

The Transformative Potential of Artificial Intelligence in Obstetrics and Gynaecology Resident Education

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Introduction

Artificial Intelligence (AI) is rapidly reshaping the landscape of medical education, offering novel opportunities to enhance clinical training and learner engagement. Despite its growing role in healthcare delivery, the integration of AI into residency education remains underexplored, particularly in O&G.

Objective

This study explores the transformative potential of artificial intelligence (AI) in Obstetrics and Gynaecology (O&G) specialty trainee education, aiming to highlight how AI can enhance training, personalise learning, and ultimately shape the future of O&G practice. The primary hypothesis is that AI integration into O&G specialty training programmes will lead to more effective, efficient, and engaging educational experiences, producing more competent and confident doctors.

Design

This study employs a scoping review methodology to analyse existing literature on AI applications in O&G education and related medical fields. The rationale behind this design is to synthesise current knowledge, identify trends, and evaluate the potential impact of AI on resident training and practice. The review examines various AI applications, including simulations, diagnostic tools, and personalised learning platforms, focusing on their educational value and clinical implications.

Method

Relevant databases and key journals were searched using following keywords: "artificial intelligence", "Obstetrics and Gynaecology residency training", "medical education", "simulations", and "personalised learning". Data extracted to identify key themes, trends, and potential benefits of AI in O&G resident education.

Results

The review reveals that AI-powered simulations, particularly VR and AR platforms, offer a risk-free environment for residents to practice procedures, receive personalised feedback, and gain exposure to rare cases. AI algorithms are also being used to enhance diagnostic accuracy by assisting in the interpretation of medical images, such as ultrasound scans, and providing real-time feedback. Adaptive learning platforms further personalised education by identifying learners' knowledge gaps and suggesting targeted resources. Additionally, AI-driven knowledge repositories facilitated evidence-based practice and continuous professional development, while also improving patient communication.

Conclusion

The integration of AI into specialty training programmes holds immense promise for improving medical education. AI-powered tools can enhance surgical training, improve diagnostic and decision-making skills, personalise learning experiences, and facilitate access to the latest medical knowledge. These advancements can lead to a more competent and confident generation of O&G doctors, ultimately improving patient care and outcomes. To fully realise this potential, departments and deaneries should be encouraged to develop and implement pilot programs integrating AI-driven educational tools into their curricula. Funding initiatives should be established to support the development, validation, and dissemination of these technologies. Further research is needed to evaluate the long-term impact of AI on resident performance and patient outcomes.