

ChatGPT as a Tool for Generating Clinical Simulation Cases in Emergency Medicine Education: A Validity-Based Comparative Study

Almukhambetova E., Almukhambetov M.

S.D. Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan

INTRODUCTION & AIM

✓ Artificial intelligence (AI) is increasingly integrated into higher education, offering scalable tools for developing interactive learning resources. In medical education, large language models such as ChatGPT show potential for generating clinical simulation cases; however, their educational validity and clinical reliability remain insufficiently examined. Ensuring the accuracy and pedagogical quality of AI-generated materials is essential before integrating them into formal training programs.

METHOD

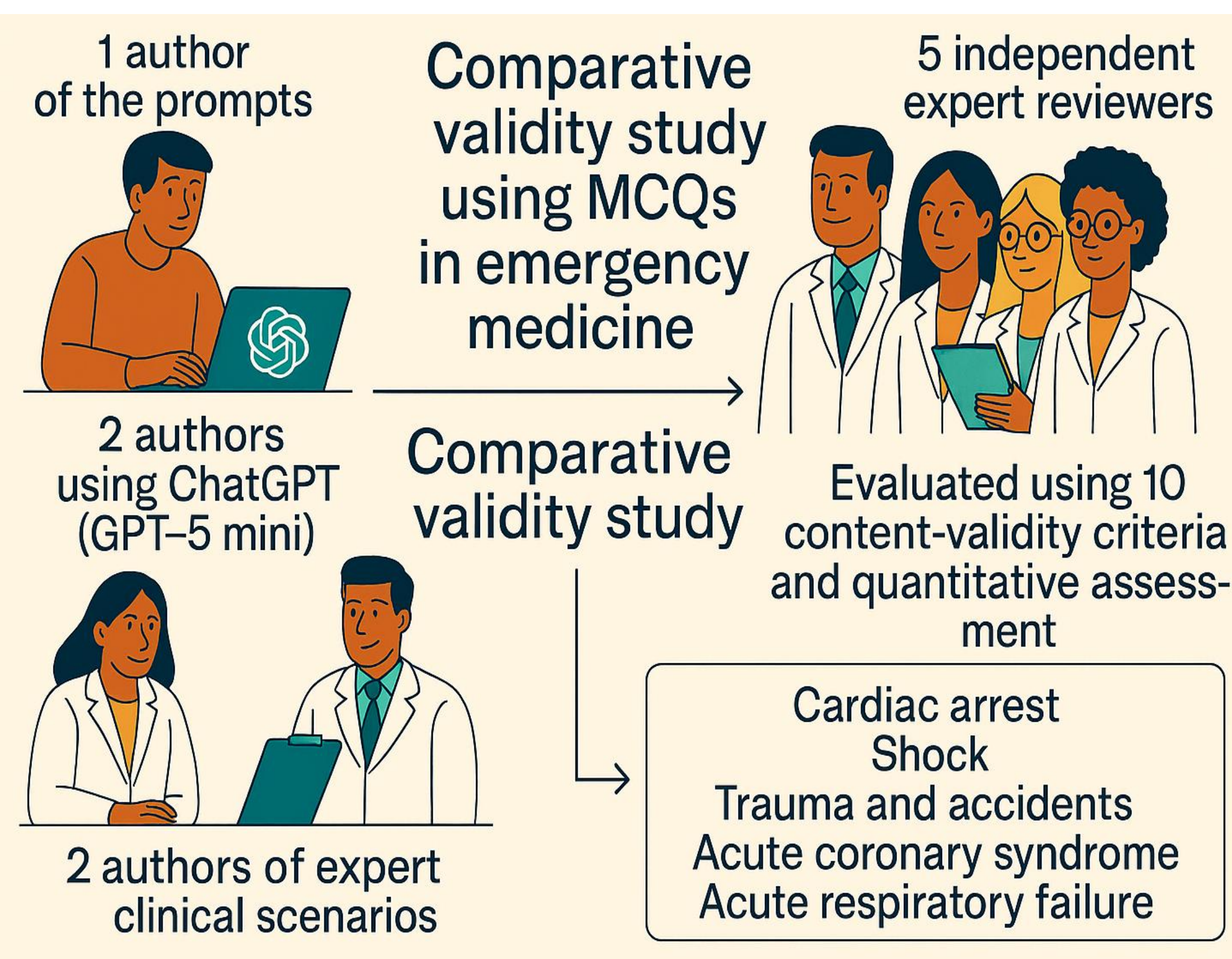


Figure 1: Workflow of the comparative validity study, outlining the creation of instructor-developed and AI-generated MCQs, expert evaluation using 10 content-validity criteria, and coverage of five core emergency medicine topics.

RESULTS & DISCUSSION

Parameter	Instructor-Developed Cases	ChatGPT-Generated Cases (GPT-5 mini)
Mean Quality Score (10 criteriam)	3.8 ± 0.13	3.0 ± 0.59
I-CVI (Item Content Validity Index)	0.984	0.496
S-CVI/Ave (Scale-Level Content Validity)	0.99	0.50
Aiken's V (expert agreement)	0.936 (oveng high)	0.671 (moderate) 25
Number of cases	25	25
Typical issues	None noteworthy	Insufficient clinical detail, heterogeneous distractors, logical inconsistencies

Mean Quality Score

Table 1. Comparative quality and validity indicators for instructor-developed and AI-generated cases

CONCLUSION

- ✓ ChatGPT can serve as an efficient support tool for the rapid generation of emergency medicine simulation cases. However, expert review and pedagogical refinement remain essential to ensure clinical accuracy and educational quality.
- ✓ AI-generated content should complement, rather than replace, expert-designed instructional materials.

FUTURE WORK / REFERENCES

- ✓ Bakkum MJ, Hartjes MG, Piët JD, et al. Using artificial intelligence to create diverse and inclusive medical case vignettes for education. *Br J Clin Pharmacol.* 2024;90(3):640-648. doi:10.1111/bcp.15977
- ✓ Zeng J, Qi W, Shen S, et al. Embracing the Future of Medical Education With Large Language Model-Based Virtual Patients: Scoping Review. *J Med Internet Res.* 2025;27:e79091. doi:10.2196/79091
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