

The Effectiveness Of Concept Mapping As A Tool For Developing Critical Thinking In Undergraduate Medical Education - A Systematic Review

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Abstract : BACKGROUND: Concept maps (CMs) visually represent hierarchical connections among related ideas. They foster logical organization and clarify idea relationships, potentially aiding medical students in critical thinking (to think clearly and rationally about what to do or what to believe). However, there are inconsistent claims about the use of CM in undergraduate medical education. the three research questions are 1) What studies have been published on concept mapping in undergraduate medical education; 2) What was the impact of CMs on students' critical thinking; 3) How and why have these interventions had an educational impact? METHODS: Eight databases were systematically searched (plus a manual and an additional search were conducted). After eliminating duplicate entries, titles and abstracts and full-texts were independently screened by two authors. Data extraction and quality assessment of the studies were independently performed by two authors. Qualitative and quantitative data were integrated using mixed-methods. The results were reported using the Structured approach to the Reporting in healthcare education of Evidence Synthesis statement. RESULTS: Thirty-nine studies were included from 26 journals (19 quantitative, 8 qualitative and 12 mixed-methods studies). CMs were considered as a tool to promote critical thinking, both in the perception of students and tutors, as well as in assessing students' knowledge and/or skills. In addition to their role as facilitators of knowledge integration and critical thinking, CMs were considered both a teaching and a learning methods. CONCLUSIONS: CMs are teaching and learning tools which seem to help medical students develop critical thinking. This is due to the flexibility of the tool as a facilitator of knowledge integration, as a learning and teaching method. The wide range of contexts, purposes, and variations in how CMs and instruments to assess critical thinking are used increases our confidence that the positive effects are consistent.

Keywords : concept map, medical education, undergraduate, critical thinking, meaningful learning

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