Letter To Editor

REDEFINING COMPETENCE IN THE ERA OF ARTIFICIAL INTELLIGENCE - AN OPINION PAPER

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It is a well-known fact that defining 'competence' was never an easy task. Literature shows that throughout the years, several authors have tried to define it definitively, but they did not seem to succeed. Authors such as Tabari-Khomeiran et al. (2007) and Camelo & Angerami (2013) mostly talk of competence in relation to how skilful a nurse is at performing certain tasks (1,2). This was also confirmed during a short seminar presented by Axiak & Scicluna Ward (2026) where the majority of nurses present, who were working in different Maltese healthcare settings, were asked what they understood by 'competence' (3). The results are tabulated in Table 1 below and show that, even today, many nurses still perceive competence as mostly being related to knowledge and skills. The psychosocial aspect of competence is often overlooked.

Table 1 - Nurses' views of competence (3).

Factors related to competence	Percentage
Knowledge, practical skills and attitudes	*97%*
Knowledge and practical skills	*2%*
Knowledge only	*1%*

A more 'holistic' perspective emerged in the early 21st century. This defined 'competence' as a combination of knowledge, skills, attitudes and values that are used while a nurse is practicing nursing skills (4–6).

The development and growth of artificial intelligence (AI) and its rapid integration into healthcare have changed the traditional ways of viewing competence (7). It has created tensions between what was once professional accountability and the support for algorithmic decisions and decision-making. Reflective practice and clinical reasoning, although still crucial and necessary, have changed. AI systems make the healthcare more complex and introduce new aspects of care such as shared accountability, probability reasoning and bias risk (8). Rather than being based on human decision-making, care is being led by complex datasets that are often not controlled by the users themselves. That is why Hoelscher & Pugh (2025) insist that nursing professionals must develop or improve their AI literacy to be able to engage with these new AI systems effectively and meaningfully. According to a draft report issued by the European Commission & Organization for Economic Cooperation and Development (OECD) (2025), AI literacy implies one's readiness to adopt AI by possessing the appropriate knowledge, skills and attitudes towards adopting a machine-based system. A study that they carried out in 2024 showed that 74% of 12- to 17-year-olds believed that AI would become an integral part of their professional life. 44-46% thought their schools were preparing them adequately and that their teachers were well prepared to work with AI tools. 49% were worried that AI could impact academic performance negatively by widening knowledge gaps rather than consolidating them. Ethical concerns and human relational aspects – such as empathy, morality and observation – remain cloudy and doubtful.

A study by Nilsson (2025) found that clinicians did not feel deskilled by the current AI applications. With regards to future generations of healthcare professionals who possess a larger knowledge of AI and its capabilities, they were scared these would become deskilled due to their dependence on AI. The outcome was that through human-AI integration, this could lead to upskilling of healthcare professionals rather than deskilling, if the right approach was adopted. Core competencies must be addressed and developed to integrate AI into care provision, clinical practice, nursing education and clinical automation systems. Thus, a careful educational setup

for incoming nursing students needs to be developed in such a way that while clinical practice is enhanced and supported through AI, the "essential human elements such as trust and empathy are not disrupted but rather developed" (10).

A question one can ask is "What can AI be used for in healthcare?" One can mention the use of AI in enhancing diagnostic accuracy (11). A clear example is this stethoscope that helps detect major heart conditions in a few seconds (12). It can even assist in the detection of a number of diseases, thus promoting early prevention of certain diseases (13). Administrative burden and even burnout of the clinicians can be facilitated by automation of procedures and documentation, leaving more time for direct patient care (14).

AI can never replace competence, especially clinical competence where decisions are taken based on experience and clinical judgement. On the contrary, AI can support all that. It can offer predictions towards diagnosing, managing and treating conditions based on risks and symptoms. It can recommend and coordinate diagnoses through image recognition. When using electronic health records, this can facilitate communication, automate it and make analysis of information easier and clearer. The secret is knowing when to trust AI and up to which point, before turning back to the good old human input and clinical accountability. When it comes to more in-depth analyses as part of research studies, evaluation programmes or routine assessment, AI can provide an invaluable and unique tool that can complement clinical practice and give it more weight and meaning. So, what are the complications created when AI is introduced into daily practice? What are the advantages and disadvantages of adopting AI in clinical practice?

Concerns however remain, especially where ethical and professional issues are involved. The main ethical principles of autonomy, fairness, transparency and others need to be integrated into AI systems with care and caution. Research shows that this is sometimes "operationalised inconsistently" (15), placing doubt on their use. Decision-making and providing informed consent are also difficult to implement using AI. Fairness and equity are again difficult to achieve when using AI, as strategies to deal with them would then involve complex and datasets to promote inclusive practices (16). Also, regulations and regulatory frameworks are still far from including AI strategies, methodologies and ways of thinking. Liability norms and safety regulations need to be tailormade in such as way as to preserve all the existing norms and principles while adding an extra benefit from AI and its integration into our systems, regulations and care (17).

The way forward, in today's world, is a healthcare system which includes empathy, holistic judgement and ethical practice. However, this is not enough. AI must be accepted and integrated into our care systems. National governance frameworks should take good governance and accountability into account and see where and how AI can help in this. Nursing curricula should include educational sessions on AI knowledge and how it can be used safely and in an informed manner. Multidisciplinary collaboration between clinicians, scientists, ethicists, and policymakers should discuss and enhance this principle, while always keeping the patient as the centre of care.

Therefore, in conclusion, what would 'competence' mean to us now, since AI has come to stay? AI is not replacement of humans and clinicians but a powerful and welcome tool to support us. If were to define 'competence' therefore, based on what we discussed earlier and as stated by several authors and entities (18–22), the resulting definition would be:

"Competence in the age of AI is the integrated, context-responsive capacity to apply knowledge, skills, ethical judgement, digital literacy, and adaptive reasoning to collaborate effectively with intelligent systems while maintaining professional accountability and human-centred values".

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