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Healthcare Decarbonisation Education for Health Profession Students: A Sc...

Healthcare Decarbonisation Education for Health Profession Students: A Scoping Review

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Abstract Climate change is the greatest health threat of the 21st century, with healthcare contributing approximately 4-5% of global greenhouse gas emissions. Decarbonising healthcare, the deliberate reduction of emissions across all healthcare activities, is essential to reduce the health sector's environmental impact while maintaining equitable, high-quality care. Preparing future health professionals for sustainable, low-carbon practice is increasingly recognised as critical; however, education on healthcare decarbonisation remains inconsistent and weakly embedded in curricula. This scoping review mapped existing educational resources for pre-registration health profession students. Following the JBI methodology, six databases (Scopus, Web of Science, MEDLINE, CINAHL, PsycINFO, and GreenFILE) were searched in April 2025 (updated in October 2025). Data were thematically analysed. In total, 32 studies met inclusion criteria, comprising 17 mixed-methods, 11 quantitative, and 4 qualitative designs. Most interventions were multimodal, addressing sustainability or climate change through simulation, digital, formal, or didactic methods. Knowledge and attitudes were the most frequently evaluated outcomes. Thematic analysis identified knowledge and awareness, attitudes and emotional responses, behavioural intent and action, identity formation through collaborative learning, and barriers to decarbonisation. Findings suggest that blended, interactive, and technology-enhanced education improves knowledge, attitudes, and identity, but sustained impact requires longitudinal, skills-based, and policy-aligned interventions to drive meaningful healthcare decarbonisation action.

Keywords **Author Keywords:** [healthcare decarbonisation](#); [sustainability education](#); [climate change](#); [low-carbon healthcare](#); [pre-registration health professions](#); [health professions education](#); [environmental sustainability](#)

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Data availability statement

The original contributions presented in this study are included in the article/Supplementary Material. Further inquiries can be directed to the corresponding author. This review has been developed in accordance with established guidelines and reporting standards, the Joanna Briggs Institute (JBI) methodology for scoping reviews (ScRs) (<https://jbi.global/scoping-review-network/resources> accessed 1 April 2025), and the PRISMA Extension for Scoping Reviews (PRISMA-ScR) (<https://www.prisma-statement.org/scoping> accessed 1 April 2025). Artificial intelligence or AI-assisted tools were not used in the design, data collection, analysis, or drafting of this manuscript. All authors have read and agreed to the published version of the manuscript.



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