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Evolution of ‘whole institution’ approaches to improving health in tertiary education settings: a critical scoping review

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ABSTRACT
In recent decades, ‘whole school’ approaches to improving health have gained traction, based on settings-based health promotion understandings which view a setting, its actors and processes as an integrated ‘whole’ system with multiple intervention opportunities. Much less is known about ‘whole institution’ approaches to improving health in tertiary education settings. We conducted a scoping review to describe both empirical and non-empirical (e.g. websites) publications relating to ‘whole settings’, ‘complex systems’ and ‘participatory’/‘action’ approaches to improving the health of students and staff within tertiary education settings. English-language publications were identified by searching five academic and four grey literature databases and via the reference lists of studies read for eligibility. We identified 101 publications with marked UK over-representation. Since the 1970s, publications have increased, spanning a gradual shift in focus from ‘aspirational’ to ‘conceptual’ to ‘evaluative’. Terminology is geographically siloed (e.g., ‘healthy university’ (UK), ‘healthy campus’ (USA)). Publications tend to focus on ‘health’ generally rather than specific health dimensions (e.g. diet). Policies, arguably crucial for cascading systemic change, were not the most frequently implemented intervention elements. We conclude that, despite the field’s evolution, key questions (e.g., insights into who needs to do what, with whom, where and when; or efficacy) remain unanswered.

Introduction
This paper presents a scoping review of literature addressing ‘whole institution’ and ‘healthy setting’ approaches to improving health within tertiary education settings (i.e. post-secondary school settings, including universities and colleges offering both undergraduate/postgraduate degree courses and other academic or vocational qualifications). It provides a state of the art account of what has been published to date in this disparate area and charts the development and content of the available literature.

Many acknowledge that tertiary education settings may offer a critical site for health interventions. They represent a relatively bounded social system, large population

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numbers, high levels of need (exacerbated by the COVID-19 pandemic (Liu et al. 2020)) and stretched services (Broglia, Millings, and Barkham 2018; Gale and Thalitaya 2015; Haas et al. 2018; Holt and Powell 2017). Equally, within them, it may be possible to address the health of both students and staff simultaneously. The current review focuses on ‘whole institution’, population-wide, policy and/or environmental-level health interventions, which are likely to have greater reach and potential impact than interventions implemented at the individual level (e.g., supporting individuals with improving their mental health) alone (Capewell and Capewell 2017; Frieden 2010). Whole institution approaches have the potential to use a range of diverse mechanisms to effect change. These include micro (norms and social support), meso (culture and ethos) and macro-level mechanisms (the intersection of education and life chances), all of which can initiate and maintain health change beyond individuals and intra-individual mechanisms (e.g. cognition or affect) (Lewis et al. 2017; Mcleroy et al. 1988). In other words the whole institution, at every level, with diverse actors, in a range of interactions, becomes health promoting. Changes across a whole institution have the potential to take its social system to a tipping point where health-enabling processes and affordances are promoted throughout and mutually reinforce each other.

Paralleling the ‘whole institution’ approach, ‘settings-based’ health promotion has also emerged as a closely related, largely practitioner-led sister field. Therein health promoting activities have been characterised as ranging from the most conservative, ‘passive’ model (where the setting acts simply as a convenient space in which to deliver a ‘traditional’, individually-based intervention), to the most ambitious ‘comprehensive’ model, which seeks to bring about direct and relatively significant changes in setting structure and culture within an assumption that individuals are relatively powerless to precipitate change to any significant level’ (Whitelaw et al. 2001, 344). Echoing the whole institution approach, the ‘healthy settings’ literature also emphasises the importance of understanding settings as ‘whole systems’ or ‘complex systems’, ‘with inputs, throughputs, outputs and impacts – characterised by integration, interconnectedness, interrelationships and interdependence between elements’ (Dooris 2006, 56). It also places a strong emphasis on principles of equity, partnership and stakeholder participation (Dooris 2013; Dooris et al. 2010, 2007; Shareck, Frohlich, and Poland 2013; Torp and Vinje 2014).

This approach has been developed by a number of tertiary education settings, with what have generally been described as ‘health promoting university’, ‘healthy university’ or ‘healthy campus’ initiatives in a range of different cultures and contexts (Suarez-Reyes and Van Den Broucke 2016). Although there have already been some reviews of this area, they have specifically focused on: theories/models used in relation to ‘healthy universities’ and ‘health promoting universities’ (Dooris, Wills, and Newton 2014); the implementation of ‘healthy universities’ and/or ‘health promoting universities’ (Ferreira, Brito, and Santos 2018; Reis et al. 2018; Suarez-Reyes and Van Den Broucke 2016) and university ‘settings-based’ mental health interventions (Fernandez et al. 2016). None, so far as we are aware, have examined the extent and nature of the broader literature in this area, encompassing aspirational, theoretical and descriptive publications, as well as those presenting evaluations/trials relating to ‘whole settings’, ‘complex systems’ and ‘participatory’/’action’ approaches to interventions aiming to improve the health, well-being and/or health-behaviours of students and/or staff within tertiary education.
settings. None have detailed the evolution of the current knowledge-base or the diverse terminology associated with the field. A search (March 2019, updated October 2020) within PROSPERO, an international database of prospectively registered systematic reviews focusing on health and social topics, did not identify any relevant reviews. We therefore undertook a scoping review.

Scoping reviews aim to map ‘the key concepts underpinning a research area and the main sources and types of evidence available’ (Mays, Roberts, and Popay 2001, 194). As such they differ from systematic reviews in focusing on broader topics and a range of study designs with little emphasis on quality; nor are they designed to perform detailed assessments or synthesis of findings data (Arksey and O’Malley 2005). They are undertaken for a number of reasons, including, as here, to examine the extent, nature and range of (research) activity and to identify gaps in the existing literature (Hoffman et al. 2014).

The aim of our review was to determine what is included within the existing literature relating to ‘whole settings’, ‘complex systems’ and ‘participatory’/‘action’ approaches to interventions intended to improve the health, wellbeing and/or health behaviours of students and staff within tertiary education settings.

We addressed this via three research questions:

1. What is the balance between different types of publication, particularly conceptual (aspirational/theoretical) versus empirical (descriptions/evaluations of such interventions)?
2. What terminology has been used (as an indication of conceptual understandings and approaches – e.g., settings; systems; complexity; participatory/action approaches; healthy/health promoting university/campus)?
3. Which population groups, health-related dimensions and activities have received most attention and are there clear gaps (as an indication of real-world actions)?

**Methods**

**Search strategy**

We aimed to identify all types of literature relevant to the review aim and research questions, including that reporting both non-empirical (e.g. theoretical papers and commentaries) and empirical work, and relevant charters and websites. We therefore searched five psychological, educational, social and health academic databases (Medline, PsychInfo, CINAHL, SCOPUS and ERIC) and four to identify grey literature (Directory of Open Access, Open Grey, e-theses online and Google Scholar) in July 2019 and again in September 2020. We also identified further key publications via the reference lists of studies which were read in full at the eligibility stage.

Our search strategy and inclusion criteria were based on the SPIDER (Sample, Phenomenon of Interest, Design, Evaluation, Research type) tool, appropriate for a broad range of research methods (Cooke, Smith, and Booth 2012), as follows:
• **Sample:** Those attending (i.e. students) or working in (i.e. staff) tertiary education institutions (i.e. post-secondary school education, including universities/‘higher education’ and colleges/‘further education’).

• **Phenomenon of interest:** Literature discussing, describing or relating to ‘whole settings’, ‘complex systems’ and ‘participatory’/‘action’ approaches and interventions aiming to improve health, wellbeing and/or health-behaviours within tertiary education settings (hereafter ‘whole’/‘healthy’ institution interventions).

• **Design:** All study designs.

• **Evaluation (outcome):** Mental health and wellbeing measures (e.g. measures of general mental health, wellbeing scales, measures of life satisfaction, happiness, resilience, self-esteem or quality of life); physical health and wellbeing; health risk behaviours (e.g. sexual health risk behaviour, smoking, excessive alcohol use, substance use, diet, exercise).

• **Research type:** All research types, together with all other non-research literature identified.

• **Other:** All English language academic and/or grey literature with no date restrictions.

Supplementary 1 shows the full inclusion and exclusion criteria and Supplementary 2 the final Medline search strategy (adapted as required for other databases); both were discussed and agreed by all authors.

**Selection of literature identified via database searches**

Figure 1 shows a flow chart of all searches and exclusions from the two searches. Results from the original (2019) search were downloaded into Covidence (online software programme that supports the administrative management of systematic reviews) and assessed (by HS) against the inclusion and exclusion criteria. All those assessed as eligible for full-text assessment were read in full by HS, in randomly selected 10% blocks. The first random 10% were also read independently by PF, with discussion on the seven (of 27) where one or other was unsure of eligibility on the basis of ‘phenomenon of interest’ and subsequent tightening/clarification of the inclusion/exclusion criteria in respect of this. Decisions on the remaining 90% were made by HS. A similar process was conducted by HS in respect of the records identified in the 2020 update. We also included further publications (including some websites) identified via the reference lists of those read at the eligibility stage and assessed as meeting the inclusion criteria.

**Appraisal and coding**

Since this was a scoping study aiming to provide an overview of all material reviewed, quality appraisal was not performed (Arksey and O’Malley 2005). The next stage was therefore to produce a coding frame to capture both basic publication details and also information on content. This involved an iterative process of reading, initial discussion (HS and PF), re-reading and trial coding before finalising the coding frame (Supplementary 3) which HS used to record information on:
Figure 1. Flow chart of searches and exclusions.
• basic publication details (author; date; title; country of first author institution);
• funding and source if noted;
• publication format (e.g. journal article; book section; report; charter/declaration – see Supplementary 3.4 for full list);
• source (searches; reference lists);
• first author discipline (e.g. education; public health/health promotion – Supplementary 3.6);
• single or multiple authorship and, if so whether interdisciplinary;
• publication type (e.g. aspirational; observational studies; descriptions of the actions of a specific institution; evaluation – Table 1 shows all publication types and Supplementary 4 greater detail of criteria used to define type); if applicable, institution name and whether any (even somewhat vague) process, impact or outcome data were also coded in this section;
• use of words/terms representing the ‘whole’/‘healthy’ institution phenomenon in title/abstract (e.g. setting(s); whole system; healthy university/college – Supplementary 3.10);
• target groups or, if observational, the focus of data-gathering (e.g. students; staff – Supplementary 3.12);
• health dimensions referred to (e.g. attitudes/knowledge; smoking; wellbeing; ‘general health’ – Supplementary 3.13);
• for descriptions of the actions of a specific institution, evaluations or trials – who was involved in producing (e.g. students; senior/managerial staff; external organisations – Supplementary 3.14) and what activities were involved (e.g. physical environment; policies; promotions/marketing – Supplementary 3.15).

The coded data were entered into an SPSS datafile which aided data synthesis via the production of basic frequencies (Supplementary 3) and crosstabulations. Results are presented in the form of histograms, tables and narrative.

Results

The original (2019) search identified 1,950 records after de-duplication, of which 275 were read in full and 42 were finally included; a similar process in respect of the 173 records identified in the 2020 update resulted in the final inclusion of five, resulting in a total of 47 publications identified via database searches. A further 54 publications (including some websites) identified via the reference lists of those read at the eligibility stage and assessed as meeting inclusion criteria were also included. The review was therefore based on 101 publications (identified via double asterisks in the reference list).

Our results begin by briefly describing the publications in terms of their format (journal article, book section, etc) and source (country, author disciplines and funding). The remainder of the results are structured according to our three research questions relating to the balance between different types of publication; the terminology that has been used; and the population groups, health-related dimensions and activities that have received most attention.
| Author(s) / Organization | Date | Country | Title |
|--------------------------|------|---------|-------|
| **Aspirational – general, broad agenda-setting: no/little data (may include supporting refs, very brief examples, but publication not focused on these)** |
| 1 Western Interstate Commission for Higher Education | 1973 | US | The Ecosystem Model: Designing campus environments |
| 2 Patrick et al. | 1992 | US | Health issues for college students |
| 3 Gordon | 1995 | US | College health in the national blueprint for a Healthy Campus |
| 4 Jackson and Weinstein | 1997 | US | The importance of healthy communities of higher education |
| 5 Tsouros | 1998 | UK | From the healthy city to the healthy university: project development and networking |
| 6 James | 2003 | UK | A Health Promoting College for 16–19 year old learners |
| 7 Fabiano and Swinford | 2003 | US | Serving higher education communities with health promotion |
| 8 Second International Conference for Health Promoting Universities | 2006 | Canada | The Edmonton Charter for Health Promoting Universities and Institutions of Higher Education |
| 9 Dooris and Doherty | 2008 | UK | English Healthy Universities Network: Framework for action |
| 10 Dooris | 2010 | UK | Healthy Universities: Introduction and model |
| 11 Orme and Dooris | 2008 | UK | Integrating health and sustainability: the higher education sector as a timely catalyst |
| 12 Doherty et al. | 2011 | UK | Applying the whole-system settings approach to food within universities |
| 13 International Conference on Health Promoting Universities and Colleges/VII International Congress | 2015 | Canada | Okanagan Charter: An international charter for health promoting universities and colleges |
| 14 Lederer and Oswalt | 2017 | US | The value of college health promotion: A critical population and setting for improving the public’s health |
| 15 Taylor et al. | 2017 | Australia | Creating healthier graduates, campuses and communities: why Australia needs to invest in health promoting universities |
| 16 Came and Tudor | 2020 | New Zealand | The whole and inclusive university: a critical review of health promoting universities from Aotearoa New Zealand |
| **Aspirational – specific guidelines/road-map: no/little data (may include supporting refs, very brief examples, but publication not focused on these)** |
| 17 Hewitt | 1976 | US | The Whole College Catalogue About Drinking: A Guide to Alcohol Abuse Prevention |
| 18 O’Donnell and Gray | 1993 | UK | The Health Promoting College |
| 19 Tsouros et al. | 1998 | UK | Strategic framework for the Health Promoting Universities project |
| 20 Tsouros and Dowding | 1998 | UK | A framework for action by a European Network of Health Promoting Universities |
| 21 National Association of Student Personnel Administrators | 2004 | US | Leadership for a healthy campus: An ecological approach for student success |
| 22 Filkowskí | 2006 | US | Leadership for campus mental wellness |
| 23 Dooris et al. | 2010 | UK | Healthy Universities: Concept, model and framework for applying the healthy settings approach within higher education in England |
| 24 Marshall and Stylianou | 2010 | UK | A Practical Guide to Becoming a Healthy College |
| 25 Drum and Denmark | 2012 | US | Campus suicide prevention: bridging paradigms and forging partnerships |
Table 1. (Continued).

| Author(s)                              | Date  | Country | Title                                                                 |
|----------------------------------------|-------|---------|-----------------------------------------------------------------------|
| Canadian Mental Health Association     | 2013  | Canada  | Post-secondary student mental health: Guide to a systemic approach    |
| Partnership for a Healthier America    | 2014  | US      | Healthier Campus Initiative (website)                                 |
| University of Central Lancashire       | 2015  | UK      | UCLan Healthy University Action Plan 2015–18                           |
| American College Health Association    | 2018  | US      | Healthy Campus (website)                                             |
| National Institute on Alcohol Abuse and Alcoholism | 2019 | US | Planning alcohol interventions using NIAAA's CollegeAIM Alcohol Intervention Matrix |
| American College Health Association    | 2020  | US      | The Healthy Campus framework                                          |
| Canadian Mental Health Association     | 2020  | Canada  | Healthy Minds, Healthy Campuses (website)                             |
| Innstrand and Christensen              | 2020  | Norway  | Healthy Universities. The development and implementation of a holistic health promotion intervention programme especially adapted for staff working in the higher educational sector: the ARK study |
| University of Central Lancashire & Manchester Metropolitan University | 2020  | UK      | Healthy Universities (website)                                        |

General description of the ‘whole’/‘healthy’ institution concept: what it means/is, what characterises it – no data (may include case study/ies but publication not focused on these)

| Author(s)                          | Date  | Country | Title                                                                 |
|------------------------------------|-------|---------|-----------------------------------------------------------------------|
| Glazer                             | 1979  | US      | General systems theory and college mental health professionals     |
| Whitehead                          | 2004  | New Zealand | The health promoting university (HPU): the role and function of nursing |
| Doherty and Dooris                 | 2006  | UK      | The healthy settings approach: the growing interest within colleges and universities |
| Dooris                             | 2006  | UK      | Healthy settings: challenges to generating evidence of effectiveness |
| Warwick et al.                     | 2008  | UK      | Healthy and health promoting colleges – identifying an evidence base |
| Dooris et al.                      | 2014  | UK      | Theorising healthy settings: a critical discussion with reference to Healthy Universities |
| Racher et al.                      | 2014  | Canada  | Taking the right action in the right way: a comparison of frameworks for assessing the health and quality of life of a postsecondary student campus community |
| Dooris et al.                      | 2017  | UK      | The application of salutogenesis in universities                    |
| Standards/measurement (development) |       |         | A scope-of-practice survey leading to the development of standards of practice for health promotion in higher education |
| Zimmer et al.                      | 2003  | US      | Kirklees Healthy College Standard                                    |
| Aherne                             | 2007  | UK      | Stockport Healthy College Standard: an audit tool for Every Child Matters |
| Balding                            | 2007  | UK      | Support for healthy colleges                                         |
| Sowers et al.                      | 2017  | US      | Survey development to assess college students’ perceptions of the campus environment |
| Horacek et al.                     | 2019  | US      | Development and validation of the Policies, Opportunities, Initiatives and Notable Topics (POINTS) Audit for Campuses and Worksites |

Observational study – whole/healthy institution concept is peripheral: used as rationale or hook for data collection or ‘baseline’ in terms of not following specific actions

| Author(s)                           | Date  | Country | Title                                                                 |
|-------------------------------------|-------|---------|-----------------------------------------------------------------------|
| Winer et al.                        | 1974  | US      | Innovations at university mental health services                     |
| Stock et al.                        | 2014  | Denmark | Student estimations of peer alcohol consumption: links between the Social Norms Approach and the Health Promoting University concept |
Table 1. (Continued).

| Author(s)          | Date  | Country | Title                                                                                       |
|--------------------|-------|---------|--------------------------------------------------------------------------------------------|
| Holt and Powell    | 2017  | UK      | Healthy Universities: a guiding framework for universities to examine the distinctive health needs of its own student population |
| Murphy             | 2017  | Ireland | Responding to the needs of students with mental health difficulties in higher education: An Irish perspective |
| Haas et al.        | 2018  | UK      | Changes in student physical health behaviour: an opportunity to turn the concept of a Healthy University into a reality |
| Hartman et al.     | 2018  | US      | Constraints and facilitators to developing collaborative campus wellness partnerships |
| Jack et al.        | 2019  | UK      | Higher Education as a Space for Promoting the Psychosocial Well-Being of Refugee Students |
| Sirakamon et al.   | 2006  | Thailand| Policy related to health promotion at Chiang Mai University: administrator views |
| Patterson and Kline| 2008  | Canada  | Report on post-secondary institutions as healthy settings: The pivotal role of student services |
| Dooris and Doherty | 2009  | UK      | National Research and Development Project on Healthy Universities |
| Dooris and Doherty | 2010a | UK      | Healthy universities–time for action: a qualitative research study exploring the potential for a national programme |
| Dooris and Doherty | 2010b | UK      | Healthy Universities: current activity and future directions–findings and reflections from a national-level qualitative research study |
| Newton             | 2014  | UK      | Can a university be a ‘healthy university’? An analysis of the concept and an exploration of its operationalisation through two case studies |
| Holt et al.        | 2015  | UK      | Student perceptions of a healthy university |
| Newton et al.      | 2016  | UK      | Healthy universities: an example of a whole-system health-promoting setting |
| Brucks et al.      | 2017  | US      | Aligning CSUSM with Healthy Campus 2020: A qualitative needs assessment |
| Sarmiento          | 2017  | US      | Healthy universities: mapping health-promotion interventions |
| Dooris et al.      | 2020  | UK      | Conceptualising the ‘whole university’ approach: an international qualitative study |
| Bruce              | 1993  | Canada  | Implementing a university campus wellness model |
| Beattie            | 1998  | UK      | Action learning for health on campus: muddling through with a model? University College of St Martin, Lancaster |
| Dooris             | 1998  | UK      | The university as a setting for sustainable health |
| Dowding and Thompson| 1998  | UK      | Embracing organizational development for health promotion in higher education: Lancaster University |
| Peterken           | 1998  | UK      | The healthy university within a healthy city: University of Portsmouth |
| White              | 1998  | UK      | Creating a healthy medical school: University of Newcastle |
| Dooris             | 2001  | UK      | The ‘Health Promoting University’: a critical exploration of theory and practice |
| Dooris             | 2002  | UK      | The Health Promoting University: opportunities, challenges and future developments |
| Reger et al.       | 2002  | US      | Implementing university-based wellness: a participatory planning approach |
| Marshall           | 2007  | UK      | Bradford College – a healthy college |
| Perlejewski        | 2007  | UK      | Yeovil College – our commitment to a better college |

(Continued)
| Author(s)         | Date  | Country | Title                                                                                                                                                                                                 |
|------------------|-------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vincent          | 2007  | UK      | Stoke on Trent College awarded the Kirkless Healthy College Standard                                                                                                                                     |
| Mendenhall et al.| 2008  | US      | Students Against Nicotine and Tobacco Addiction (SANTA): community-based participatory research in a high-risk young adult population                                                               |
| Stylianou        | 2010  | UK      | ‘A Practical Guide to Becoming a Healthy College’                                                                                                                                                    |
| Mendenhall et al.| 2011  | US      | The SANTA project (Students Against Nicotine and Tobacco Addiction): Using community-based participatory research to reduce smoking in a high-risk young adult population |
| Knight and La Placa | 2013 | UK      | Healthy Universities: taking the University of Greenwich Healthy Universities Initiative forward                                                                                                         |
| Harrington       | 2016  | US      | ‘America’s Healthiest Campus’: The OSU Well-Being Strategy Model                                                                                                                                       |
| Black            | 2018  | Canada  | Designing healthy and supportive campus communities: An example from Simon Fraser University                                                                                                               |
| Evaluation – institution-level: evaluation of intervention in one/small number of institutions NOT formal trial |
| Xiangyang et al. | 2003  | China   | Beijing Health Promoting Universities: practice and evaluation                                                                                                                                            |
| Meier et al.     | 2007  | Germany | The contribution of health discussion groups with students to campus health promotion                                                                                                                     |
| Budgen et al.    | 2011  | Canada  | Creating a healthier campus community using action research and health promotion strategies: Students and organizational leaders as partners        |
| Sirakamon et al. | 2011  | Thailand| Factors influencing the development of a Thai health-promoting faculty: An ethnographic exploration                                                                                                    |
| Mendenhall et al.| 2014  | US      | Community-based participatory research to decrease smoking prevalence in a high-risk young adult population: An evaluation of the Students Against Nicotine and Tobacco Addiction (SANTA) project |
| Evaluation – larger policy: evaluation of bigger policy intervention across multiple institutions NOT formal trial |
| Burwell et al.   | 2010  | US      | Healthy Campus 2010: Midcourse review                                                                                                                                                                  |
| Doors and Powell | 2012  | UK      | Developing leadership and governance for Healthy Universities: Final report                                                                                                                              |
| Doors et al.     | 2018  | UK      | The UK Healthy Universities Self-Review Tool: Whole-system impact                                                                                                                                       |
| Doors et al.     | 2019  | UK      | Whole system approaches in higher education: an evaluation of the UK Healthy Universities Network                                                                                                     |
| Suarez-Reyes et al. | 2019 | Belgium | How do universities implement the Health Promoting University concept?                                                                                                                                  |
| Trial            |       |         |                                                                                                                                                                                                     |
| Reavley et al.   | 2014a | Australia| A multifaceted intervention to improve mental health literacy in employees of a multicampus university: a cluster randomised trial                                                                     |
| Reavley et al.   | 2014b | Australia| A multifaceted intervention to improve mental health literacy in students of a multicampus university: a cluster randomised trial                                                                     |
| (Systematic) review: including empirical papers (ie not a review of theoretical papers) |
| Fernandez et al. | 2016  | Australia| Setting-based interventions to promote mental health at the university: a systematic review                                                                                                             |
| Suarez-Reyes and Van den Broucke | 2016 | Belgium | Implementing the Health Promoting University approach in culturally different contexts: a systematic review                                                                                           |
| Ferreira et al.  | 2018  | Portugal| Health promotion programs in higher education: integrative review of the literature                                                                                                                     |
| Reis et al.      | 2018  | Portugal| The promotion of Healthy Universities: a systematic review                                                                                                                                             |
What formats of publications were identified and what was their source?

Format
The 101 publications included 62 journal articles, 14 reports, 10 book sections, four websites, three journal editorials/commentaries, three dissertations/theses, three charters/declarations and two books (Supplementary 3.4). Identification of ‘academic’ publications (journal articles/editorials and dissertations/theses) was greater via the searches, and of both ‘non-academic’ (charters/declarations and websites) and ‘mixed’ publications (books/sections, reports) via reference lists (Supplementary 5).

Source
The publications originated from 13 countries: around half from the UK (46 publications, of which 22 included Dooris as an author, 16 of these as first author) and a quarter from the US (28 publications), with the remainder from Canada (9), Australia/New Zealand (6), other Europe (8) and Thailand/China (4). By far the most frequent first author discipline was public health/health promotion (48), followed by education (12), student (health) services (12), nursing (8), other health/medicine (5), psychiatry/psychology (4) and sociology/social work/social policy (3); 12 publications had organisational authors. Among the 89 with individual authors, 30 were single-authored, 36 by a multidisciplinary, and 23 a single-disciplinary team. Funding was noted by 39 publications, 24 naming health-related funders, five their institutions, three education-related funders and seven a range of other sources (Supplementary 3.1, 3.6, 3.2).

Research Question 1: What is the balance between different types of publication, particularly conceptual versus empirical?

Numbers of each publication type
Table 1 details all 101 publications (author/s; date; country; title), categorised according to type and listed chronologically within each type. As it shows, a third (34) of the publications were aspirational, 16 of which were more general or broad agenda-setting (Table 1, refs 1–16) and 18 more specific guidelines or ‘road-maps’ (Table 1, refs 17–34). A further eight publications provided general description of the ‘whole’/healthy institution concept (e.g. the systems or characteristics of a healthy/health promoting university) (Table 1, refs 35–42). Although some of these aspirational DESCRIPTIVE publications included brief examples of actions in one or more institutions, these were not their main focus. Six publications, some very brief, focused on standards/measures (Table 1, refs 43–48). Eighteen publications were observational studies. In seven of these, the ‘whole’/healthy institution concept was peripheral, used as a rationale or ‘hook’ for data-collection (e.g. student lifestyle surveys) or discussion of results (Table 1, refs 49–55). However, in 11 the concept was central, these publications presenting data specifically related to the ‘whole’/healthy institution (e.g. to provide recommendations for institutions’ (continued) provision of healthy settings) (Table 1, refs 56–66). A further 18 publications described the actions of 14 specific institutions (11 institutions each described in one publication; two institutions each described in two publications, so resulting in four publications; one described in three publications) with nine of these providing reflections on the process and four some (generally extremely brief)
information on impact and/or outcome (Table 1, refs 67–84). Eleven publications reported evaluations, six of ‘whole’/‘healthy’ interventions in one or a small number of institutions (Table 1, refs 85–90) and five of policies/projects across multiple institutions (Table 1, refs 91–95), while another two reported on a single randomised controlled trial (Table 1, refs 96–97). Finally, four publications were reviews of ‘whole’/‘healthy’ institution interventions (Table 1, refs 98–101). Identification of publications focusing on standards/measurement, observational studies and evaluations in one or a small number of institutions was greater via the searches, and of aspirational publications, general descriptions and descriptions of the actions of single institutions via reference lists (Supplementary 5).

**Evolution and geographical patterning of publication types – quantitative analysis**

Figure 2 shows the numbers of each publication type according to publication decade (representing evolution) and country (representing geographical patterning). It clearly highlights sharply growing interest in the field, from four publications during the 1970s, none in the 1980s and 13 in the 1990s, to 34 in the 2000s and 50 between 2011 and 2020. It also shows trends according to type. Thus, among aspirational publications, there was an increase between 1991 and 2020 in the proportion categorised as specific ‘road-map’, compared with general agenda-setting. While publications in the 1990s were only aspirational or described the actions of specific institutions, the 2000s saw the emergence of some more general descriptions of the characteristics of/concepts relating to a ‘whole’/‘healthy’ institution’ approach, interest in standards and measurement, observational studies with a central focus on the concept and a very small number of evaluations. Between 2011 and

![Figure 2](image-url)

*Figure 2. Number of each publication type according to publication decade and country.*
2020, the number of evaluations increased, there was the first randomised controlled trial, the concept was being used by observational studies as a ‘hook’ for data-collection or discussion and the field had become sufficiently established to warrant (systematic) reviews.

Figure 2 also shows patterning by country of publication. A (far) larger number of publications from the UK described the characteristics of/concepts relating to a ‘whole’/‘healthy’ institution’ approach, the actions of specific institutions, observational studies with a central focus on the concept and larger policy evaluations. Around half the US publications were aspirational. Non-UK/US countries produced more evaluations of interventions in one or a small number of institutions, the only trial and all four reviews.

**Evolution and geographical patterning of publication types – brief descriptive overview**

The publication titles, provided in Table 1, give a flavour of the material identified. A detailed decade-by-decade description of this is available in Supplementary 6. In particular, it shows that although there were very few publications from the 1970s, all originated in the US and all provide evidence of ‘whole’/‘healthy’ institution thinking. Thus, they include mentions of ‘campus systems’ and an ‘ecosystem design process’ in a 1973 report from a task force set up ‘to explore applications of the community model as a means for resolving campus problems’ (Western Interstate Commission for Higher Education 1973); (alcohol) prevention strategies categorised as both specific (e.g. alcohol education) versus non-specific (not dealing directly with alcohol/drinking, e.g. providing alternatives such as physical activities, meditation or opportunities for creativity) and as individual versus environmental in the 1976 ‘Whole College Catalog About Drinking’ (Hewitt 1976); a category of mental health-related innovations described as ‘social engineering – attempts to alter the university environment’ in a 1974 paper presenting data gathered from university clinic directors (Winer et al. 1974, 282); and a 1979 conceptual paper describing the work of college mental health professionals within a general systems theory framework (Glazer 1979). However, development of the US national ‘road-map’ (‘Healthy Campus’) around 1990 was linked to assessment and broader national health objectives (Gordon 1995) rather than, as in the UK and elsewhere, being informed by the whole-system settings approach to health promotion (Tsouros, Dowding, and Dooris 1998). Within the UK, not only the research but also conceptual thinking and practical developments related to the approach have been largely driven by one individual. Publications from the UK are also marked by an interest in applying the approach to Further Education colleges in the first decade of the new millennium, which disappeared after 2010. Numbers of publications originating from countries outside the US and UK have been relatively small, but, strikingly, include the first evaluation, of a project conducted in China, which began in 1997 and aimed to ‘create health promoting universities within the framework of the Ottawa Charter’ (Xiangyang et al. 2003, 107), the only formal trial (Reavley et al. 2014a; b) and (systematic) reviews (Fernandez et al. 2016; Ferreira, Brito, and Santos 2018; Reis et al. 2018; Suarez-Reyes and Van Den Broucke 2016).
Research Question 2: What terminology has been used?

Use of conceptual terms
In order to capture the balance, evolution and geographical patterning of conceptual understandings and approaches within the literature, we coded for use of any words/terms representing the ‘whole’/healthy institution phenomenon in titles and/or abstracts (e.g., settings, systems, complexity, participatory/action approaches, healthy/health promoting university/campus). The word ‘setting(s)’ was included most frequently, occurring in the title/abstract of around a third (N = 36) of the publications (Supplementary 3.10). ‘Whole system’ occurred in 13 publications, while ‘whole’/‘holistic’ and ‘system(s)’/‘systemic’ (not ‘whole system’) each occurred in 11. ‘Participatory action/process/research’ and ‘complex’/‘complexity’ (not ‘complex system’) each occurred in six publications and ‘complex system(s)’ in one; no publication included the term ‘complex adaptive system(s)’. Any other broad term suggesting ‘whole’ (e.g. ‘campus ecology’) occurred in 54 publications (Supplementary 3.11 lists all such terms). In addition, around a third of the publications mentioned ‘healthy(ier) university/college’ (N = 35) and/or ‘health promoting university/college’ (N = 33) and just over one-in-ten ‘healthy(ier) campus’ (N = 13).

Evolution and geographical patterning of conceptual terms
As Table 2 shows, these terms were also patterned by both decade (evolution) and country (geographical patterning of conceptual understandings). Thus, there was evidence of the emergence/evolution of ‘settings’, ‘systems’-related and ‘participatory’ terms, which largely began in the 2000s as did ‘healthy(ier)’ and ‘health promoting’ university/college and, more clearly in the 2010s, ‘healthy campus’. In contrast, the proportion of publication titles/abstracts using other broad terms remained fairly stable over time. In respect of country differences, the term ‘setting(s)’ was used by almost no titles/abstracts from the US, but by approaching half those from the UK and over half from elsewhere. Similarly ‘systems’-related words were barely used in titles/abstracts

Table 2. Publications with each key term in the title and/or abstract according to publication decade and country (columns may sum to more than total number of publications/more than 100% because all applicable terms within each title/abstract coded).

| COUNTRYb | DECADEa | 1971–1980 | 1991–2000 | 2001–2010 | 2011–2020 | 1971–1980 | 1991–2000 | 2001–2010 | 2011–2020 |
|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| UK       | N (%)    | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     |
| US       | N (%)    | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     |
| Elsewhere| N (%)    | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     | N (%)     |
| Setting(s) | 0 (0) | 2 (15) | 14 (41) | 20 (40) | 19 (41) | 2 (7) | 15 (55) |          |          |
| Any of System(s)/systemic; whole system; complex system | 1 (25) | 0 (0) | 6 (18) | 10 (20) | 13 (28) | 2 (7) | 2 (7) |          |          |
| Participatory action/process/research | 0 (0) | 0 (0) | 2 (6) | 4 (8) | 0 (0) | 4 (14) | 2 (7) |          |          |
| Other broad | 2 (50) | 6 (46) | 15 (44) | 31 (62) | 19 (41) | 17 (61) | 18 (67) |          |          |
| Healthy(ier) university/college | 0 (0) | 2 (15) | 15 (44) | 18 (36) | 31 (67) | 1 (4) | 3 (11) |          |          |
| Health promoting university/college | 0 (0) | 3 (23) | 10 (29) | 20 (40) | 17 (37) | 1 (4) | 15 (55) |          |          |
| Healthy(ier) campus | 0 (0) | 1 (8) | 2 (6) | 10 (20) | 0 (0) | 9 (32) | 4 (15) |          |          |
| TOTAL PUBLICATIONS PER DECADE/ COUNTRY | 4 | 13 | 34 | 50 | 46 | 28 | 27 |          |          |

a*b columns = of total publications per decade
b*c columns = of total publications per country
~ Canada, Australia, New Zealand, other Europe, Thailand, China
from the US or elsewhere, but in over a quarter of the UK ones, however no UK title/abstract used ‘participatory’ terms. While almost no US title/abstract used ‘healthy(ier)’ and ‘health promoting’ university/college, these were both (particularly ‘healthy(ier)’) commonly used in the UK and (particularly ‘health promoting’) elsewhere. In contrast, around a third of the titles/abstracts from the US included ‘healthy(ier) campus’, compared with only a small number from elsewhere and none from the UK.

Linkages between conceptual terms
Finally, these conceptual terms were not used in a mutually exclusive way, and further analyses (Supplementary 7) suggested linkages between particular concepts: ‘systems’-related words were used in association with ‘setting(s)’ but not ‘participatory’; ‘setting(s)’ and ‘systems’-related words with ‘healthy(ier)’ and ‘health promoting’ universities/colleges, but not with ‘healthy campus’; and neither ‘participatory’ nor ‘healthy campus’ were used with ‘healthy(ier)’ universities/colleges.

Research Question 3: Which population groups, health-related dimensions and activities have received most attention?

Population groups
As Table 3 shows, the vast majority (N = 87 of the 101) of publications included a focus on students, almost three-quarters (N = 73) on staff and a quarter (N = 28) on organisations or individuals in the wider (external) community as either benefitting from being part of an institution taking a ‘whole’/’healthy’ approach to health and wellbeing or as the focus of data collection.

| (1) Target of intervention/focus of data-gathering | N (of 101) |
|---------------------------------------------------|-----------|
| Students                                          | 87        |
| Staff                                             | 73        |
| External/wider community                          | 28        |
| Unclear                                           | 1         |
| N/A (data gathered at organisational level)       | 1         |

| (2) Health dimension                              |         |
|---------------------------------------------------|---------|
| ‘Health’ general/implied                          | 69      |
| Mental health – lower level, wellbeing, self-esteem, confidence, etc. | 23      |
| Behaviour – nutrition including water             | 17      |
| Behaviour – smoking                               | 17      |
| Behaviour – alcohol                               | 16      |
| Mental health – formal psychiatric illness/diagnoses | 15     |
| Behaviour – physical activity                     | 13      |
| Behaviour – sexual                                | 13      |
| Behaviour – drugs                                 | 12      |
| Behaviour – other                                 | 8       |
| Use of health services                            | 7       |
| Wholistic health – explicit/dimensions specified  | 7       |
| Attitudes/knowledge                               | 6       |
| Behaviour – violence/aggression/safety            | 6       |
| Physical health                                   | 3       |
**Health-related dimensions**

Table 3 also shows that most publications focused on ‘health’ generally rather than specific health dimensions. Of those that did specify, lower-level mental health and wellbeing issues were most commonly mentioned, followed by nutrition, smoking, alcohol, formal psychiatric illness, physical activity, sexual behaviour and drugs. Only small numbers included health service use, health attitudes/knowledge, aggression or physical health.

**Activities**

As noted above, descriptions were available in respect of the specific actions of 14 different institutions; in addition, six publications reported institution-based evaluations occurring in four further institutions and two reported on the same randomised controlled trial. Information on who was involved in producing the intervention and what activities were involved were therefore available for 19 different institutions. In cases where information in respect of a single institution differed slightly between publications (e.g. (Dooris 1998, 2001, 2002; Mendenhall et al. 2011, 2014, 2008)), a group/activity mentioned in any version ‘counted’, since some versions provided more detail, or were written later, when the intervention may have been more developed. As Table 4 shows, in all or almost all cases where details were provided, students, senior/managerial and/or

| Who was involved in producing the intervention? | N (max possible = 10)^a |
|-----------------------------------------------|------------------------|
| Students                                      | 10                     |
| Senior/Managerial staff                       | 9                      |
| Health centre staff                           | 8                      |
| Other staff                                   | 7                      |
| Teaching staff                                | 6                      |
| Catering/Physical Activity staff              | 6                      |
| External organisations                        | 6                      |
| Health promotion staff/team                   | 4                      |
| Specific healthy/ health promoting university/college co-ordinator | 3 |
| Wider community                               | 1                      |

| What activities did the intervention involve? | N (max possible = 14)^b |
|-----------------------------------------------|------------------------|
| Promotions/marketing                          | 14                     |
| Health education                              | 13                     |
| Policies                                      | 9                      |
| Survey/data-gathering                         | 9                      |
| Health services – changes in what/where/when/to whom provided | 8 |
| Staff wellbeing support/counselling services/development opportunities | 8 |
| Architecture/greenspace/physical environment | 7                      |
| Catering – changes in what/where/when/to whom provided | 7 |
| Student projects/committees                   | 6                      |
| Physical activity – changes in what/where/when/to whom provided | 6 |
| Learning – curriculum/classroom environment/exams/etc | 6 |
| ‘Partnerships’/’Relationship-building’/communication (styles) | 5 |
| Staff training                                | 4                      |
| Student peer-to-peer (education/support/counselling/relationships) | 3 |
| Dedicated website                             | 2                      |
| Procurement                                   | 2                      |
| Other                                         | 5                      |

^a^Of the 19, four were unclear but comments suggested wide involvement and five were unclear and provided no clear comments on involvement.

^b^Of the 19, three were unclear but comments suggested wide-ranging activities and two were unclear and provided no clear comments on activities.
health centre staff were in some way involved in producing the intervention, around half involved teaching, catering/physical activity and health promotion staff and/or external organisations, and a small number had a specific co-ordinator. In addition, four of the 19 were unclear but comments suggested wide involvement and five provided no clear description of who was involved. Table 4 also shows that by far the most frequent activities were promotions/marketing and health education. Policies, surveys/data-gathering, changes to health services and staff wellbeing support were described in around two-thirds and changes in the physical environment, catering, physical activity provision and learning, and student projects/committees in around half. Smaller numbers described partnerships/relationship-building, staff training, student peer-to-peer activities, a dedicated website and changes to procurement. In addition, three were unclear but comments suggested wide-ranging activities and five provided no clear comments on activities.

**Discussion**

This scoping review, based on a search of five academic and four grey literature databases with no date restrictions and additional publications identified via the reference lists of studies read at the eligibility stage, identified 101 items, published between 1973 and 2020. It represents a key contribution by combining a general overview of the field, giving a flavour of the literature overall, with more specific details and analyses to address a series of research questions.

Our review aimed to determine what is included within the literature relating to ‘whole settings’, ‘complex systems’ and ‘participatory’/‘action’ approaches to interventions intended to improve the health, wellbeing and/or health behaviours of students and staff within tertiary education settings. A simple answer is that it is highly diverse, international and interdisciplinary in nature. Our review has also demonstrated that consideration of issues relating to ‘whole’/‘healthy’ universities and colleges has a long history, stretching back to the 1970s, earlier than the 1990s generally suggested in publications describing ‘health promoting’/‘healthy’ universities, and that it has evolved over time.

Our first research question related to the balance between publications with a conceptual focus (aspirational/theoretical) versus those with an empirical focus (intervention descriptions and/or evaluations) within this literature. We have shown that the balance has changed over time and that the literature has evolved from being aspirational and theoretical to reporting, to a greater or lesser extent, how the approach has been implemented and evaluated. In this way there is a sense of the field maturing over time, from ideas to real-world actions. However, aspirational publications continue to be published and the number of published evaluations or trials in individual or a small number of institutions remains relatively small, with the first, conducted in Beijing and published in 2003 (Xiangyang et al. 2003), arguably still the most comprehensive, and very few studies including clear before-after outcome comparisons. Thus, although the field has evolved, there is a sense of uneven progress internationally and some lost momentum.

Our second research question focused on terminology used as an indication of conceptual understandings and approaches. We addressed this via an examination of
words within titles and abstracts. ‘Setting(s)’, ‘healthy university/college’ and ‘health promoting’ were each used in almost a third of the publications, ‘system’ or related terms and ‘healthy campus’ in rather fewer and ‘participatory’ and ‘complex’ in only a handful. There were no mentions of ‘complex adaptive system’, which was a term we had thought we might find since it describes what many of the ‘whole’/‘healthy’ institution interventions were aiming for (a dynamic network of interacting agents, adapting as required and working via feedback loops) and has been used extensively in association with health promoting schools (Keshavarz et al. 2010). It is also of interest that there seemed to be little cross-referencing with the literature on health promoting schools and whole school approaches, which also originated from the concepts of settings-based approaches to health and systems thinking but has a more established research base (Langford et al. 2015; Thomas and Aggleton 2016). One difference may be clearer long-term World Health Organisation support for the approach within schools (World Health Organisation 2018) than tertiary education settings (Orme and Dooris 2010).

These conceptual title/abstract terms were patterned by geography, with UK-based publications using both ‘settings’ and ‘systems’, those from elsewhere only ‘settings’ and those from the US neither. Equally, as others have noted (Dooris, Powell, and Farrier 2020; International Conference on Health Promoting Universities and Colleges/VII International Congress 2015), ‘healthy university’ was used only in the UK and ‘healthy campus’ in the US, while ‘health-promoting’ was favoured elsewhere. The finding that ‘setting(s)’ and ‘systems’-related words were used with ‘healthy(ier)’ and ‘health promoting’ universities/colleges but not with ‘healthy campus’ underlines the origins of the ‘Healthy(ier)’ and ‘Health Promoting’ universities/colleges movements from settings-based health promotion (World Health Organisation 1986), while ‘Healthy Campus’ began in response to national US health objectives. However, the (geographically) siloed nature of the literature, as well as its interdisciplinarity, may also have reduced the potential for building international momentum or accumulating a clear and transferrable evidence-base. Somewhat relatedly, the scoping review identified that almost all UK ‘whole’/‘healthy’ universities work, represented by aspirational (Doherty, Cawood, and Dooris 2011; Dooris 2010; Dooris et al. 2010; Dooris and Doherty 2008; Orme and Dooris 2010; Tsouros, Dowding, and Dooris 1998), description (in relation to both concept (Doherty and Dooris 2006; Dooris 2006; Dooris, Doherty, and Orme 2017; Dooris, Wills, and Newton 2014) and institutional actions (Dooris 1998, 2001, 2002)), observational (Dooris and Doherty 2009, 2010a; b; Dooris, Powell, and Farrier 2020; Holt et al. 2015; Newton, Dooris, and Wills 2016) and evaluation (Dooris et al. 2018, 2019; Dooris and Powell 2012) publications, has been led by one author (Dooris), supported by his institution which hosts the national road-map (‘Healthy Universities’) website (University of Central Lancashire & Manchester Metropolitan University 2020), in contrast to the equivalent US and Canadian websites, which are hosted by national/regional bodies (American College Health Association 2018; Canadian Mental Health Association 2020). While this represents extensive and impactful achievements, it could be argued as Dooris has himself (Dooris, Wills, and Newton 2014) that it also corresponds to just one perspective, when it is increasingly recognised that complex problems are likely to benefit from an evidence base built on the work of multiple researchers with potentially different perspectives (Bennett and Gadlin 2012).
Our third research question related to which dimensions of health, wellbeing and/or health-behaviours have received the most attention within this literature. In fact, the majority of publications simply refer to ‘health’, signifying the ‘whole’/‘healthy’ institution approach. While ‘health’ might be appropriate for general agenda-setting aspirational publications and reflects the interrelated nature of mental and physical health, it could be argued that designing exactly what a ‘whole’/‘healthy institution might look like requires consideration of more specific health dimensions in order to identify mechanisms and perhaps prioritise potentially distinct activities associated with particular health outcomes identified as important by the target population group(s). More specific health dimensions identified in the literature (mental wellbeing, nutrition, smoking, alcohol) demonstrate, as noted by others (Suarez-Reyes, Serrano, and Van Den Broucke 2019; Suarez-Reyes and Van Den Broucke 2016), that interventions of this type focus on health issues which are common among young people. Students and senior/managerial staff were most frequently described as involved in producing the intervention, fulfilling the requirements of a process that needs both bottom-up and top-down activities (Dooris 2001, 2002). Others have suggested that institutions are most likely to choose ‘whole’/‘healthy’ actions that are closest to their mission (e.g. health education; support for health promotion research; changes to teaching/assessment) (Fernandez et al. 2016; Suarez-Reyes and Van Den Broucke 2016). Such activities may also help an institution to ‘tick the box’ in respect of addressing the quality of student experience, which is increasingly required as part of both internal and external quality reviews (Shah, Nair, and Richardson 2017). The activities we identified as most often described (promotions/marketing; health education) are likely to be easier to implement than broader high-level policies (e.g. a corporate policy on health (Dooris 2001); rules around permissible smoking locations; administrative approvals and provision of resources for various social/physical activities (Mendenhall et al. 2011)), which are regarded as crucial for significant and sustained systemic change (International Conference on Health Promoting Universities and Colleges/VII International Congress 2015; Second International Conference for Health Promoting Universities 2006; Tsouros, Dowding, and Dooris 1998), but were described in only two-thirds of institutions.

**Limitations**

Like all reviews, ours was bound by decisions relating to inclusion/exclusion categories and choice of search terms. While the latter aimed to be broad, one inclusion criterion was English language, thus excluding some literature, including some (both theoretical and empirical) from Latin America, which has been incorporated in other reviews (Ferreira, Brito, and Santos 2018; Reis et al. 2018; Suarez-Reyes and Van Den Broucke 2016).

Related to this, our SPIDER tool (Cooke, Smith, and Booth 2012) ‘Phenomenon of Interest’ was fuzzy and therefore subjective in a similar way to definitions used by others working in this area, who have referred to interventions ‘at institutional level’ and including ‘the whole community’ (Dooris, Wills, and Newton 2014; Suarez-Reyes, Serrano, and Van Den Broucke 2019). We frequently asked ourselves, particularly in the early stages of selection, how ‘whole’ is ‘whole’, since the variety of publications meant it was not possible to set criteria which could be universally
applied. Initial over-inclusiveness (e.g. a smoke-free campus initiative; papers with a brief nod towards the idea that student health issues require more than just individual-level/health centre-based responses) was rejected, but some decisions were only made after several re-readings, and other reviewers might have drawn the line differently.

Similarly, our categorisation of publication type (as aspirational, observational studies; descriptions of the actions of a specific institution; evaluation; etc), while far more nuanced than, for example, ‘theoretical’/‘intervention’ (Reis et al. 2018; Suarez-Reyes and Van Den Broucke 2016) meant that judgement was required in respect of how some should be classified (e.g., those which were broad enough to ‘fit’ more than one category (Newton 2014) or borderline between categories (Dooris and Doherty 2010b)). Again, others might have made some different decisions. (Note that while mindful of the benefits of more joint screening and decision-making, (Arksey and O’Malley 2005), this was not possible because the second reviewer was diverted to coronavirus-related work.) However, it is unlikely that others would have disagreed in respect of most publications and categories, so the broad mapping, which is the purpose of a scoping review, would likely be largely replicated. An additional issue is that much of the final coding frame, including not only publication type but also categories in respect of what groups, health-related dimensions, varieties of leadership and activities have received most attention, emerged from reading and re-reading the papers, and in that sense was inductive. Although this means our categorisations cannot be directly mapped onto those set out in aspirational charters (International Conference on Health Promoting Universities and Colleges/VII International Congress 2015; Second International Conference for Health Promoting Universities 2006) or the findings of others (Dooris and Doherty 2010b; Suarez-Reyes, Serrano, and Van Den Broucke 2019), they are, unsurprisingly, very similar.

A further issue in respect of target groups, health-related dimensions, varieties of leadership and activities, is that our coding of any intervention was, of course, based on information provided by the authors. This itself may have been incomplete, or based on descriptions drafted early on within the intervention development process. Where multiple versions of intervention descriptions presented slightly different accounts across papers, something mentioned in any version ‘counted’, but some descriptions were unclear, for example, in respect of whether activities had been implemented or just planned.

**Implications**

This scoping review and its detailed supplementary materials should form a comprehensive resource for those wanting an overview of the literature relating to ‘whole’/‘healthy’ institution approaches to improving the health of students and staff within tertiary education settings. In addition, it has particular implications in respect of both what is required in order to progress the field and the methods used for scoping studies such as ours.

The balance of publication types identified suggests strongly that what is now required is evaluations of ‘whole’/‘healthy’ interventions in tertiary education settings. There are very significant challenges in both implementing (Dooris 2002) and evaluating such
interventions (Budgen et al. 2011; Doherty, Cawood, and Dooris 2011; Dooris 2006; Suarez-Reyes and Van Den Broucke 2016; Whitehead 2004), since in order to be effective, they require understandings of the unique and shared (multi-level) determinants of a range of selected health dimensions and behaviours; co-production to decide the priorities on which to focus; and harmonised modification of the determinants that relate to the institutional setting (policies; power; interactions; resources; curriculum). In recent years, much has been written about the importance of intervention development (O’Cathain et al. 2019) and providing transparent accounts of intervention content and associated mechanisms (Craig et al. 2008). The large population numbers, high levels of need and stretched services highlight a requirement for increased understanding of the efficacy and mechanisms of ‘whole’/‘healthy’ approaches within tertiary education settings based on these ideas. The geographically siloed nature of the literature identified in our review suggests that progress towards this goal might be most efficiently achieved via more international as well as more interdisciplinary collaboration, to build bridges in concepts, approaches and terminology to support the programmatic development of a larger evidence base.

One of our research questions included the possibility of gaps within this literature in respect of population groups, health-related dimensions or activities. One very clear gap, within the UK, is the Further Education sector. UK Further Education takes place in colleges rather than universities, generally equips students for further learning (including university-based Higher Education) or employment and includes students from more disadvantaged groups. Our review suggests that despite its relatively early emergence, activity relating to ‘healthy colleges’ (i.e. occurring within Further Education) ceased around 2010. While it is possible that work is continuing but undocumented, a national ‘Healthy FE’ website referred to in one road-map publication (Marshall and Stylianou 2010) has ceased to exist. This is despite the fact that students within Further Education (and equivalent institutions elsewhere (Mendenhall et al. 2008)) may be particularly vulnerable (Warwick et al. 2006) and so highly likely to benefit from investments in health.

Finally, and from a methodological standpoint, it is unsurprising that ‘academic’ publications were more likely to be identified by the searches and ‘non-academic’ and ‘mixed’ publications via reference lists. However, the fact that this also meant the searches identified different publication types (e.g. fewer aspirational publications) has methodological implications, underlining the importance of not relying on searches, even those designed to identify grey literature, in a scoping study such as ours.

Conclusions

‘Whole institution’ approaches to improving health within tertiary education settings have evolved from a handful of agenda-setting aspirational publications in the 1970s to road-map websites and charters and growing international recognition. However, progress towards a solid and significant research evidence base has been relatively slow. The challenges are enormous, both for institutions aiming to fully, rather than tokenistically implement such interventions and for researchers aiming to evaluate them within a funding and evidence context that is skewed towards trials, short-term outcomes and simple linear models of cause and effect. Our review would suggest there is a need to
build on existing leadership and expertise, and invest resources in the development of a robust and detailed programme theory (Rogers 2008) and evaluable assessment rather than large scale trials or natural experiments at this point in time, in order to further develop this field.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

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