. Professional tutoring and counseling have proven crucial in overcoming technical limitations and ensuring user safety. In general, *chatbot* AI is a valuable support tool to expand the reach of tutoring and counseling services, but it cannot replace the role of humans in dealing with complex emotional needs or critical cases (such as severe depression).

Suggestion

For the creator chatbot AI and service providers: Integrate local psychological data (including symptoms of mental health problems related to customs and informal work) into the training chatbot to increase cultural relevance. Implement anonymous identity verification features to prevent data misuse by schools or companies. For policymakers and government agencies (Ministry of Education, Ministry of Health): Establish specific regulations on user data management, *chatbot tutoring*, and Counseling, including sanctions solutions for data misuse. Allocate funds to develop chatbots in regional languages (e.g., Bugis, Minangkabau) to expand access in remote areas. For future researchers: Conduct field studies to test the effectiveness of collaborative models *chatbot+ professionals* in informal industrial contexts (such as the plantation sector). Impact analysis of a chatbot on reducing the stigma of mental health problems in remote areas of Indonesia through a longitudinal study.

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