

ARTIFICIAL INTELLIGENCE IN THE EDUCATION OF HEALTH PROFESSIONS: A DESCRIPTIVE ANALYSIS THROUGH BIBLIOMETRICS

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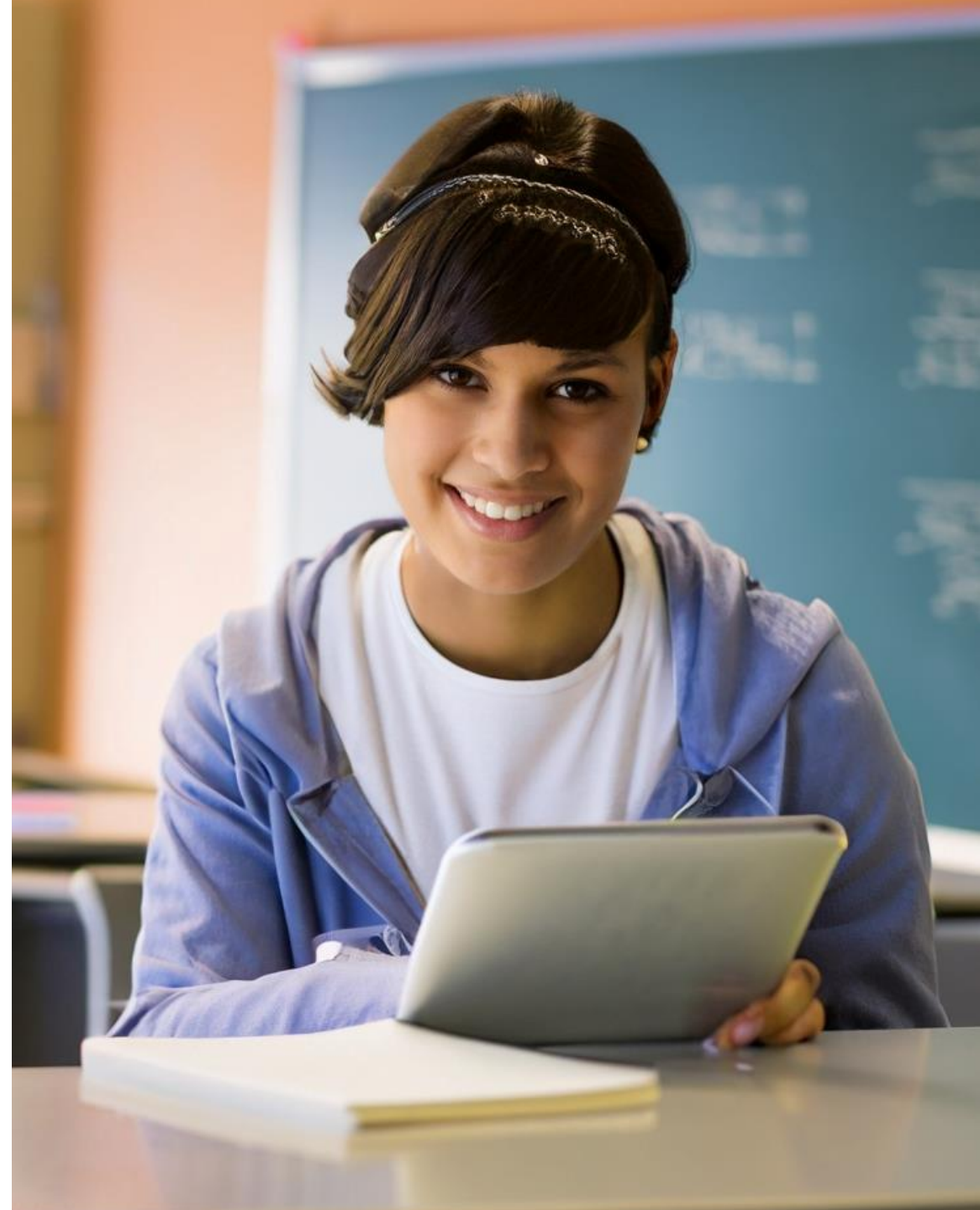
Background

- Artificial intelligence (AI) refers to a branch of computer science that focuses on creating machines and software programs that can perform tasks that typically require human-like intelligence, such as learning, problem-solving, decision making, and language understanding.
- Artificial intelligence (AI) possesses the capacity to revolutionize the education of healthcare professionals by offering innovative tools and resources for teaching and training.



Background

- The incorporation of AI in healthcare education has the potential to enrich the learning experience for students, improve their clinical skills and decision-making abilities, and ultimately contribute to better patient outcomes.
- The application of artificial intelligence (AI) in health professions education continues to expand, potentially influencing research as well.
- Nonetheless, the proliferation of scientific publications in this area presents challenges in comprehending the field's scientific structure and development. Employing visualization techniques based on bibliometric data can facilitate a better understanding of these scientific domains.



Background



- Bibliometrics is the study of patterns and trends in research literature. It involves the use of statistical and mathematical methods to analyze and measure the impact of research papers and other scholarly works.
- Bibliometric studies are often used to evaluate the productivity and impact of research in a particular field or institution, and may be used to inform decisions about funding, hiring, and promotion

Methodology

- This study is a bibliometric, descriptive, and retrospective analysis of publications related to the use of Artificial Intelligence (AI) in Health Professions Education.
- The author conducted a literature search in the PubMed database, spanning from 1990 to 2023, using the following search string: (AI OR "Artificial Intelligence"[Mesh]) AND "Education"[Mesh] AND "Health Personnel"[Mesh]. This search aimed to identify relevant publications that discuss the application of AI in the context of educating healthcare professionals.
- Following the identification of these publications, the author reviewed the titles and abstracts to extract the main terms and concepts related to the field. This process was carried out using VOSviewer software, a tool specifically designed for bibliometric mapping and visualization. By utilizing this software, the author was able to create a visual representation of the most important trends and themes mentioned in the literature.

Results

The researchers identified a total of 576 relevant references, including 36 clinical trials and randomized controlled trials, as well as 57 meta-analyses and systematic reviews (Fig.1).

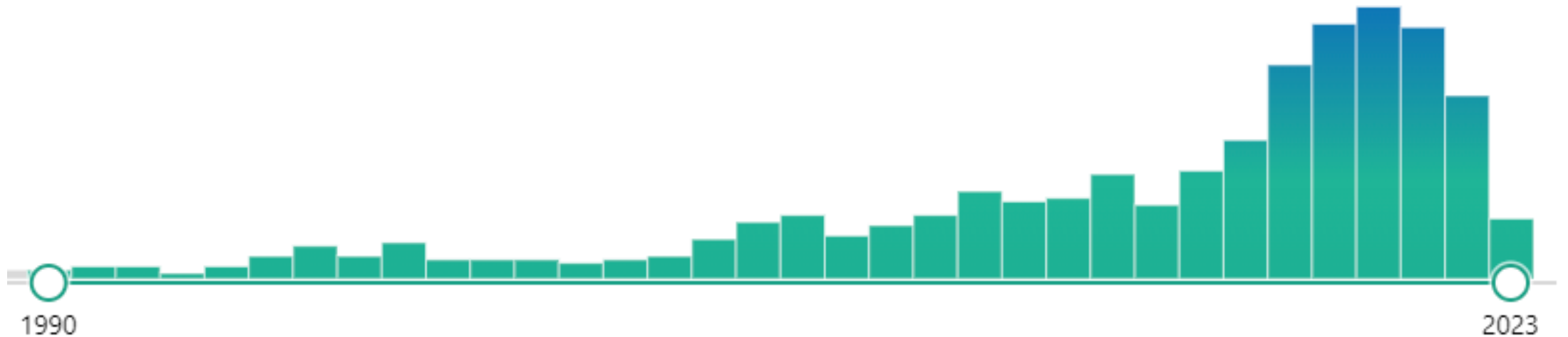


Figure 1. Publications identified in Pubmed database from 1990 to 2023

Results

Upon examining the co-occurrence of Mesh terms associated with AI and healthcare professionals' education, it was found that the most common usage of this approach was in various medical fields and educational levels, followed by nursing and allied health personnel (Fig.2)

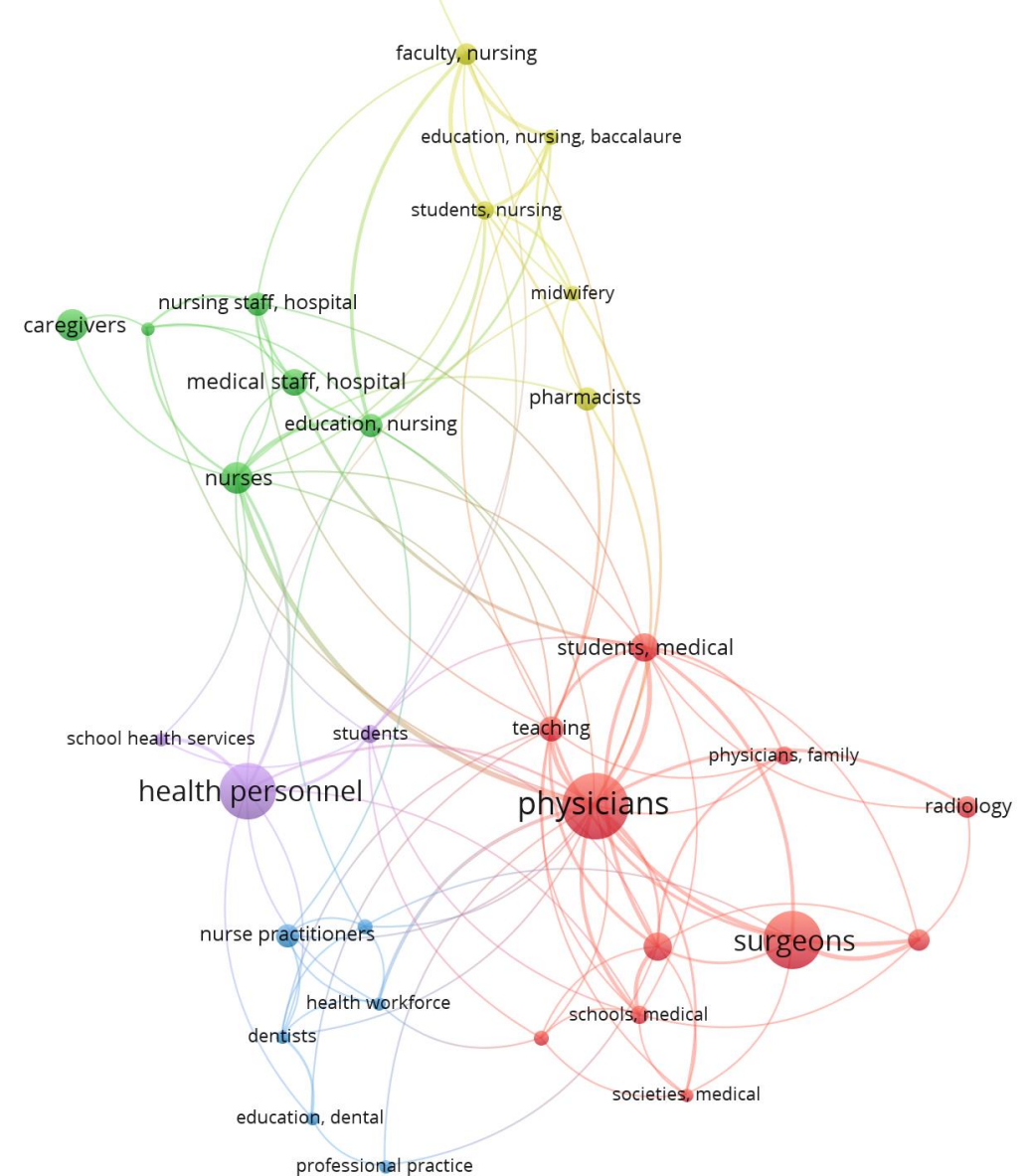


Figure 1. Publications identified in Pubmed database from 1990 to 2023

Results

A significant observation is the early adoption of artificial intelligence (AI) in healthcare education within the medical profession in general, which experienced increased momentum after 2010.

Subsequently, the nursing profession began to adopt AI in 2016, and its usage expanded to other healthcare professionals and medical specialties. (Fig.3).

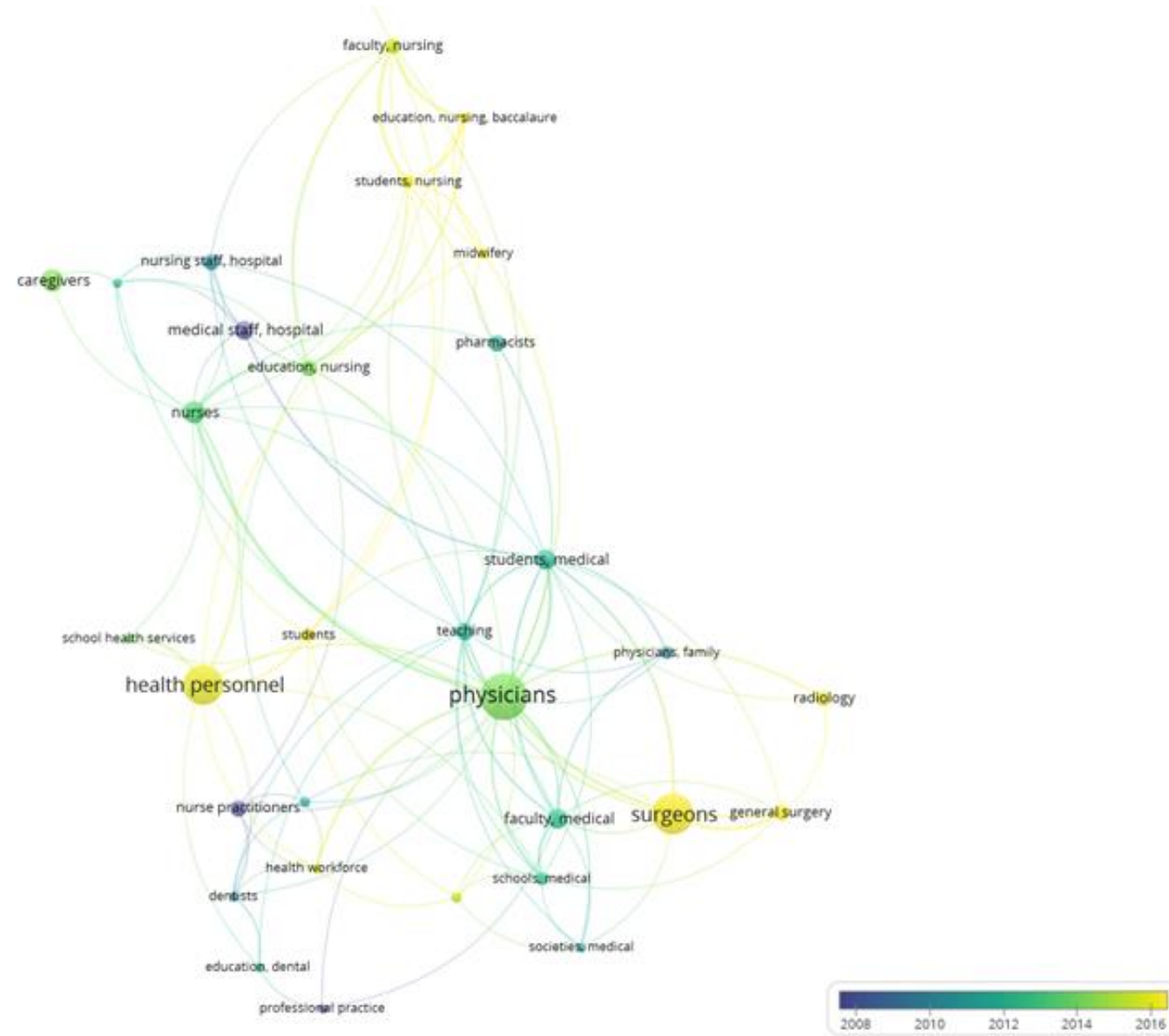


Figure 3. Co-occurrence of the terms associated with AI and professions through time (VOSviewer)

Results

In the context of applications of artificial intelligence (AI) in healthcare education, it is evident that the primary focus areas are associated with the enhancement of clinical competencies and attitudes among healthcare professionals, which include medical practitioners, nursing staff, and allied health personnel.

Subsequently, patient education emerges as another significant aspect, encompassing health literacy and attitudes towards healthcare management (Fig.4).

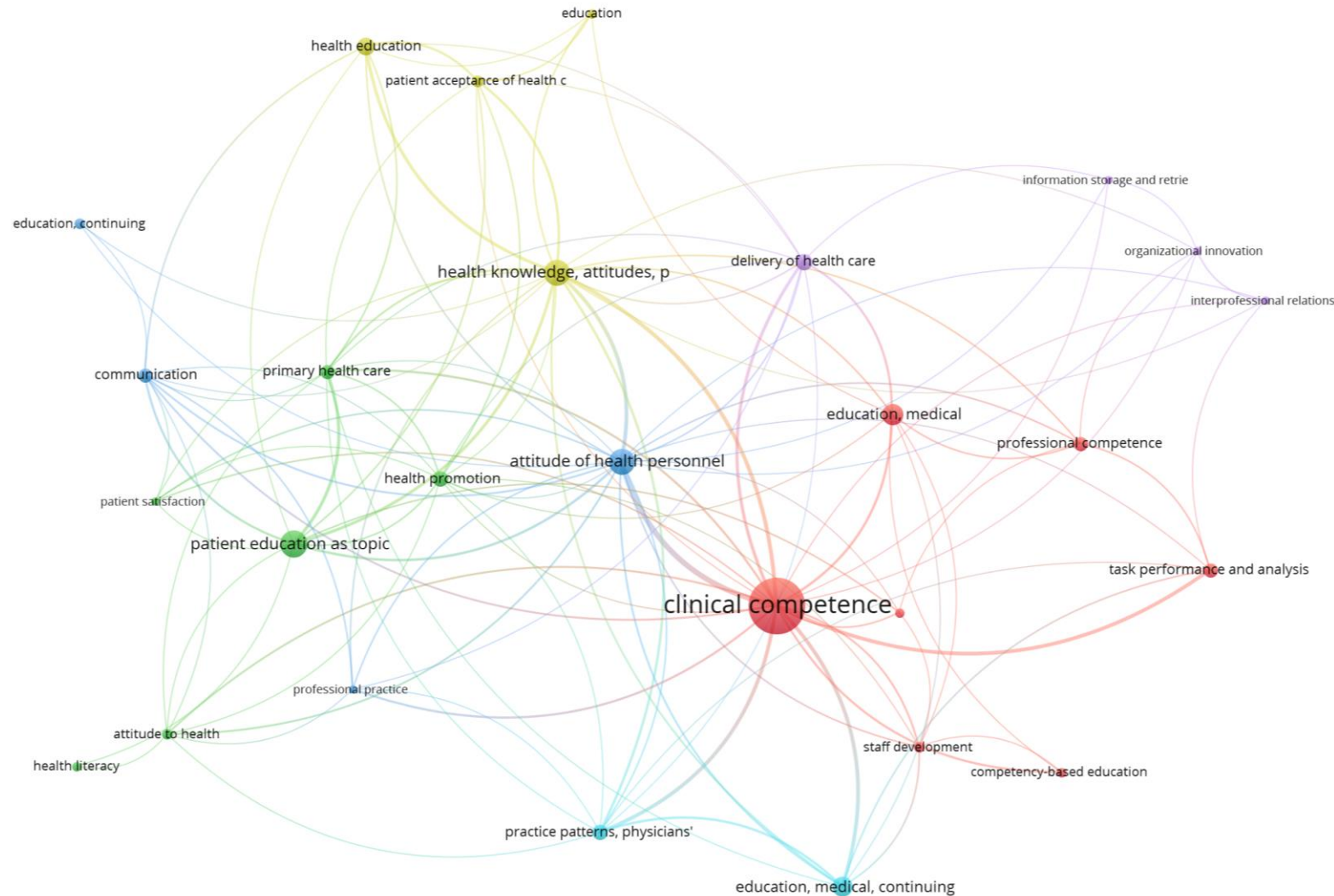


Figure 4. Co-occurrence of the terms associated with the AI usage in education (VOSviewer)

Results

With respect to the adoption timeline of artificial intelligence (AI) in education, it is apparent that there was a marked increase in interest regarding its potential as a tool for enhancing clinical competencies after 2016.

However, the utilization of AI for patient education purposes can be traced back to earlier years, indicating a gradual progression in the integration of AI technologies within the healthcare education domain (Fig.5).

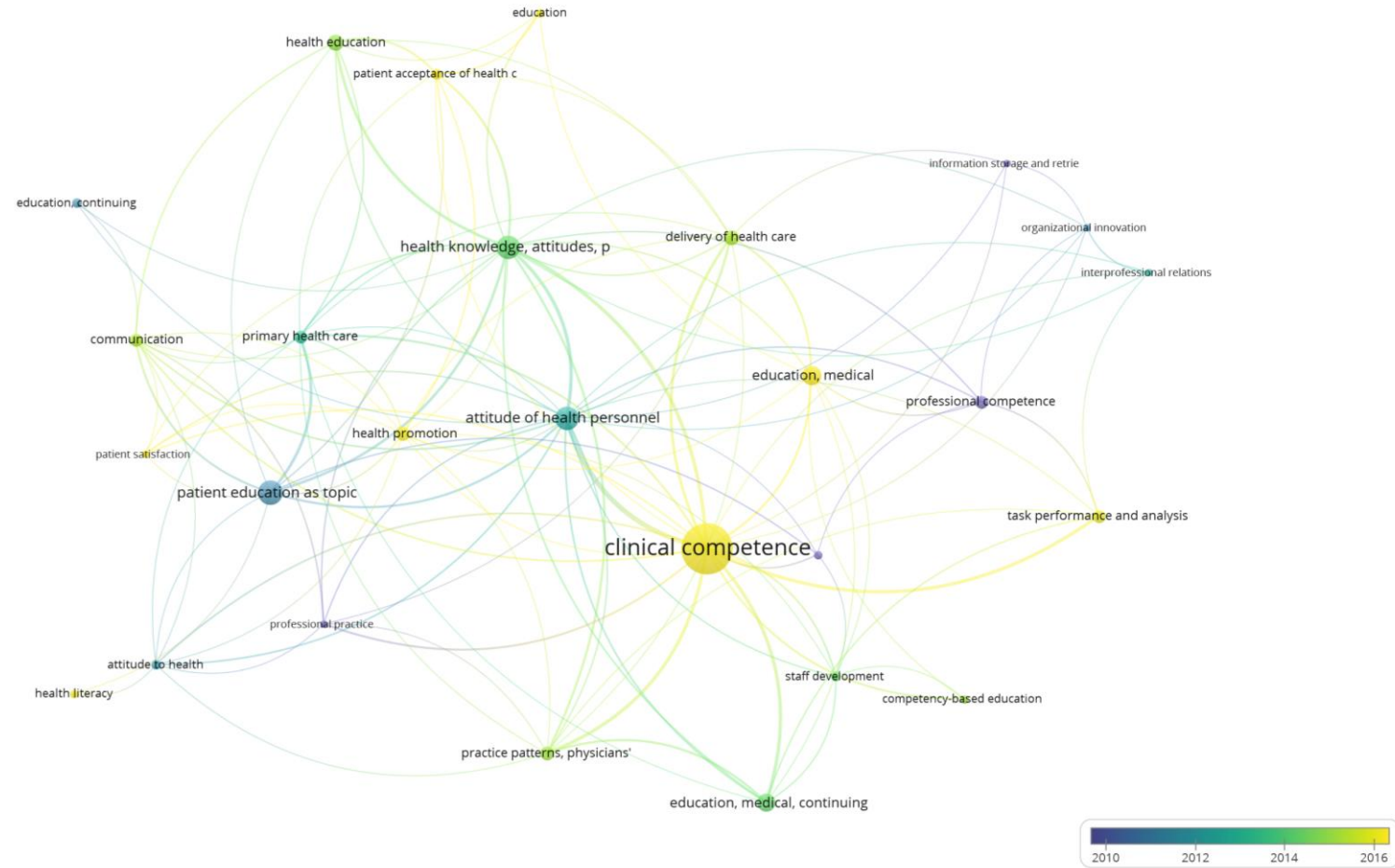


Figure 5. Co-occurrence of the terms associated with the AI usage in education through time (VOSviewer)

Conclusions

- In recent years, as demonstrated by published research, interest in artificial intelligence (AI) has grown exponentially, impacting various aspects of its implementation in the education and training of healthcare professions.
- The integration of AI in healthcare education has the potential to augment the learning experience for students, refine their clinical skills and decision-making abilities, and ultimately contribute to improved patient outcomes.
- As AI technology develops further, it is crucial to ensure that these innovations are designed and implemented in an ethical and responsible manner, with due consideration given to issues such as bias, privacy, and transparency.



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