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Review of diversity and inclusion literature and an evaluation of methodologies and metrics relating to health research

Systematic mapping protocol

Louise Preston, Duncan Chambers, James Wilsdon, Andrew Booth
University of Sheffield, July 2016

In partnership with the Wellcome Trust

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Introduction

This systematic mapping protocol forms part of a project being undertaken by a multidisciplinary team from the University of Sheffield, which aims to inform and support the ocus on diversity and inclusion in Wellcome Trust's new strategic plan (see http://strategy.wellcome.ac.uk).[1]

As with debates over open access, public engagement and science education, Wellcome's reach across biomedical, health and broader research communities means that it can help to influence the terms of such debates, and support change in cultures, policies and practices.

To inform Wellcome Trust's work on diversity and inclusion, this review aims to "undertake a systematic and critical review of the evidence base for a positive relationship between a diverse and inclusive health research community and the qualities and impacts of the research they undertake".

As a methodology, systematic mapping does not attempt to answer a specific question, in the way that a systematic review would do, "but instead collates, describes and catalogues available evidence…relating to a topic of interest. The included studies can be used to develop a greater understanding of concepts, identify evidence for policy-relevant questions, knowledge gaps…and knowledge clusters." (James et al., 2016)[2]

[1] The team is drawn from the University of Sheffield's School of Health and Related Research (ScHARR), Management School and Department of Politics. For more information about the project, please contact James Wilsdon (j.wilsdon@sheffield.ac.uk).
[2] James, K L, Randall, N P and Haddaway, N R (2016) A methodology for systematic mapping in environmental sciences. Environmental Evidence 5:7.

This protocol sets out our plan for the review in terms of the literature search and how the retrieved literature will be screened for inclusion in the main review, extracted and then assessed.

The preliminary literature search and scope refinement stage aims to "scope the terrain, identify relevant literatures and sharpen the framing and approach". In particular we are interested in diversity, inclusion, equality and co-production across health systems and services. This is likely to include the diversity and inclusivity of the health research community and biomedical research and also evidence from research policy.

Due to the variety of evidence that we are interested in, a search approach combining traditional database searching and searches of the internet will be the most fruitful. Given the rapid nature of the review, we will be designing search approaches that allow us to identify key evidence in the topic area, rather than an exhaustive search of the evidence which will result in an unmanageable number of records to screen. This process will be managed by the entire research team capitalising on their discrete areas of subject knowledge.

This review is not a systematic review – we will be searching in a limited number of databases and not undertaking full data extraction. Any quality assessment undertaken will be for the purposes of informing the review findings, rather than determining inclusion or exclusion in the review.

Literature Search

The literature search will have five phases, to identify both academic literature (as identified and retrieved via database and citation searches) and grey literature (typically in the form of reports which are accessed via the WWW). Database/citation searches will be limited by date from 1996-2016 and to English Language studies only. Searches will be undertaken in three databases, Medline (via Ovid), Scopus and Web of Science.

Phase 1 (Whole team) - Identification of evidence known by our research team. Evidence will be mapped against the PROGRESS-Plus framework (see appendix) and saved in a spreadsheet.

Phase 2 (LP) - General search for literature about diversity and inclusion in health research. There are likely to be a multiple different types of evidence of interest - observational evidence about how specific groups are or are not included in research, empirical evidence from interventions to improve diversity in health research and policy evidence about how best to improve diversity in health research. We will search in both academic databases and on the internet. An indicative search is presented in the appendix.

Phase 3 (LP) - Targeted searches for specific aspects of diversity and inclusion, where a lack of evidence retrieved via Phase 2 has been identified. For this we will base the search on a validated search strategy by Welch et al (2015) which considers specific equity related concepts (gender, age, ethnicity, sexual orientation, socioeconomic status/social capital, educational status, religion, place of residence). Other concepts that may need to be added to the search strategy include occupation, disability, gender reassignment, marital status and maternity. We will also liaise with internal and external topic experts to ensure that the evidence retrieved matches their understanding of the discipline.

Phase 4 (AB) - Citation searches of included literature, particularly from Phase 1. This stage will also involve checking the reference lists of included and relevant evidence in order to identify additional studies. This stage will not run sequentially, but rather will underpin the entire search process, with regular discussion between AB, LP and DC. This method has been used successfully in numerous projects undertaken by LP and AB and offers an alternative route of access to evidence.

Phase 5 (LP) - Supplementary searches specifically on research metrics and diversity (1996-2016). For this phase, we will develop a search strategy using our general diversity search terms (used in Phase One) combined with terms for metrics, harvested from 'The Metric Tide' (Wilsdon 2015) and in liaison with our topic experts.

Screening the search results

Search results will be stored in a reference management database (EndNote). Screening of results against inclusion criteria will be performed by at least three members of the research team, with a degree of cross-checking to ensure consistency, depending upon the volume of

evidence to be screened. Uncertainties over the inclusion or exclusion of specific items or types of literature will be resolved by discussion and consensus.

Criteria to be used for screening are:

- Participants: organisations and individuals/teams involved in pure or applied research relevant to health (including research funders)
- Types of study:
    - Descriptions or evaluations of programmes or policies aimed at increasing diversity in the research workforce, overcoming barriers to inclusion and/or ensuring diversity issues are considered in the selection of research topics and participants;
    - Evaluative documents - quantitative or qualitative research reporting associations between increased diversity/inclusion and any measure of research output or quality;
    - Descriptive documents - relevant policy documents produced by research organisations or funders
- Comparator: comparative and noncomparative studies will be eligible for inclusion
- Outcomes: any measure of diversity/inclusion in relation to research workforce, topics or participants; any measure of research quality or impact; other actual or perceived benefits of increased diversity
- Excluded: Editorials and opinion pieces without any substantive data or evidence.

Screening will take place in Excel. Bibliographic information will be downloaded and screened for inclusion. If studies are deemed 'include', additional data will be captured on (1) the PROGRESS plus framework element that is being captured, (2) whether the evidence is examining workforce, participant or topic (3) The study type (descriptive, intervention, policy, empirical or other) and (4) The research activity being undertaken

Data extraction

The objective of the systematic mapping exercise is to provide an overall description of the current evidence base; to identify areas where evidence is lacking; and to identify areas

where a more detailed review may be helpful. We will broadly follow the methods summarised by James et al. (2016).

A coding framework will be developed in advance. Table 1, in the appendix, presents a preliminary list of variables for coding. We will use EPPI-Reviewer 4.0 software for coding the included studies and producing summary tables. This software was developed by the EPPI Centre at the UCL Institute for Education, University of London, and is particularly well suited to mapping reviews covering a range of different types of literature.

In parallel with the mapping and data extraction process, we propose to develop a separate map of the sub-set of literature covering diversity and inclusion metrics. This will be developed in Excel and will cover proposed metrics as well as those that have been used in practice. Metrics will be mapped against the PROGRESS-Plus framework and the three broad areas of research topics, workforce and participants. This process will enable us to develop a complementary output in conjunction with the main evidence map that can be used to match metrics with topics and to identify gaps in the literature related to metrics.

Critical appraisal

Critical appraisal of the included literature will concentrate on the overall strength and robustness of the evidence base, rather than providing a detailed investigation of study internal validity (risk of bias) as is normal for a systematic review. Study design may be considered as a partial proxy indicator of robustness of evidence (e.g. Table 2 in the Appendix).

Presentation of data

Coding and tabulation of the included studies will be used as the basis for a succinct descriptive overview of the included evidence. Although evidence maps do not routinely extract detailed results or findings of included studies (in order to avoid vote counting), the report will provide a basis for future work to investigate more fully the evidence for a relationship between diversity and inclusion and the quality and impact of research. The research team will ensure that any key areas of interest, that are outside the remit of the

review are noted in an Appendix and any key evidence retrieved through the search and associated with this area is included.

References

James, K L, Randall, N P and Haddaway, N R (2016) A methodology for systematic mapping in environmental sciences. Environmental Evidence 5:7.

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Appendices

PROGRESS-Plus

Following initial team meetings, it was decided to adopt the PROGRESS-Plus framework[1] to guide our understand of issues of equality and diversity. The PROGRESS -Plus framework was developed to ensure that researchers " consider the intersecting determinants of health when designing research or an implementation plan". The concepts included in PROGRESS are **P**lace of residence, **R**ace/ethnicity/culture/language, **O**ccupation, **G**ender/sex, **R**eligion, **E**ducation, **S**ocioeconomic status, **S**ocial capital. In addition to these, PROGRESS Plus includes **A**ge, **D**isability, **G**ender reassignment, **M**arriage and Civil Partnership, **P**regnancy and Maternity and **S**exual Orientation.

Indicative search strategy for Phase Two

Concepts for diversity	AND	Concepts for health research
Diversity, diverse, inclusion, inclusive, inclusivity, equality, equity, inequality, inequity		Health research, health service research, medical research, biomedical research, STEM, STEMM, workforce, scientist, publishing, contributing, authorship, pay gap, glass ceiling, research organisation, research funder, research participants, research involvement, research partners, co production, PPI

Indicative search strategy for Phase Five

Concepts for diversity	AND	Concepts for metrics
Diversity, diverse, inclusion, inclusive, inclusivity, equality, equity, inequality, inequity		metric*, benchmark*, bibliometric, indicator*, "peer review"

Table 1: Potential coding variables

Coding variable	Information recorded	Comments
Full reference	Authors, title, bibliographic details	
Year of publication		
Publication type		
Study country	Name of country/countries	
Linked study	Other articles reporting the same study	
Data type	e.g. Quantitative or qualitative	
Study design	Descriptive, intervention, policy, empirical or other. Descriptive (what needs to happen due to an identified problem, the scale and nature of the problem) or Evaluative (propose or explore interventions for addressing the problem)	
Setting		
PROGRESS-plus factors investigated		
Research area addressed	Workforce, participant or topic	
Intervention described/evaluated?	Details of intervention	
Association reported?		
Outcome(s) assessed		

Metrics used		
Length/period of study		
Sampling strategy		
Funding body (if information supplied)		

Table 2: Approximate hierarchy of study designs

	Quantitative	Qualitative
Stronger	Randomised or cluster randomised	Interviews or focus groups
	Cohort; case–control; controlled before/after; interrupted time series	Survey/questionnaire
	Uncontrolled before/after; case study; modelling or simulation	
Weaker	Expert opinion	