



BMJ Open Integration of planetary health in undergraduate and postgraduate medical education: protocol for a scoping review

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ABSTRACT

Introduction Despite climate change being recognised as the greatest health threat of the 21st century, current medical education curricula do not reflect the urgency of the climate crisis. Preparing for climate-related health repercussions requires educational institutions to disseminate planetary health knowledge in a systematic way. We sought to evaluate the extent of the literature on the inclusion of planetary health in undergraduate and postgraduate medical education to guide curricular development.

Methods and analysis A scoping review is being undertaken with a search strategy developed with a health sciences librarian. The search strategy was run on the following databases from inception to 22 June 2021: Medline, Embase, APA PsycINFO, CINAHL, Global Health, Scopus. This scoping review is being conducted as per methodology that has been previously outlined. Studies that discuss the implementation of planetary health education within undergraduate and postgraduate medical education will be included, whether they discuss formal inclusion or supplemental courses. To supplement our database search, data from the Health and Environment Adaptive Task Force's National Report on Planetary Health Education, the Planetary Health Report Card and the Association for Medical Education in Europe Consensus Statement on Planetary Health and Education for Sustainable Healthcare will be included. As we anticipate varying methodologies, the data analysis will consist of both a quantitative and a qualitative component. Outcomes will be categorised within the domains of the Planetary Health Education Framework, which incorporates concepts of systems thinking, social justice and interconnection within nature as they apply to education for planetary health.

Ethics and dissemination As no intervention or patient recruitment will be required, research ethics board approval is not applicable. We plan to disseminate our results via publication in a peer-reviewed journal or conference presentation.

Trial registration number This protocol has been registered in Open Science Framework (10.17605/OSF.IO/7M6GZ).

INTRODUCTION

With global estimates of healthcare's climate footprint being equivalent to 4.4% of global

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Our scoping review will focus on undergraduate and postgraduate medical curricula with planetary health inclusion.
- ⇒ The search strategy has involved six electronic databases, as well as a search of the grey literature to capture recent curricular updates as they pertain to planetary health education.
- ⇒ When reporting the findings, the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) will be used.
- ⇒ Four independent reviewers will conduct the screening of all articles using predefined inclusion and exclusion criteria.
- ⇒ Our results will be limited to medical education, acknowledging that experiences from other healthcare specialities such as nursing, occupational therapy, physiotherapy etc will not be included in our review.

net emissions,¹ multiple professional bodies have posited that climate change be viewed through the lens of a public health emergency.²⁻⁴ Traditional definitions of health, however, do not integrate the environmental costs of attaining a state of health at an individual, community or population level. The term planetary health has been described as the achievement of the highest attainable standard of health, well-being and equity not only through attention to human systems, but also through conscious attention to Earth's natural systems that define the safe environmental limits of our actions.⁵

At the forefront of redefining our concept of health with this planetary focus are current and future healthcare professionals. Healthcare professionals need to be prepared for the current and ongoing climate-related health emergencies such as weather-related disasters, heat-related illnesses and vector-borne diseases, in addition to the widening



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of existing disparities in health outcomes of marginalised populations.⁶ Various initiatives by health professional students have been described for advancing institutional change,⁷ highlighting the importance of meaningful student involvement in engaging future healthcare providers in becoming educational partners and advocates for planetary health.⁸

As a first step towards incorporating a planetary health curriculum within medical education, organisations such as the Health and Environment Adaptive Response Taskforce (HEART) have created a set of planetary health competencies to provide a framework for subsequent curricular development.^{9 10} A recent scoping review found that environmental competencies within nursing, medicine and pharmacy fit in well with previously validated healthcare competencies of resource stewardship, systems thinking, and social and environmental justice.¹¹

With this recent emphasis on planetary health competencies and the role that healthcare professionals play in the development and advocacy of these initiatives, we identified an opportunity to consolidate the current literature on how planetary health competencies have been translated into medical education curricula at the undergraduate and postgraduate level. To our knowledge, there has not been a formal review of the literature on this topic. As we anticipate a variety of study designs and outcomes, we have chosen a scoping review to consolidate the available literature. The scoping review methodology that has previously been described will be employed.^{12 13} The goals of this scoping review will be to examine the extent, range and nature of research activity; to summarise and disseminate research findings and to identify research gaps in the current literature that need to be addressed to make further advancements in planetary health education for future healthcare professionals.¹²

METHODS AND ANALYSIS

Study design

A scoping review is being undertaken to review the literature on the inclusion of planetary health in undergraduate and postgraduate medical education. Our protocol has been reported according to the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) statement¹⁴ and has been registered in Open Science Framework. The PRISMA-P checklist is provided in online supplemental file 1.

Identifying the research question

The purpose of this study will be to identify the extent of integration of planetary health in undergraduate and postgraduate medical education. This includes primary medical education as well as subsequent specialty or fellowship training. We will use the conceptualisation of the term planetary health described by Whitmee and colleagues which includes recognising the benefits to health arising from the conservation of natural systems; mitigating greenhouse gases that result from human

activities and developing policies to address the social, economic and environmental determinants of health.⁵ Our research question is as follows:

Within undergraduate and postgraduate medical education, what is the extent of integration of planetary health?

Identifying relevant studies

The following databases were searched by a health sciences librarian (LS) during the electronic component of the scoping review: Medline and Medline in Process via Ovid (1946–21 June 2021), Embase Classic + Embase via Ovid (1947–21 June 2021), APA PsycINFO via Ovid (1806–Week 2, June 2021), CINAHL via EBSCOHost (1981–22 June 2021), Global Health (1973–22 June 2021) and Scopus (1970–22 June 2021). A search strategy was developed in Medline, and then translated into the other databases, as appropriate (see online supplemental file 2). The Medline search strategy was peer reviewed using the Peer Review of Electronic Search Strategies (PRESS) tool by another librarian (SV). All databases were searched from dates of inception to 22 June 2021. There were no publication restrictions. All references were entered into an Endnote file for processing (n = 3127), and then Covidence for deduplication and screening. The search will be updated to capture additional studies as of February 2022.

The results of our search strategy will be checked with relevant references to ensure that related studies are captured as much as possible. The grey literature will be searched using Google. To ensure that we capture any recent updates to medical school curricula, we will include data from three additional sources. The first will be from the HEART's National Report on Planetary Health Education. This report provides an informal survey of the teaching on climate change and environmental topics within Canadian medical schools.⁹ Second, data will be extracted from the Planetary Health Report Card, a student-led initiative that evaluated existing planetary health inclusion using a set of defined metrics.¹⁵ Finally, our database search will be supplemented with data from the Association for Medical Education in Europe's Consensus Statement that describes approaches to promote the concept of planetary health within health professions education.¹⁶

Study selection

Studies will be included in our scoping review if they discuss planetary health inclusion at the undergraduate or postgraduate medical education level. Studies can discuss formal course curricula, as well as supplemental courses or workshops. There will be no limitations on study design; commentaries and expert opinions will be included if they describe the components of a curriculum pertaining to planetary health, how a planetary health curriculum is implemented, or outline suggestions for future curricular development.

Study selection will be performed using Covidence systematic review software (Veritas Health Innovation, Melbourne, Australia) and Excel (Microsoft Excel, Version 16.35). Four reviewers will apply inclusion and exclusion criteria to all the citations based on title and abstract. All articles identified by all reviewers as meeting criteria, as well as any disagreements between reviewers will be advanced to full text review.

Next, four reviewers will independently review the full text of the articles that met the inclusion criteria based on their title/abstract. Reasons for excluding studies after full text review will be documented. If disagreements occur, reviewer HM will be consulted to make the final decision regarding inclusion. The study selection process will be summarised using the PRISMA flow diagram.¹⁷

Charting the data

Microsoft Excel will be used for the data extraction process. A standardised form will be developed and tested on five of the included studies to determine whether the data extraction approach is consistent with the study aims. This form will be modified as needed, as we expect to find studies of differing methodologies. Data extraction will then be performed in duplicate. Charted data that will include the authors, year of publication, study location, study population, sample size, study aims, methodology, outcome measures and important results.

Collating, summarising and reporting results

Given that we expect varying methodologies and study populations across the different studies included in this scoping review, the analysis of the results will depend on the type of data gathered. We suspect that the data analysis will include a quantitative component to summarise the frequency/demographics of studies, sector of health education, type of course and learning objectives/competencies addressed, as well as a qualitative component to outline common themes that apply to planetary health within medical education. Where feasible, outcomes will be categorised within the domains proposed by the Planetary Health Education Framework (PHEF), which incorporates concepts of systems thinking, social justice and interconnection within nature as they apply to planetary health.¹⁸ As outlined within the interconnection within nature domain, the diverse knowledge and spiritual traditions of indigenous peoples will be included as this is an important component of planetary health. Risk of bias assessment of the included studies will be conducted using the appropriate Joanna Briggs Institute (JBI) critical appraisal tools.¹⁹

Patient and public involvement

Patients and the public will not be involved in our scoping review.

ETHICS AND DISSEMINATION

No intervention or patient recruitment will be required for this scoping review, and as such, research ethics board approval is not required. Following study completion, we plan to disseminate our results via publication in a peer-reviewed journal and/or conference presentation.

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