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AN EXPERIENTIAL STUDY ON THE APPLICATION OF ARTIFICIAL INTELLIGENCE IN PSYCHOLOGICAL COUNSELING TECHNIQUE TRAINING FOR COLLEGE STUDENTS

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ABSTRACT

Objective: To investigate clinical medicine students' experiences with, evaluations of, and perceptions of the application boundaries of generative artificial intelligence (AI) in assisting psychological counseling technique training, with particular attention to listening response techniques.

Methods: A self-designed Questionnaire on Experiences with AI-Assisted Psychological Counseling Technique Training was administered to 118 clinical medicine students at a university. Descriptive statistics and frequency analysis were used to examine students' practice patterns, interaction modes, perceived usefulness of AI-generated feedback, perceived improvement in counseling competence, overall satisfaction, evaluations of different AI models, and perceptions of the aspects in which AI could not replace human-led training.

Results: The most common practice frequency was one to two sessions per month (66.1%), while the most common interaction mode was simulated dialogue through role-playing a client (41.5%). The mean scores for the helpfulness of AI feedback in understanding listening techniques, perceived improvement in counseling competence, and overall satisfaction were 4.19 (SD = 0.73), 4.01 (SD = 0.86), and 4.25 (SD = 0.75), respectively. DeepSeek received the highest proportion of favorable evaluations in response professionalism (61.0%), feedback detail (54.2%), and training suitability (50.8%), and was also selected most frequently as the overall model considered suitable for assisted training (55.9%). The main areas in which students believed AI could not replace human-led training were emotional empathy (81 mentions), the recognition of nonverbal information (67 mentions), and the handling of complex cases (63 mentions). In addition, 63.6% of students explicitly indicated that they would recommend AI-assisted training to their peers.

Conclusion: Generative AI was perceived by clinical medicine students as a useful supplementary resource for psychological counseling technique training, particularly for simulated interaction, repeated practice, and immediate feedback. However, students also recognized clear limitations concerning emotional empathy, nonverbal communication, and complex situations. These findings support a blended human-AI training model in which generative AI supplements standardized and repetitive practice while human instructors and supervisors retain central responsibility for professional judgment, relational learning, ethical guidance, and complex case supervision.

Keywords: Generative Artificial Intelligence; Psychological Counseling Techniques; Medical Education

1 INTRODUCTION

Psychological counseling and communication skills training in medical education face persistent challenges related to limited practice opportunities, insufficient supervision resources, and difficulties in providing standardized and repeatable training scenarios. Traditional approaches generally rely on classroom instruction, peer role-play, standardized patients, and feedback from instructors or supervisors. Although these approaches can provide valuable opportunities for experiential learning, their implementation is often constrained by class schedules, available venues, instructor workload, and the number of students who require individualized feedback. For clinical medicine students, these constraints are particularly relevant because effective doctor–patient communication requires not only the acquisition of conceptual knowledge but also repeated practice in listening, empathy, questioning, emotional responding, and managing difficult interactions. In this regard, simulated practice has long been regarded as an important component of medical communication training because it allows learners to rehearse interpersonal skills in relatively controlled environments before applying them in real clinical encounters. However, the limited availability of human partners and supervisors may restrict the frequency and continuity of such practice. Therefore, there is a continuing need for training approaches that can provide students with accessible, repeatable, and relatively low-risk opportunities to practice communication and counseling techniques.

The rapid development of generative artificial intelligence (AI), particularly large language models and conversational agents, has introduced new possibilities for addressing some of these limitations. Unlike conventional digital learning resources that primarily provide predefined information, generative AI can engage learners in interactive dialogue, assume different conversational roles, generate individualized responses, and provide immediate feedback. Recent research in medical education has begun to demonstrate the potential of this approach. For example, Müller et al. (2026) examined the use of a role-prompted GPT-4o chatbot to train empathetic communication skills among medical students and reported improvements in students' self-assessed communication competence following the intervention. The study also examined multiple communication scenarios and demonstrated the feasibility of using conversational AI as a structured practice partner. Similarly, Hicke et al. developed MedSimAI, an AI-supported simulation platform designed to facilitate deliberate practice through interactive patient encounters and automated formative feedback. In its pilot evaluation, the system was used by medical students for repeated patient-history practice and was perceived as useful for providing accessible and realistic practice opportunities. These findings suggest that the educational value of generative AI may lie not simply in providing information, but in creating repeated opportunities for learners to actively produce responses, observe simulated conversational consequences, and reflect on their own performance.

The potential relevance of generative AI is also evident in the field of mental health and psychological support. Previous research on conversational agents has demonstrated that AI-mediated interaction can provide accessible and structured forms of psychological support, while more recent evidence has examined how college students perceive AI-generated counseling interactions. Kuhail et al. (2024), for example, compared human–AI and human–human counseling transcripts among 224 college students and found that participants were unable to reliably distinguish between the two types of interaction, while the AI-generated counseling transcripts received relatively favorable evaluations. Importantly, the authors interpreted these findings as tentative evidence concerning the acceptability of relational AI during the early stages of counseling, particularly active listening and problem exploration, rather than as evidence that AI could replace professional psychotherapy. In addition, a rapid systematic review by Nyakhar and Wang (2025) synthesized evidence concerning AI chatbots and mental health and well-being among college students, indicating that chatbots may offer scalable and accessible forms of support while also highlighting substantial heterogeneity in interventions and outcomes. Accordingly, when generative AI is introduced into psychological counseling technique training, its educational role should be understood primarily in terms of augmentation and practice support rather than substitution for professional supervision.

At the same time, the development of AI-assisted psychological and communication training raises important questions concerning empathy, nonverbal communication, contextual understanding, and the management of complex interpersonal situations. Psychological counseling is fundamentally relational, and effective counseling requires sensitivity not only to the explicit content of a client's speech but also to emotional states, hesitation, tone, behavioral changes, interpersonal dynamics, and contextual factors that may not be fully represented in text-based interaction. Evidence from medical education also suggests that empathy is closely related to broader communication competencies among medical students. For example, Liu et al. (2025), in a cross-sectional study of 434 senior medical undergraduates in China, examined the relationships among medical narrative competence, empathy, and self-efficacy and reported significant associations among these constructs. These findings underscore the importance of integrating interpersonal understanding with communication-related abilities in medical training. Consequently, although generative AI may facilitate the rehearsal of specific communication behaviors, the acquisition of counseling techniques cannot be reduced to the ability to produce linguistically appropriate responses. Learners must also develop the capacity to recognize emotional and contextual information and to respond flexibly to situations that involve ambiguity, competing needs, or heightened interpersonal complexity.

Furthermore, recent scholarship has emphasized that the limitations of large language model-based chatbots become particularly important when they are used in mental health contexts. A recent scoping review by Diel et al. (2026), which identified and synthesized 119 studies concerning potential mental health harms associated with large language model-based chatbots, identified concerns including hallucinations, sycophancy, bias, data security, and risks associated with severe or high-risk psychiatric situations. These findings reinforce the importance of establishing clear boundaries between AI-assisted training and professional psychological intervention. In the context of student training, therefore, generative AI may be most appropriately positioned as a supplementary educational resource that provides opportunities for simulation, repeated practice, case generation, and preliminary feedback, while human instructors and supervisors remain responsible for professional judgment, ethical guidance, relational learning, and the management of complex or high-risk situations. Against this background, the present study focuses on clinical medicine students' experiences of using generative AI to assist psychological counseling technique training, with particular attention to listening responses. Specifically, the study examines students' practice patterns, perceived usefulness of AI-generated feedback, perceived changes in counseling competence, evaluations of different AI models, and perceptions of the boundaries between AI-assisted practice and human-led training. By examining these dimensions together, the study aims to provide an empirical basis for understanding how generative AI can be incorporated into psychological counseling technique training while maintaining appropriate boundaries between technological assistance and human professional supervision.

2 METHODS

2.1 Participants

Convenience sampling was adopted, and data were collected through an online questionnaire. The valid sample comprised 118 clinical medicine students at a university. The sample consisted mainly of sophomore and junior students, and all participants provided informed consent before completing the questionnaire.

2.2 Instrument

A self-designed Questionnaire on Experiences with AI-Assisted Psychological Counseling Technique Training was used to investigate students' experiences with generative AI-assisted training. The questionnaire covered the frequency of practicing with AI-assisted training, modes of interaction with AI, the degree to which AI feedback helped students understand listening techniques, perceived improvement in counseling competence after using AI, overall satisfaction, AI models used by the participants, evaluations of different models in terms of response professionalism, feedback detail, and training suitability, the overall model considered most suitable for assisted training, the aspects in which AI could not replace human-led training, willingness to recommend AI-assisted training to peers, and perceptions of the greatest value of AI in psychological counseling technique training. Satisfaction-related items were rated on a five-point scale ranging from 1 = very dissatisfied to 5 = very satisfied.

2.3 Data Analysis

Descriptive statistics and frequency analysis were used to summarize participants' practice frequency, interaction modes, AI model usage, perceived usefulness of AI feedback, perceived improvement in counseling competence, overall satisfaction, model evaluations, willingness to recommend AI-assisted training, and perceived limitations of AI. Because the study was exploratory and based on a self-designed questionnaire, the analyses focused primarily on describing participants' experiences and perceptions rather than testing causal effects.

3 RESULTS

3.1 Sample Characteristics and Practice Patterns

Regarding the frequency of practicing with AI-assisted training, 78 participants (66.1%) reported practicing one to two times per month, 29 participants (24.6%) reported practicing once per week, 7 participants (5.9%) reported practicing several times per week, and 4 participants (3.4%) reported practicing almost every day. Regarding interaction modes, 49 participants (41.5%) most frequently engaged in simulated dialogue by role-playing a client, 33 participants (28.0%) practiced by role-playing a counselor, 21 participants (17.8%) mainly posed technical questions for AI to answer, 9 participants (7.6%) used AI to generate questions for them to answer, and 6 participants (5.1%) reported other modes of interaction. Among the AI models used by the respondents, DeepSeek was the most frequently mentioned model, with 97 mentions, followed by Kimi with 65 mentions and Doubao with 64 mentions.

3.2 Perceived Experience of AI-Assisted Training

The mean score for the helpfulness of AI feedback in understanding listening techniques was 4.19 (SD = 0.73), while the mean score for perceived improvement in actual counseling competence was 4.01 (SD = 0.86). The mean score for

overall satisfaction with AI-assisted training was 4.25 (SD = 0.75). Thus, all three indicators were above 4 on the five-point scale, indicating that participants generally reported favorable experiences with AI-assisted psychological counseling technique training. However, these findings represent students' subjective evaluations and should therefore be interpreted as evidence of perceived usefulness and acceptance rather than as objective evidence of skill improvement.

3.3 Comparison of AI Models on Response Professionalism, Feedback Detail, and Training Suitability

Participants reported differences among the AI models in terms of response professionalism, feedback detail, and training suitability. Regarding response professionalism, DeepSeek was rated most favorably by 72 participants (61.0%), followed by Doubao with 22 participants (18.6%) and Kimi with 12 participants (10.2%). Regarding feedback detail, DeepSeek was rated most favorably by 64 participants (54.2%), followed by Kimi with 21 participants (17.8%) and Doubao with 20 participants (16.9%). Regarding training suitability, DeepSeek was selected by 60 participants (50.8%), followed by Doubao with 28 participants (23.7%) and Kimi with 15 participants (12.7%). These findings indicate that, within the present sample, DeepSeek received the highest proportion of favorable evaluations across the three dimensions examined.

3.4 Overall Model Suitability and Willingness to Recommend

Regarding the AI model considered most suitable overall for assisting psychological counseling technique training, 66 participants (55.9%) selected DeepSeek, 26 participants (22.0%) selected Doubao, and 13 participants (11.0%) selected Kimi. Regarding willingness to recommend AI-assisted training to peers, 75 participants (63.6%) explicitly stated that they would recommend AI-assisted training, 41 participants (34.7%) indicated that their recommendation would depend on the circumstances, and only 2 participants (1.7%) stated that they would not recommend it.

3.5 Aspects in Which AI Could Not Replace Human-Led Training and Perceived Value of AI

The three aspects most frequently identified by participants as areas in which AI could not replace human-led training were emotional empathy, the recognition of nonverbal information, and the handling of complex cases. Emotional empathy was mentioned 81 times, the capture of nonverbal information was mentioned 67 times, and the handling of complex cases was mentioned 63 times. In the open-ended responses, students also identified several perceived advantages of AI-assisted training, including the ability to practice anytime and anywhere, access professional references and perspectives, obtain cases and knowledge rapidly, practice without the pressure associated with making mistakes in front of others, and identify weaknesses in their own communication or counseling techniques.

4 DISCUSSION

The present study examined clinical medicine students' experiences with generative AI-assisted psychological counseling technique training and found generally positive evaluations of its usefulness, perceived competence improvement, and overall satisfaction. The mean ratings for the helpfulness of AI feedback in understanding listening techniques, perceived improvement in counseling competence, and overall satisfaction were 4.19, 4.01, and 4.25, respectively, on a five-point scale, indicating that students generally perceived AI-assisted practice as a useful supplementary learning resource. At the same time, however, the relatively low frequency of practice observed in the sample should be noted. Most students reported using AI for training only one to two times per month, whereas relatively few students reported weekly or more frequent practice. This pattern suggests that, despite favorable evaluations, generative AI had not yet become a routine component of counseling technique training for most participants. One possible interpretation is that students currently regard AI as an additional practice resource rather than as a substitute for formal coursework, instructor guidance, or supervised practice. This interpretation is broadly consistent with previous research indicating that conversational AI may provide accessible and flexible forms of mental health-related interaction while remaining complementary to conventional human-led services (Fitzpatrick et al., 2017; Nyakhar & Wang, 2025). Therefore, the high satisfaction observed in the present study should be interpreted primarily as evidence of perceived educational usefulness rather than as evidence of the effectiveness of AI as an independent counseling intervention.

The interaction patterns reported by the participants further clarify the potential educational value of generative AI. Simulated dialogue through role-playing a client was the most common form of interaction, followed by role-playing a counselor, whereas fewer students mainly used AI to ask technical questions or generate questions for practice. This finding is important because it indicates that students were not using generative AI solely as an information retrieval tool; rather, many participants were using it as an interactive practice partner. Such use is consistent with the principles of experiential and deliberate practice, in which learners acquire procedural skills through repeated performance, feedback, and reflection rather than through passive exposure to information. In this respect, generative AI may reduce one of the practical barriers associated with conventional role-play by allowing students to initiate a simulated conversation without waiting for a peer or instructor to be available. The findings of Müller et al. (2026) provide

convergent evidence from medical education, showing that a role-prompted GPT-4o chatbot can be used to simulate patient communication scenarios and support the development of empathetic communication skills. Similarly, MedSimAI was designed to provide interactive patient encounters and immediate structured feedback, and its pilot evaluation indicated that students considered the system useful for repeated patient-history practice. Taken together, these findings suggest that the educational value of generative AI may be particularly relevant to the practice component of counseling and communication skills training, where repeated opportunities to formulate responses and receive feedback are important.

The positive evaluation of AI feedback in the present study also deserves attention. Students rated the helpfulness of AI feedback in understanding listening techniques at 4.19, suggesting that they perceived AI-generated responses as useful for identifying or clarifying specific communication behaviors. From an educational perspective, this may represent one of the most practical applications of generative AI because immediate feedback can shorten the interval between performance and reflection. In traditional training environments, feedback may depend on instructor availability and may therefore occur after a delay or focus on only a limited number of student performances. By contrast, an AI system can respond immediately and can potentially provide feedback after each practice episode, thereby increasing the amount of feedback available to learners. Nevertheless, the present findings should not be interpreted as demonstrating that AI feedback is equivalent to expert supervision. The study measured students' perceptions of feedback helpfulness rather than the objective accuracy, validity, or pedagogical quality of the feedback. Moreover, Müller et al. (2026) investigated perceived communication competence and feedback in an AI-assisted communication training context, illustrating both the feasibility of AI-supported practice and the need to distinguish learners' perceptions from objective competency assessment. Therefore, future research should move beyond satisfaction-based assessment and examine whether AI-generated feedback corresponds with established communication competency frameworks and whether improvements demonstrated in AI-mediated practice transfer to human–human clinical interactions.

The comparison among AI models produced another notable finding. DeepSeek received the highest proportion of favorable evaluations in response professionalism, feedback detail, and training suitability, and it was also selected most frequently as the overall model considered suitable for assisted training. However, this result should be interpreted as a description of participants' perceptions rather than as evidence that DeepSeek is objectively superior to other AI models. The present study did not employ standardized prompts, blinded model comparison, identical model configurations, or objective expert ratings of output quality; therefore, differences in participants' evaluations may reflect model characteristics, familiarity, language performance, interaction history, or other contextual factors. In particular, the present data cannot establish that the observed differences were caused by superior reasoning ability, training data, or counseling competence of one model. Instead, the findings indicate that students perceived meaningful differences among the AI systems they used and that such perceived differences may influence their choice of tools for educational practice. This observation has practical implications for future AI-assisted training systems because model selection should be based not only on general language performance but also on consistency, feedback specificity, scenario adaptation, and alignment with clearly defined educational objectives. Future comparative studies should therefore use identical cases and prompts across models, control for model versions and settings, and incorporate independent expert ratings to determine whether perceived differences correspond to measurable differences in educational quality.

At the same time, the present study clearly identified several boundaries of AI-assisted training. Participants most frequently indicated that AI could not replace human-led training in emotional empathy, the recognition of nonverbal information, and the management of complex cases. These findings are theoretically important because they highlight a distinction between the linguistic simulation of counseling and the relational competencies required in actual counseling. A generative AI system can produce contextually appropriate verbal responses, but such responses do not necessarily demonstrate genuine emotional understanding or the embodied interpersonal sensitivity required in face-to-face communication. Similarly, text-based interaction provides only limited access to nonverbal information, whereas real counseling and clinical communication involve facial expression, gaze, posture, speech rate, pauses, tone, and other behavioral cues. The importance of interpersonal dimensions is consistent with research showing relationships between empathy and medical narrative competence among medical students (Liu et al., 2025). Accordingly, AI-assisted practice may be particularly suitable for rehearsing verbal response strategies, listening structures, questioning techniques, and standardized scenarios, whereas the development and assessment of deeper relational competencies still require interaction with human partners, standardized patients, instructors, or supervisors.

The limitation becomes even more important when counseling situations involve complex or high-risk psychological problems. Students in the present study specifically identified complex cases as an area in which AI could not replace human-led training. This perception is consistent with recent evidence concerning the potential risks of large language model-based chatbots in mental health contexts. Diel et al. (2026), in a scoping review that included 119 studies, identified concerns including hallucinations, sycophancy, bias, data security, and risks associated with severe psychiatric situations. These concerns suggest that the apparent fluency and responsiveness of generative AI should not

be equated with professional competence or clinical reliability. In educational settings, this distinction is particularly important because students may not yet possess sufficient clinical experience to recognize subtle errors in AI-generated responses. Consequently, unrestricted use of AI for psychologically complex or clinically high-risk scenarios could create a risk of reinforcing inappropriate reasoning or communication patterns. Human supervision should therefore remain central when training involves ethical dilemmas, severe psychological distress, risk assessment, complex interpersonal dynamics, or situations in which inaccurate responses could have significant consequences.

Taken together, the findings support a blended human–AI training model rather than either complete reliance on AI or complete exclusion of AI from psychological counseling education. Within such a model, generative AI can undertake relatively standardized and repeatable educational functions, including simulated client or patient interaction, generation of diverse practice scenarios, repeated rehearsal of listening and responding techniques, and provision of preliminary formative feedback. Human instructors and supervisors, meanwhile, can focus on functions that require professional judgment and relational understanding, including interpretation of complex cases, evaluation of empathy and nonverbal communication, ethical reasoning, correction of clinically inappropriate responses, and integration of skills into authentic doctor–patient interactions. Such a division of labor would allow AI to address some of the scalability and accessibility limitations of traditional training while preserving the central role of human supervision. Importantly, this approach also avoids treating technological adoption as an end in itself; instead, the value of generative AI should ultimately be judged by whether it contributes to the development of students’ actual communication and counseling competencies.

Several limitations of the present study should also be considered. First, the study used convenience sampling and included 118 clinical medicine students from a single university, which limits the generalizability of the findings to students from other institutions, educational levels, or cultural contexts. Second, the study relied on a self-designed questionnaire and primarily examined participants’ subjective evaluations. Although perceived usefulness and satisfaction are important indicators of educational acceptance, they cannot establish whether students actually improved their counseling skills or whether such improvement could transfer to real clinical communication. Third, the study did not include objective pre–post performance assessments, a control group, or standardized expert ratings, and therefore causal conclusions regarding the effectiveness of generative AI-assisted training cannot be drawn. Fourth, the comparison among DeepSeek, Kimi, and Doubao was based on students’ experiences rather than standardized experimental testing, and differences in model versions, prompts, and interaction conditions may have influenced the results. Future research should therefore adopt controlled intervention designs with larger and more diverse samples, standardized scenarios and prompts, objective behavioral assessments, expert-rated communication performance, and follow-up measures of skill transfer to human–human interactions. In addition, future studies should examine whether repeated AI-assisted practice produces sustained improvements in empathy, listening, and communication competence rather than only short-term increases in perceived confidence.

Overall, the findings indicate that generative AI has meaningful potential as a supplementary tool for psychological counseling technique training among clinical medicine students, particularly because it can provide accessible simulated interactions, repeated practice opportunities, and immediate feedback. Nevertheless, the findings also demonstrate that students themselves recognize clear boundaries concerning emotional empathy, nonverbal communication, and complex situations, and these boundaries are consistent with the broader literature on both the educational potential and risks of conversational AI. Therefore, the appropriate direction for future development is not to replace human-led counseling education with AI, but to integrate generative AI into a structured training system in which technological tools support repetitive and standardized practice while human instructors retain responsibility for professional judgment, ethical education, relational learning, and complex case supervision. Such an approach may allow medical education to benefit from the scalability and accessibility of generative AI without weakening the fundamentally interpersonal nature of psychological counseling and doctor–patient communication.

5 CONCLUSION

Generative AI-assisted psychological counseling technique training was generally well received by the clinical medicine students included in this study. Students reported relatively high levels of perceived usefulness of AI-generated feedback, perceived improvement in counseling competence, and overall satisfaction, while simulated dialogue represented the most common form of AI-assisted practice. At the same time, the findings indicate that students did not regard AI as a complete substitute for human-led training. Emotional empathy, recognition of nonverbal information, and management of complex cases were consistently identified as areas in which human supervision remained necessary. The differences observed among AI models further suggest that students’ perceptions of professionalism, feedback detail, and training suitability may influence their selection of AI tools, although these subjective evaluations should not be interpreted as objective evidence of one model’s superiority. Overall, the findings support the integration of generative AI into psychological counseling and communication skills education as a supplementary resource for simulation, repeated practice, and preliminary feedback. Future educational models should therefore emphasize

structured human–AI collaboration, with AI supporting accessible and repetitive practice while human educators remain responsible for professional judgment, ethical guidance, relational competence, and complex case supervision.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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