











# Australian and New Zealand nursing and midwifery educators' planetary health knowledge, views, confidence and teaching practices: A descriptive survey study

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## Abstract

**Aim:** To explore Australian and New Zealand nursing and midwifery educators' planetary health knowledge, views, confidence and teaching practices.

**Design:** A cross-sectional survey design.

**Methods:** An online survey was sent to Australian and New Zealand nursing and midwifery educators across the 45 Schools of Nursing and Midwifery between July and September 2023. The online survey consisted of 29 open- and closed-ended questions about nursing and midwifery educators' planetary health knowledge, views, confidence and teaching practices.

**Results:** There was a total of 127 responses to the first open-ended question. A total of 97 nursing and midwifery educators then completed the remaining questions. While educators had mostly positive views about integrating planetary health into their teaching, they lacked the knowledge and/or confidence to do so effectively.

**Conclusion:** Australian and New Zealand nursing and midwifery educators acknowledge that planetary health should be included in nursing and midwifery curricula, but most reported a deficit in knowledge and/or confidence to integrate these complex concepts into their teaching. When considering planetary health, most educators focussed on climate change, which demonstrates their limited understanding of the concept of planetary health.

**Implications for the Profession:** All nurses and midwives need to understand how the health of the planet and human civilization are interconnected and be prepared to address complex global health challenges now and in the future. Across the world, key healthcare organizations have called upon nursing and midwifery educators to prepare the healthcare workforce to practice in a more sustainable way, including supporting decarbonization of healthcare. However, our study has demonstrated that nursing and midwifery educators do not feel ready to respond due to a lack of required knowledge and/or confidence.

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**Reporting Method:** We used the Consensus-Based Checklist for Reporting of Survey Studies (CROSS).

**Patient or Public Contribution:** No patient or public contribution.

**KEYWORDS**

climate change, educators, global health, planetary health, sustainable healthcare

## 1 | BACKGROUND

There is no doubt that the ongoing human-driven assault on the Earth's natural systems threatens the health of current and future generations (Whitmee et al., 2015). Anthropogenic changes and their multidimensional health impacts are already evident. If we do not change our path, we will see worsening climate change, air and soil quality, biochemical cycles and the further destruction of biodiversity in marine and terrestrial life, threatening the collapse of human civilizations (Myers, 2017). The planet has already warmed more than 1.2°C above pre-industrial levels; 2023 was the warmest year since global records began in 1850 (National Centers for Environmental Information, 2023). The pressing reality is that unless we seize the narrowing window of opportunity to transform systems and values, human life will not be sustainable on Earth, because we are living on the only habitable planet we know (Steffen et al., 2015).

Planetary health is a nascent concept for Western societies, it is focussed on “analyzing and addressing the impacts of human disruptions to Earth's natural systems on human health and all life on Earth” (Planetary Health Alliance, n.d.). Whitmee et al. (2015) have defined planetary health as “the health of human civilization and the state of the natural systems on which it depends” (p. 1978). While this definition has gained prominence, it has been criticized for its persistent over-reliance on Western Eurocentric understandings of health and natural systems, which continues the longstanding dynamic of Western dominance across the planet (Redvers, 2021). Planetary health encompasses interconnected terms including climate change, global health and environmental sustainability (Schütte et al., 2018). Traditionally, the concept of health has narrowly focussed on individuals, populations, or nations, rarely considering the health of our planet, and whether human health gains are achieved at the expense of the destruction of the Earth's underpinning natural systems on which humans depend. Planetary health focuses on balancing human needs with the preservation of the Earth's systems to sustain the health and well-being of future generations. Notably, most planetary health definitions position human health relative to that of the planet and emphasize what humans need for their ongoing survival, ignoring the reverence of traditional knowledge underscored by the idea that “human health and planetary health are the same thing” (Booth, 1988). Planetary health discourse requires cultural competency, critical consciousness, a greater appreciation of marginalized voices and elevation of the knowledge of Traditional Custodians of the land.

We acknowledge that planetary health is a Western construct, ideologically separating human health from that of our planet, which is in contrast to Indigenous knowledge systems that have no clear separation between the health of the planet and the health of individuals, communities and ecosystems (Redvers et al., 2020). To their detriment, most humans regard themselves as separate from their environment, however, the environment is within us: we breathe the air, drink the water and eat other species. The microbiome revolution has highlighted the ways in which large-scale ecological changes are reflected in micro-scale ecology and is an increasing focus of personalized medicine (Prescott & Logan, 2019). This confirms that planetary health education should be rooted in traditional Indigenous knowledge (Brand et al., 2023) and draw from learnings from Indigenous land stewards who have an innate understanding of the reciprocity and interconnectedness of all living beings (Ratima et al., 2019). The most important of these learnings is that the health of human civilization cannot be positioned as distinct from, or more important than, that of the planet and other considerations (Jones et al., 2022).

Health systems confront the dual challenge of providing quality healthcare without harming the planet (Malik et al., 2021). Globally, healthcare is responsible for up to 4.4% of all carbon dioxide emissions (Health Care Without Harm, 2019)—which is double the emissions of the entire aviation industry (International Energy Agency, 2022). In Australia, the health system contributes approximately 7% of the nation's carbon dioxide emissions (Malik et al., 2018). Of note, 90% of these carbon dioxide emissions are indirect, stemming from the extensive supply chains involved in the manufacture, distribution and provision of healthcare products and services (Barratt et al., 2022). Herein lies the paradox—not only do healthcare systems care for those most impacted by planetary health changes, but they also significantly contribute to those changes. A study from the United States found that healthcare system emissions may cause 44,000–98,000 indirect deaths nationally every year (Eckelman & Sherman, 2016).

As the largest, most geographically diverse group of healthcare professionals, nurses and midwives are on the frontline of environmental, climate-related and public health crises, which can be susceptible to prolonged recovery periods, placing additional pressure on already strained healthcare systems (Guihenneuc et al., 2023). Heat-related illnesses, asthma and mental health issues are all exacerbated by planetary health changes (Salas & Solomon, 2019). In addition, there is now clear evidence of a strong positive association between increasing maximum temperatures and increased

cardiovascular disease mortality (Baaghideh & Mayvaneh, 2017). The ongoing destruction of our planet will also lead to additional health risks including water and food-borne infectious disease outbreaks (Chersich et al., 2018). The nursing profession came to the climate debate early, and as “action-oriented, practical and evidence-based problem solvers” are already leading strategic approaches to complex planet-centred healthcare alongside midwifery (Lokmic-Tomkins, Nayna Schwerdtle, & Armstrong, 2023). However, to enhance the engagement of nurses and midwives in promoting planetary health principles, there is a need for more visible nursing and midwifery role models with a greater capacity for advocacy, practice, education and research related to planetary health (Lokmic-Tomkins, Strus, et al., 2023). A key challenge facing the nursing and midwifery professions is how to increase their capacity to deliver planetary health-related interventions and enhance the visibility of nurse/midwife-led engagement in planetary health (Lokmic-Tomkins, Nayna Schwerdtle, & Armstrong, 2023).

When discussing the current and future impact of nurses and midwives on planetary health, we must look beyond their emergency response to hazards such as extreme weather events. Planetary health is not disaster nursing in disguise; in planetary health, the role of nurses and midwives extends beyond episodic responses to the needs of impacted communities following environmental disasters and public health emergencies. This approach challenges the traditional ‘person-centred’ approach that forms the core of every nursing program and has prevented wider discussions on planetary health approaches to health professions education due to internalized rigid views on who nurses and midwives are and what their scope of practice entails (Vold & Meszaros, 2021). It is critical that nurses and midwives championing planetary health approaches in education, research and practice acknowledge that they are registered nurses and midwives to showcase how nurses are carving out their space in planetary health (Lokmic-Tomkins, Strus, et al., 2023).

Despite increasing awareness of the known impacts of a changing planet on health and healthcare systems, nursing and midwifery curricula include very little planetary health content (Dunphy, 2013). One explanation is that planetary health is about more than climate change, it includes human-driven complex multisystem failure, which has not conventionally been a core focus of nursing and midwifery education. Nevertheless, the inclusion of planetary health should not be a stretch for nursing and midwifery educators, who are used to preparing contemporary curricula that prepare graduates for the intricacies of changing practice driven by current and emerging issues (Australian Nursing & Midwifery Accreditation Council, 2019). Prioritizing the inclusion of planetary health in nursing and midwifery curricula has the potential to prepare current and future nurses and midwives to lead planetary health research, education and practice (Vandenberg, 2023). Overseas, work is already being done in the USA to resuscitate ageing nursing and midwifery courses to embed planetary health, including appointments of Directors of Planetary Health in Schools of Nursing and Midwifery (Flatén et al., 2023). However, there are

a lack of health profession educators who possess the knowledge, skills and confidence to teach planetary health concepts (Brand et al., 2021) which has resulted in recent calls and educational frameworks to transform health professions education to meaningfully address planetary health (Guzmán et al., 2021). To address this imbalance, this paper expands existing knowledge by exploring nursing and midwifery educator's *planetary health* knowledge, views, confidence and teaching practices, whereas, previous studies have focussed on specific aspects of planetary health, including *climate change* (Polivka et al., 2012; Schenk et al., 2019) and *environmental awareness* (Schenk et al., 2016).

## 2 | THE STUDY

### 2.1 | Aim

The overarching aim of this study was to explore Australian and New Zealand nursing and midwifery university educator's planetary health knowledge, views, confidence and teaching practices.

### 2.2 | Design and participants

A cross-sectional design was used with an online survey. Eligible participants included nursing and midwifery educators working in universities across Australia and New Zealand. Our pilot phase revealed a substantial presence of educators within university settings, including contract-based clinical educators and content experts, who may not formally identify as academics. Subsequently, the eligibility criteria were adapted to the more inclusive term “educator”. This change was implemented to accurately encompass the diverse roles within this educational landscape. Nursing and midwifery educators working outside of universities were excluded from this study.

### 2.3 | Data collection

The survey was developed by adapting the survey by Brand et al. (2021) which was informed by published literature (Asaduzzaman et al., 2022; Christie et al., 2015). The survey underwent content validity testing with the intention to undertake reliability testing once the survey was administered multiple times. We used Brand et al. (2021) survey as a basis for the structure and questions in our survey because the survey questions were deemed appropriate to address the aims of our study. We piloted the survey with four nursing and midwifery educators who provided email feedback which was integrated into the final survey. This data was not included in the study results. The survey consisted of 29 items and was developed in Qualtrics XM. Questions which assessed participants' planetary health knowledge, views and confidence were designed using a 4-point Likert scale, where 1=strongly disagree, 2=disagree, 3=agree and 4=strongly agree. Participants were

also asked open-ended questions to further explore their planetary knowledge, views and confidence and expand on their quantitative responses to the Likert scale questions. Specifically, the survey commenced with the open-ended question: 'To begin, please list the word/s and/or phrases that come to mind when you hear the terms: planetary health, climate change, and environmental sustainability'. After responding to the question, participants were provided with definitions of each term that were then referred to throughout the survey. The purpose of this approach was to capture participants' thoughts about these terms before offering definitions and to help assess their pre-existing knowledge of planetary health concepts. The survey was distributed using a snowball technique; the survey was available between July and September 2023. The email included a recruitment flyer with a QR code that facilitated direct access to the survey. The survey was sent to the Executive Officer at the Council of Deans of Nursing and Midwifery (Australia and New Zealand) with a request to forward it to the Deans of Nursing and Midwifery for dissemination to the educators at their respective institutions. As an incentive to participate in the study, participants were eligible to win a \$200 AUD gift voucher upon completing the survey. This was facilitated through a separate process that could not be linked to participant responses.

## 2.4 | Data analysis

### 2.4.1 | Quantitative data analysis

Data were exported to IBM SPSS Statistics (version 28) for descriptive analysis. Descriptive statistics were applied to describe the participants and the distribution of their responses across categories and along a scale. Categorical data were presented using frequencies and percentages. Continuous data were presented using means and standard deviations. All partial responses were included in the analysis to utilize as much data as possible.

### 2.4.2 | Qualitative data analysis

Summative qualitative content analysis (Hsieh & Shannon, 2005) was used to examine participants' responses to the open-ended question: 'Please list the word/s and/or phrases that come to mind when you hear the terms: planetary health, climate change, and environmental sustainability'. This method was chosen to explore keyword usage about interrelated planetary health concepts rather than to infer meaning through thematic analysis (Hsieh & Shannon, 2005). Data analysis began with reading all data repeatedly to achieve immersion and obtain a sense of the whole. Then, data were read word by word to develop categories by identifying the exact words from the text that appeared to capture key thoughts or concepts. Occurrences of the identified keywords and concepts were then calculated. This was followed by a detailed interpretation in order to discover underlying meanings.

## 2.5 | Ethical considerations

Ethics approval was obtained from the Human Research Ethics Committee (38490). Before completing the anonymous survey, a participant information page was available, and once read, the decision to proceed with the survey was taken as informed consent.

## 2.6 | Rigour and reflexivity

To ensure rigour and reflexivity, several measures were taken in this study. First, the survey questions were developed in conjunction with planetary health experts and the survey was piloted with a sample of potential respondents with characteristics similar to the intended study sample (Rickards et al., 2012). Second, maximization of the response rate was undertaken by sending four email reminders to potential participants. Finally, the study was conducted by a research team with expertise in nursing and midwifery education, planetary health and online surveys.

While our research team is diverse, to the best of our knowledge, it did not include Indigenous academics. In addition, all of the team have been trained through a Western lens of planetary health practice. We acknowledge these mistakes and draw attention to this in our introduction where we acknowledged that greater collaboration is needed for decolonisation within planetary health. We make a commitment to ensuring that future research is focussed on collaboration with Indigenous colleagues. We recognize now that for planetary health to fully realize its potential, it must be understood and actioned as an embodied and reciprocal part of health sovereignty through intentional research, practice and education (Hoogeveen et al., 2023).

## 3 | RESULTS

### 3.1 | Participant characteristics

A total of 97 participants completed the survey (Table 1). Eighty-seven (89.7%) identified as a woman and 10 (10.3%) as a man. Thirty-six (37.1%) had worked as a nursing and/or midwifery educator between 10 and 19 years. Forty-four (45.4%) currently hold the position of Lecturer. Seventy (72.2%) no longer provide direct patient care.

### 3.2 | Design and delivery of planetary health education

The results indicated that most ( $n=67$ , 69.1%) of the participants had not taught any planetary health concepts (Table 2). For those who had taught any planetary health concepts, the most commonly taught concept was the impact of healthcare on the planet ( $n=18$ , 18.6%). Planetary health concepts were taught most often through

TABLE 1 Participant characteristics.

| Variable (n)                         | Cohort count<br>n (%) |
|--------------------------------------|-----------------------|
| Participants                         | 97                    |
| Gender                               |                       |
| Woman                                | 87 (89.7)             |
| Man                                  | 10 (10.3)             |
| I identify as (please specify)       | 0 (0)                 |
| Prefer not to say                    | 0 (0)                 |
| Years worked (n=95)                  |                       |
| <1 year                              | 1 (1.0)               |
| 1–5 years                            | 31 (32.0)             |
| 6–9 years                            | 14 (14.4)             |
| 10–19 years                          | 36 (37.1)             |
| 20 years or more                     | 13 (13.4)             |
| Current position (n=97)              |                       |
| Teaching Associate/Sessional teacher | 1 (1.0)               |
| Lecturer                             | 44 (45.4)             |
| Senior Lecturer                      | 29 (29.9)             |
| Associate Professor                  | 9 (9.3)               |
| Professor                            | 10 (10.3)             |
| Other                                | 4 (4.1)               |
| Provides direct patient care (n=97)  |                       |
| Yes                                  | 27 (27.8)             |
| No                                   | 70 (72.2)             |

lectures (n=15, 15.5%) and in-depth class discussions (n=15, 15.5%) in Bachelor-level programs (n=19, 19.6%). The overwhelming majority of participants (n=60, 61.9%) believed that the best place to include planetary health education in nursing and midwifery programs is in some units/subjects in all courses/programs. Multiple responses were possible for the question 'Where is the best place to include planetary health education in nursing and midwifery programs?' Therefore, the total number of responses is greater than the number of participants.

### 3.3 | Planetary health knowledge, views and confidence

#### 3.3.1 | Planetary health knowledge

The results indicate that while most (n=84, 86.6%) participants agreed or strongly agreed that they could identify some examples of planetary health concepts as they relate to human health, they lacked knowledge of how to engage with and teach the complexities of planetary health in nursing and midwifery programs. Fifty (51.5%) strongly disagreed or disagreed that they know how to explain planetary health to nursing and midwifery students (Figure 1).

TABLE 2 Design and delivery of planetary health education.

| Variable (n)  | Cohort count<br>n (%) |
|---|-----------------------|
| Have you taught planetary health concepts? (n=96)   |                       |
| Yes   | 29 (29.9)             |
| No  | 67 (69.1)             |
| What planetary health concepts have you taught? (n=74)  |                       |
| Global environment changes leading to illness and death   | 17 (17.5)             |
| Impact of healthcare on the planet  | 18 (18.6)             |
| Actions nurses and midwives can take to promote planetary health  | 16 (16.5)             |
| Strategies to address barriers nurses and midwives may face when taking action that promotes planetary health         | 4 (4.1)               |
| How nurses and midwives can advocate for planetary health   | 13 (13.4)             |
| Other   | 7 (7.2)               |
| How did you deliver the content? (n=73)   |                       |
| Case studies  | 13 (13.4)             |
| Lecturers (online or face-to-face)  | 15 (15.5)             |
| In-depth class discussion (online or face-to-face)  | 15 (15.5)             |
| As passing comments   | 7 (7.2)               |
| Assessment tasks  | 10 (10.3)             |
| Role modelling  | 7 (7.2)               |
| Other   | 6 (6.2)               |
| Which course/program did you deliver this content? (n=37)   |                       |
| Certificate   | 1 (1.0)               |
| Diploma   | 2 (2.1)               |
| Bachelor  | 19 (19.6)             |
| Masters   | 12 (12.4)             |
| Other   | 3 (3.1)               |
| Where is the best place to include planetary health education in nursing and midwifery programs? <sup>a</sup> (n=107) |                       |
| All units/subjects in all courses/programs  | 24 (24.7)             |
| Some units/subjects in all courses/programs   | 60 (61.9)             |
| Only courses/programs that directly relate to planetary health  | 3 (3.1)               |
| Only units/subjects directly related to planetary health  | 9 (9.3)               |
| Only as an elective unit/subject about planetary health   | 8 (8.2)               |
| Individual educators should decide when to include it   | 1 (1.0)               |
| Other   | 2 (2.1)               |

<sup>a</sup>Multiple responses possible, total is greater than number of participants.

#### 3.3.2 | Planetary health views

The results indicated that nearly all participants (n=93, 95.9%) agreed or strongly agreed that the healthcare sector contributes to planetary health changes, including climate change, while most participants (n=91, 93.8%) felt that nurses and midwives should

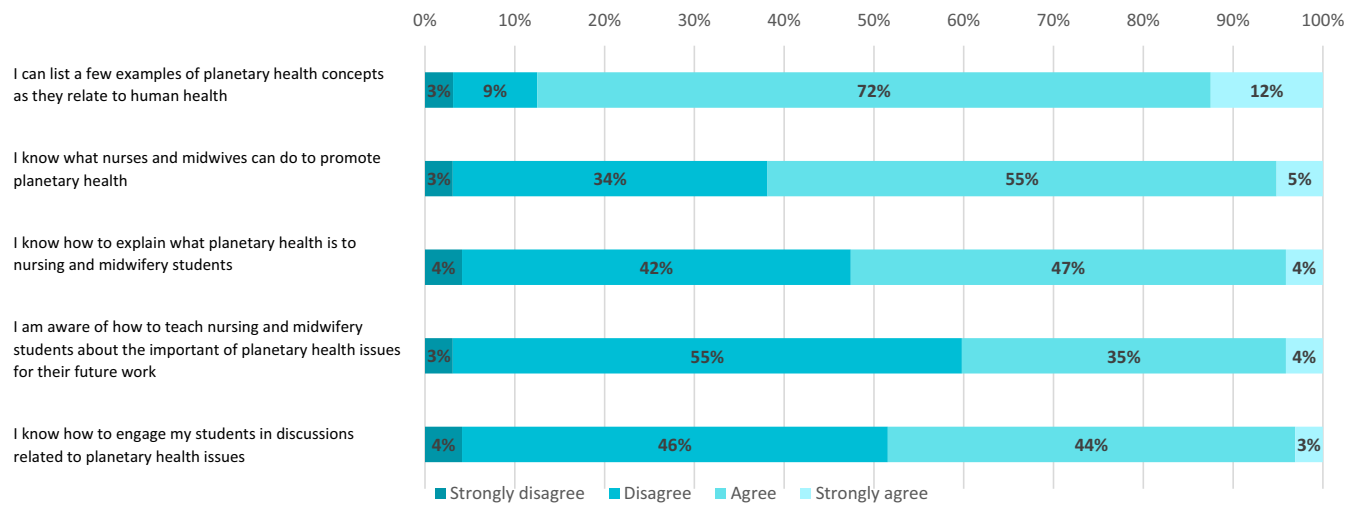


FIGURE 1 Planetary health knowledge.

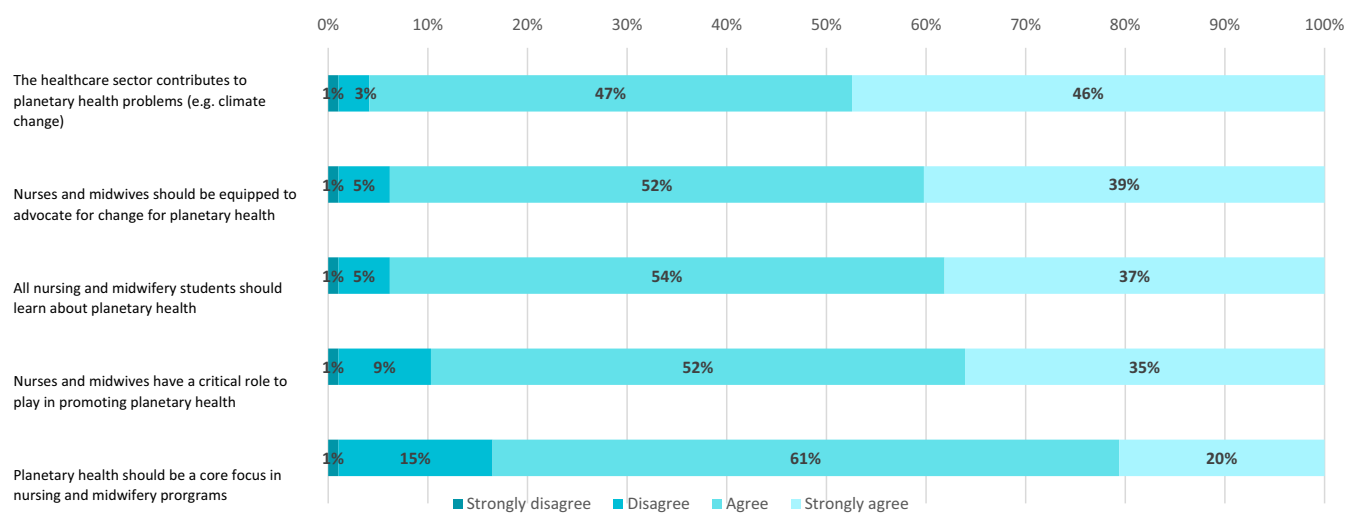


FIGURE 2 Planetary health views.

be equipped to advocate for changes that promote planetary health (Figure 2). In addition ( $n=91$ , 93.8%), participants either agreed or strongly agreed that all nursing and midwifery students should learn about planetary health, and similarly, that planetary health should be a core focus in nursing and midwifery programs. However, not all participants had positive views about planetary health concepts, with 16 (16.5%) strongly disagreeing or disagreeing that planetary health should be a core focus of nursing and midwifery programs.

### 3.3.3 | Confidence to teach planetary health

More than half of the participants ( $n=53$ , 54.6%) responded with strongly disagree or disagree to the statement 'I feel confident explaining the relationship between planetary health and my teaching

content' (Figure 3). Similarly, fewer than 37 (37%) participants felt confident identifying strategies to teach effectively planetary health concepts, whereas more than half of the participants ( $n=63$ , 58%) felt confident teaching students how the healthcare sector impacts planetary health.

## 3.4 | Qualitative responses

The survey began with the open-ended question: 'Please list the word/s and/or phrases that come to mind when you hear the terms: planetary health, climate change, and environmental sustainability'. One hundred and twenty-seven participants responded to this question, providing responses that ranged from one-word to 13-word phrases. The responses were organized into the five overarching categories presented in Table 3.

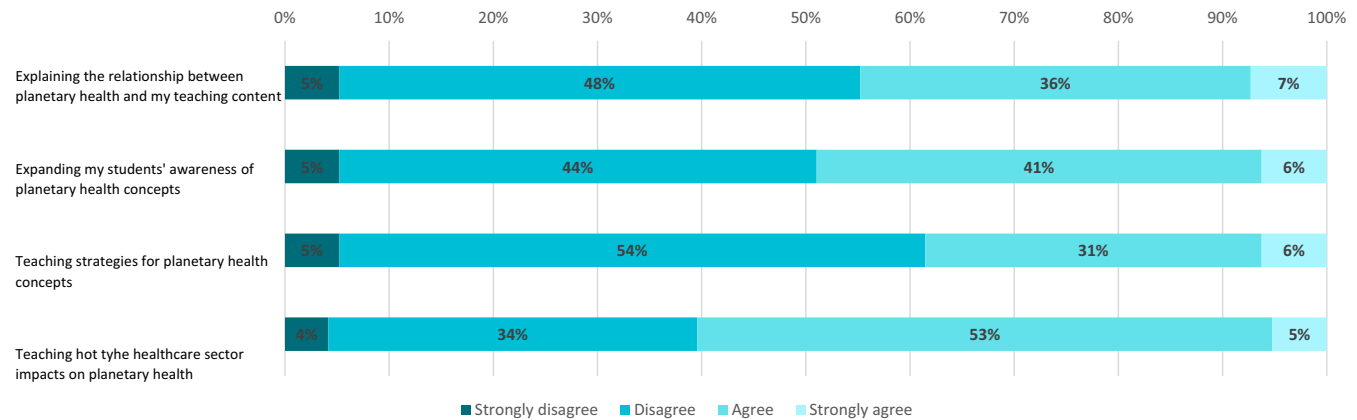


FIGURE 3 Confidence to teach planetary health.

TABLE 3 Summative content analysis and recurring categories.

| Category   | Number of responses (n = 156) |
|--|-------------------------------|
| Environmental disaster   | 59 (37.8%)                    |
| Need for personal and organizational approaches to sustainable practices | 42 (26.9%)                    |
| Impact on health and wellbeing   | 34 (21.7%)                    |
| Need for urgent action   | 19 (12.1%)                    |
| Apathy   | 2 (1.23%)                     |

### 3.4.1 | Environmental disaster

For the majority of participants ( $n=59$ , 37.8%), the words/phrases that came to mind for planetary health and climate change were related to environmental disasters, with a number referring to it as the 'biggest challenge to humankind, health and social order' ever experienced, precipitating an 'environmental disaster' and evidenced by 'global warming', 'more intense weather patterns' and 'rising sea levels'.

### 3.4.2 | Need for personal and organizational approaches to sustainable practices

A number of the participants focused on mitigation strategies and believed that 'we all have a role to address professional and personal sustainability' in order to steward a 'sustainable future' for the planet and for 'healthcare'. One participant added 'in terms of nursing, I think we need to raise the awareness and start leading in the space ... our voices have not been part of the discussion'. While it was recognized that healthcare organizations 'need to work harder to protect the environment', the participants also believed that 'each person must take personal responsibility' for 'sustainable living' and 'reducing their carbon footprint'.

The participants described a range of solution-focused strategies that individuals and healthcare services could enact to 'future

proof' the environment and 'protect the planet'. These included the use of 'renewable energy sources' to 'reduce greenhouse gases' and achieve the goal of being 'carbon neutral'. 'Reduction of waste and consumerism', 'elimination of plastics' along with increased use of 'biodegradable packaging' and 'improved recycling practices' were considered essential by many participants.

### 3.4.3 | Impact on health and well-being

Along with the recognition of the 'interdependence of environmental and human health', the participants indicated a view that there would be 'great impacts on health from climate disasters' including 'food insecurity' caused by 'loss of habitat', 'droughts' and 'floods', as well as an increasing incidence of 'pandemics', 'vector-borne' and 'infectious' diseases. There was also an understanding that the impact of climate change would not be equally experienced with the most 'socially disadvantaged' populations being most impacted, potentially leading to increasing numbers of 'climate refugees'.

### 3.4.4 | Need for urgent action

Many participants referred to the need for 'urgent action' because 'time is running out' and that, without immediate action to address climate change and the risks to planetary health, the situation will be 'apocalyptic' and 'irretrievable'. Some suggested that the situation has been 'poorly managed' and that the 'government is not doing enough' because of 'political handballing'. Words such as 'fear', 'suffering' and 'despair' expressed the depth of emotions felt by participants.

### 3.4.5 | Apathy

It should be noted that while most of the participants were committed to the social and professional mandate to care for the planet,

others were not so engaged, with one commenting that 'I don't really think about these things in my everyday life too much' and another stating 'I am socially numb due to extremists exaggerating'.

## 4 | DISCUSSION

Nurses and midwives are already leading changes towards achieving better planetary health. For nurses and midwives, a focus on planetary health can be framed as an opportunity to translate their deep understanding of human health to that of the planet and its interconnected systems. However, a significant barrier to this approach is educators' lack of knowledge in this area (Brand et al., 2021). Our results are similar to previous studies which have identified that many health professions educators have limited knowledge and confidence to teach planetary health (Goldman et al., 2021). While the nursing and midwifery educators in our study may have identified that they lacked the knowledge and confidence to teach planetary health, they did have overwhelmingly positive views about the inclusion of planetary health in nursing and midwifery programs which should be leveraged to inspire curriculum change momentum. The sense of professional responsibility to embed planetary health into nursing and midwifery programs that participants in our study demonstrated is similar to that of other health professions educators from medicine (Pendrey et al., 2023), physiotherapy (Maric et al., 2021) and occupational therapy (Hess & Rihtman, 2023).

The implementation of planetary health education in nursing and midwifery programs will depend on the degree to which educators are supported to develop their planetary health knowledge and confidence. Educator lack of knowledge and confidence is not surprising given the complexity and interconnectedness of planetary health, and, until recently, the lack of frameworks available to guide institutions, educators and learners to embed planetary health education (Guzmán et al., 2021). Our findings have demonstrated that when asked to think about planetary health, nursing and midwifery educators focus on climate change, which is one aspect of planetary health. There appeared to be a lack of awareness of the other eight planetary boundaries that are critical for maintaining the stability and resilience of the planet (Richardson et al., 2023). A focus on the climate change planetary boundary was evident when participants referred to 'climate refugees' without acknowledging that forced human migration occurs due to more than changes in climate, for example, intra- and inter-state competition for food, water and other natural resources, the availability of which is impacted by human population growth rather than the climate. A lack of awareness expressed for changing biodiversity, for example, is concerning given clinical relevance to changing patterns of zoonotic disease, such as the increased frequency of Japanese encephalitis virus disease in Australia, which was previously limited to only seasonal transmission (Department of Agriculture, F. A. F, 2023). This must be addressed in educator professional development, otherwise, it is likely that when educators teach about planetary health, they may actually only be teaching about climate change and its impacts on health, which will

inadequately prepare future nurses and midwives to address planetary health.

To address educators' gaps in knowledge and confidence to design and deliver planetary health education, educational leaders must now prioritize stepping up and supporting their educators to develop the skills necessary to weave planetary health into existing programs. This starts with educators reflecting on their individual readiness to change their views and perspectives on how they care for the planet. The inner development goals (IDGs) outline the skills and capacities that should be developed to address the sustainable development goals (SDGs) (Stalne & Greca, 2022). The IDGs framework encompasses five elements which can be used to guide the development of the skills and qualities nursing and midwifery educators need to lead purposeful and sustainable integration of planetary health. For example, element five focusses on enabling change, which includes developing courage, creativity, optimism and perseverance, attributes that will be familiar to anyone who has tried to embed planetary health concepts into their curricula.

To support educators to design and deliver planetary health education that is constructively aligned, The Planetary Health Education Framework (Guzman & Potter, 2021) can be used. It provides five foundational domains (including Indigenous knowledge systems) that comprise the essence of planetary health knowledge, values and practice which can support educator and curricula development, serving as a starting point for those educators who have positive views about planetary health education but lack the knowledge to modify their curricula to take on a planetary health lens. Finally, The International Association for Health Professions Education consensus statement (Shaw et al., 2021) on planetary health and education for sustainable healthcare provides model learning outcomes, objectives, activities and assessment approaches which are useful for educators who are unfamiliar with ways to teach planetary health concepts. It also provides practical approaches for engaging educators and education institutions, including consideration of awards and incentivization for undertaking planetary health professional development.

A core insight from extant literature on integrating planetary health concepts into health professions education is embedding student leadership (Navarrete-Welton et al., 2022). Planetary health education often evolves in response to student advocacy and concerns—with students demanding more education on low environmental impact healthcare (López-Medina et al., 2022). This is seen by the formation of health professions student action groups such as the Planetary Health Student Club (Chinthala, 2023) and the International Federation of Medical Students (Shaw et al., 2021). Given both students and educators are concerned about a lack of planetary health education in nursing and midwifery programs, it seems intuitive for educators and students to co-create planetary health education with those impacted by planetary health changes as well as Indigenous communities who have always held a holistic view of nature and people. This approach is critical to capture the planetary health concerns and knowledge of students to ensure that curricula changes are not implemented in an ad hoc unidirectional



way but are instead driven by our future healthcare workforce (Burch et al., 2021).

Finally, our results demonstrate that when thinking about planetary health and climate change, some nursing and midwifery educators describe the future situation as 'apocalyptic' and 'irretrievable' and this may translate into how they approach teaching planetary health. This approach is vexing, because of the increasing mental health burden of climate change and the impact on student well-being (Daeninck et al., 2023). Engaging in co-design approaches is critical to ensuring that planetary health education is hope-focussed, because the 'doomsday' approach can promote guilt, apathy and inaction from students (Schwerdtle et al., 2020). There was also concern among a few nursing and midwifery educators in our study that they could become 'numb due to extremists exaggerating'. Use of the word 'extremists' needs to be interpreted with caution as it also suggests a possibility of climate denialism, which given the status of healthcare professionals as trusted messengers committed to evidence-based practice, with the capacity to shift social norms, such as public attitudes towards planetary health, is alarming. Out of 3915 Australian adults surveyed, 87% accept that anthropogenic climate change is real and happening, while about 2% were climate deniers and another 5% climate sceptics (Bradley et al., 2022). It is therefore unsurprising that climate denialism would exist among a small proportion of Australian and New Zealand nurses and midwives, as the study participants are representative of the greater population.

#### 4.1 | Strengths and limitations

This study has several strengths and limitations. While previous research has called for modifications to nursing education so that future nurses are ready to lead transformative planetary health initiatives (Potter, 2019), to our knowledge, this is the first study to establish a baseline of Australian and New Zealand nursing and midwifery educator's planetary health knowledge, views, confidence and teaching practices, providing a current snapshot of the gaps in planetary health education for future nurses and midwives. For this study, despite a targeted sample strategy, the sample size is small. Furthermore, the nursing and midwifery educators self-selected to complete the survey so volunteer bias may exist, therefore the sample may be skewed and not be representative of the population as a whole. Nursing and midwifery educators who are more interested in planetary health may have been more likely to participate in this survey, however, the majority ( $n=67$ , 69.1%) who did respond indicated they had not previously taught any planetary health concepts. Furthermore, we did not ask educators to identify whether they were a nurse and/or midwife educator which meant we were unable to group participants according to their profession. We also did not offer racial and/or ethnic response options to capture diverse participant characteristics, therefore, we were unable to demonstrate inclusivity and diversity of participants or infer how race/ethnicity may influence responses. Finally, while the survey underwent content validity testing prior to distribution, it requires further use for

reliability testing, therefore the findings of this study should be interpreted as 'early findings', with future research requiring surveys that have been tested for both reliability and validity.

#### 4.2 | Recommendations for future research

The study has identified a number of important features of Australian and New Zealand nursing and midwifery educators' planetary health knowledge, views, confidence and teaching practices and aspects related to our design and results that future research should address. First, our study was available only to Australian and New Zealand nursing and midwifery educators. Both these countries are high-income countries and therefore are likely to have better outcomes when the planetary boundaries are transgressed. These countries may also face different planetary health challenges, for example, whereas Australia is losing biodiversity in ecologically rich sites, such as the Great Barrier Reef, changes in rain patterns in Central and South America are changing water availability for human consumption (Intergovernmental Panel on Climate Change, 2014). Therefore, it is crucial to hear from nursing and midwifery educators worldwide so that future nurses and midwives are prepared with country and context-specific planetary health capabilities. Second, our study did not include epistemological pluralism—the inclusion of Indigenous perspectives about planetary health. While we acknowledged that planetary health itself is a Western construct, and that the problem, and the call to solve it, are far from new, we have treated health as a predominately human phenomenon, evident when we mistakenly position human health against planetary health, for example, where we discuss biodiversity destruction resulting in human demise, without describing biodiversity destruction itself as a critical failure. We advocate for future research about nursing and midwifery educators' planetary health knowledge, views and confidence include multiple forms of knowledge, purposefully including Indigenous perspectives, to address the inequalities and environmental racism that can stem from planetary health decline (Séguin et al., 2021). This could be achieved by collaborating with Indigenous colleagues and seeking survey participant racial/ethnic identities so that inclusivity and diversity are key features of the results.

### 5 | CONCLUSION

Australian and New Zealand nursing and midwifery educators have limited knowledge of, and confidence to teach, planetary health concepts. They do, however, possess very positive views about the inclusion of planetary health concepts in nursing and midwifery programs which should be leveraged to expand educator capacity to address the critical gaps in planetary health education which currently exist across health professions education. A clear opportunity for improvement exists for nursing and midwifery educators. By taking advantage of existing resources and professional development opportunities, nursing and midwifery educators can use their

position as trusted healthcare professionals to enable the next generation of nurses and midwives to continue to lead planetary health approaches. A concerted effort must be taken to address the lack of educator knowledge and confidence identified in our study because planetary health is connected to every human organ system and touches on professionalism, social accountability, ethics and advocacy, which are core mandates for every healthcare professional.

## AUTHOR CONTRIBUTIONS

All authors contributed to the conceptualization and methodology of the research. TLJ, GB and JB conducted the qualitative data analysis. BC, ZLT and JB completed the quantitative data analysis and data visualization. JB and GB prepared the original draft. All authors reviewed and substantially edited the original draft to produce the final manuscript for submission.

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## DATA AVAILABILITY STATEMENT

Research data are not shared (due to ethical restrictions).

## ETHICS APPROVAL

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