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Supporting implementation of interventions to address ethnicity-related health inequities: frameworks, facilitators, and barriers: A scoping review protocol

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Supporting implementation of interventions to address ethnicity-related health inequities: frameworks, facilitators, and barriers: A scoping review protocol

Corresponding author: Professor Sue Crengle, PO Box 56, Dunedin, New Zealand 9054
sue.crengle@otago.ac.nz

Authors

Papillon Gustafson, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0001-8645-8490

Yasmin Abdul Aziz, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0002-0564-664X

Michelle Lambert, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0002-0439-7557

Karen Bartholomew, Waitematā District Health Board and Auckland District Health Board, Auckland, Aotearoa New Zealand, ORCID: 0000-0002-1517-2134

Rachel Brown, National Hauora Coalition, Auckland, Aotearoa New Zealand

Peter Carswell, Synergia Ltd, Auckland, Aotearoa New Zealand

Adam Fusheini, Preventive and Social Medicine, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0001-7896-3841

Mihi Ratima, Taumata Associates, Hāwera, Aotearoa New Zealand

Patricia Priest, Preventive and Social Medicine, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand

Sue Crengle, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0001-9367-1492

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ABSTRACT

Introduction

Health inequities are differences in health between groups of people that are avoidable, unfair and unjust. Achieving equitable health outcomes requires approaches that recognise and account for the differences in levels of advantage between groups. Implementation science, which studies how to translate evidence-based interventions into routine practice, is increasingly recognised as an approach to address health inequities by identifying factors and processes that enable equitable implementation of interventions. This article describes the protocol for a scoping review of the literature relating to the equitable implementation of interventions, focusing on ethnicity-related health inequities. The scoping review aims to identify equity-focused implementation science theories, models and frameworks (TMFs) and to synthesise and analyse the evidence relating to the factors that aid or inhibit equitable implementation of health interventions.

Methods and analysis

The scoping review is guided by the methodology developed by Arksey and O'Malley and enhanced by Levac and colleagues. Relevant literature will be identified by searching electronic databases, grey literature, hand-searching key journals and searching the reference lists and citations of studies that meet the inclusion criteria. We will focus on literature published from 2011 to the present. Titles, abstracts and full-text articles will be screened independently by two researchers; any disagreements will be resolved through discussion with another researcher. Extracted data will be summarised and analysed to address the scoping review aims.

Ethics and dissemination

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The scoping review will map the available literature on equity-focused implementation science TMFs and the facilitators and barriers to equitable implementation of interventions. Ethical approval is not required. Dissemination of the results of the review will include publications in peer-review journals and conference and stakeholder presentations. Findings from the review will support those implementing interventions to ensure that the implementation pathway and processes are equitable, thereby improving health outcomes and reducing existing inequities.

Strengths and limitations of this study

- To the best of our knowledge, this will be the first scoping review of the literature on equity-focused implementation science TMFs and the facilitators and barriers to the equitable implementation of interventions.
- The review is based on triangulation of sources, which implies the use of a range of strategies to identify potentially relevant sources, including databases, grey literature, hand-searching key journals and reviewing the reference lists and citations of included studies.
- The scoping review will be limited to literature published in English and from 2011 to the present; this may bias the analysis by excluding potentially relevant sources.
- The grey literature search will focus on New Zealand, which may limit the generalisability of the findings to other health systems.

INTRODUCTION

Health inequities are differences in health between groups of people that are avoidable, unfair and unjust, where these groups may be defined socially, economically, demographically or geographically [1-3]. The causes of health inequities are complex and

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multifactorial; historic and contemporary political, legal, social, economic and institutional structures and processes shape how power and resources are distributed, disadvantaging some groups relative to others [3, 4]. Within the health system, inequities are perpetuated through its structures, policies and processes, which manifest as a lack of services that are affordable, accessible and culturally responsive and safe, and involve actors at multiple levels (e.g. healthcare professionals, administrators, managers, funders) [5].

Ethnicity and 'race'-related health inequities have been well-documented locally and internationally, including in the social determinants of health, access and use of health services, quality of care and health outcomes [5-10]. In Aotearoa New Zealand, there are persistent inequities in the health of Māori (the Indigenous peoples), Pacific and other minoritised groups when compared with the majority European-New Zealand population [8, 11]. Often these ethnicity-related inequities are evident after socioeconomic status and geographic differences are accounted for [12]. While the implementation of evidence-based interventions has contributed to overall improvements in morbidity and mortality, inequities in access to and provision of health services and interventions (e.g. cardiovascular disease risk assessment, cancer screening, diabetes screening, vaccination) has meant the health benefits of these interventions have been inequitable [8, 11, 13-19].

Achieving equitable health outcomes requires approaches that recognise and account for the differences in levels of advantage between groups [2]. Implementation science is being increasingly recognised as an approach to reduce health inequities [20-26]. Implementation science is defined as the "scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care" [27]. Implementation research seeks to understand the multi-level factors influencing health

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intervention design and delivery [4, 21]. Applying an 'equity lens' to implementation science can therefore facilitate understanding of the factors influencing the equitable design and delivery of health interventions and guide the process of equitable implementation [4, 20, 26].

Implementation science utilises theories, models and frameworks (TMFs) as the basis for understanding how and why implementation of an evidence-based intervention or practice succeeds or fails [28]. Nilsen outlines three overarching aims of implementation science TMFs: (1) to describe and/or guide the process of translating research into practice, (2) to understand and/or explain what influences implementation outcomes and (3) to evaluate implementation [28]. A number of implementation science TMFs have been adapted or developed in recent years to incorporate equity as an explicit focus [20, 23]. To the best of our knowledge, these have yet to be comprehensively reviewed.

Optimising an intervention's ability to address health inequities requires an understanding of the factors that aid or inhibit equitable implementation. Identifying facilitators and barriers to implementation enables intervention or service design and delivery to be adapted to ensure that it meets the needs of the target population and improves health outcomes [28]. Similarly, identifying the facilitators and barriers to equitable implementation provides an opportunity to design or adapt the implementation pathway to ensure that the intervention is delivered equitably.

The aim of the scoping review is to explore the literature relating to the equitable implementation of health interventions. Our specific objectives are to: (1) identify and describe implementation science TMFs that have an equity focus, including their purpose, components and operationalisation (if applicable), and (2) identify and analyse literature relating to the factors that aid or inhibit the achievement of equity in health intervention

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implementation. The scoping review will form part of the first phase of a research programme to develop an equity-focused implementation science framework and an equity readiness assessment tool appropriate for the Aotearoa New Zealand context. The results will also support health researchers, clinicians, funders and other decision-makers to implement interventions to achieve equitable outcomes.

METHODS AND ANALYSIS

A scoping review is a type of knowledge synthesis that addresses an exploratory research question by identifying and mapping key concepts, evidence and research gaps in a particular field or area [29]. The scoping review methodology allows exploration of the breadth of evidence from diverse sources, including grey literature, while not requiring an assessment of the quality of the evidence [30, 31]. It is also critical in examining the extent, variety and characteristics of evidence on a particular topic or question by providing clarity to the concepts and identifying the gaps in knowledge to inform practice, policy and future research [32]. As such, it has been identified as the most suitable methodology to review the literature on equity-focused implementation science.

This scoping review will be conducted following the methodological framework developed by Arksey and O'Malley[30] and refined by Levac and colleagues [33]. These authors outline a six-stage process for scoping reviews: (1) identifying the research question; (2) identifying the relevant studies; (3) study selection; (4) charting the data; (5) collating, summarising and reporting the results; (6) consultation [30, 33]. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review (PRISMA-ScR) checklist will be used to guide the reporting of the results [32]. As the scoping review process is iterative, changes to the protocol may be required as the review

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progresses. Any adjustments will be clearly documented and justified in the scoping review results.

Stage 1: identifying the research question

To guide the scoping review, two research questions have been developed in consultation with the research team: (1) What equity TMFs have been developed to inform the design and implementation of interventions in the health sector? (2) What implementation factors aid or inhibit the achievement of equity in health interventions?

Stage 2: identifying relevant studies

Literature will be identified in four phases: (1) electronic database searching, (2) grey literature searching, (3) hand-searching of key journals, and (4) searching the reference lists and citations of studies meeting the inclusion criteria.

The MEDLINE (Ovid) and CINAHL databases will be used to search for literature relating to the research questions published from 2011 to the present. Initial search terms were developed in consultation with a subject librarian at the University of Otago and reviewed by the research team. Preliminary searches were conducted in MEDLINE and the search terms and strategies were refined based on screening article titles, abstracts and keywords (see Table 1 for the MEDLINE search strategy). The MEDLINE search strategy will be adapted for the CINAHL database (see online supplemental file 1). The Dissemination and Implementation Models database (https://dissemination-implementation.org/index.aspx) will also be searched to identify any additional implementation science TMFs with a health equity focus (see online supplemental file 1). International and local sources from the published literature will be eligible for inclusion. The grey literature search will be limited to New Zealand as we are particularly interested in scoping the literature on the factors that influence whether the implementation of an intervention has an impact on health inequities

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in Māori and Pacific populations. The key journal titles to be hand-searched will be finalised once the database searches are completed and the most relevant journals have been identified. As with the database searches, the grey literature and key journal searches will be limited to literature published from 2011 to the present.

Table 1. Search strategy developed in MEDLINE.

Research question 1
1. (implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2. (framework* or theor* or model* or checklist* or classifi* or categor* or concept* or tool or protocol).af.
3. 1 and 2
4. (health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
5. 3 and 4
6. limit 5 to (english language and humans and yr="2011 -Current")
7. (equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.
8. 6 and 7
Research question 2
1. (implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2. (health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
3. 1 and 2
4. (equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.

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5. 3 and 4
6. limit 5 to (english language and humans and yr="2011 -Current")
7. barrier* or hinder or obstacle* or imped*
8. 6 and 7
9. (facilitat* or enabl* or moderat* or influence* or impact or aid or assist or enhanc*).af.
10. 6 and 9

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19 190 **Stage 3: study selection**
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21 191 References identified through the MEDLINE, CINAHL and Dissemination and Implementation
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24 192 Models databases will be exported to Endnote X9.3.3 to identify and remove any duplicates.
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26 193 References will also be imported to Microsoft Excel Version 2102 and the titles and
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29 194 abstracts screened independently by two researchers to determine at a broad level whether
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31 195 they meet inclusion criteria and do not satisfy any exclusion criteria; any disagreements will
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34 196 be resolved through discussion with a third researcher. Studies identified as likely eligible
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36 197 for inclusion through the screening process will then undergo full-text review by at least two
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39 198 researchers to make a final determination of eligibility for inclusion in the scoping review.
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42 199 Criteria for research question 1
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44 200 Studies will be included if they (1) describe an equity-focused implementation science
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47 201 TMF, or (2) utilise an established implementation science TMF to implement an intervention
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49 202 in Indigenous or other minoritised ethnic populations known to experience health
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52 203 inequities. Studies that describe the operationalisation of an equity-focused TMF will also be
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54 204 included.
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57 205 Criteria for research question 2
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Studies will be included if they (1) describe a health intervention implemented in target populations experiencing ethnicity-related health inequities, or (2) describe a health intervention implemented in whole populations, but where ethnicity-related inequities are explicitly considered as part of the implementation process; and (3) refer to facilitators or barriers to implementation.

Exclusion criteria

Commentaries, discussion and working papers, editorials, letters, conference proceedings and studies in non-English languages or that describe interventions conducted in non-healthcare settings will be excluded. As this review focuses on ethnicity-related health inequities, interventions implemented in populations experiencing other types of inequity are beyond the scope of this study.

Stage 4: charting the data

Studies will be charted in Microsoft Excel using a data charting form; separate charting forms will be developed for the two research questions (Table 2). The data charting forms will be piloted on five to ten studies by two researchers independently and revised as necessary. Data charting will be completed by two researchers, with cross-checking by a third researcher.

Table 2. Preliminary data charting forms for data collection from studies meeting the inclusion criteria for research questions one and two.

Research question 1	Research question 2

• Study characteristics
• Aims
• Framework characteristics
• Description/s of framework operationalisation (if available):
  ○ Study demographics
  ○ Setting
	• Study characteristics
	• Aims
	• Description of the intervention
	• Facilitators and barriers to implementation

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○ Methodology ○ Outcomes	

Stage 5: collating, summarising and reporting the results

A descriptive summary of the equity-focused implementation science TMFs and the literature describing the facilitators and barriers to equitable implementation will be provided. An analysis of the findings in relation to the research questions will be presented, including how well equity and system-level factors influencing implementation are incorporated into the implementation science TMFs and a thematic analysis of the implementation factors aiding or inhibiting the achievement of equity in health interventions.

Stage 6: consultation

Consultation with experts and stakeholders is recommended throughout the scoping review process [29, 34]. It is also a critical aspect of the Kaupapa Māori research methodology* that informs the wider research programme [35]. The research team includes experts in the fields of health equity (SC, KB), implementation science (PC) and Māori health (SC, RB, MR) who will review the search findings and identify any potentially relevant literature that is missing. A Kāhui (group) comprising experts in Māori health research and service provision, Iwi (tribe) representatives and health service consumers will also be consulted to identify any potentially relevant local resources that are not identified through the grey literature search. The Kāhui will also review and provide feedback on the findings of the review as it progresses.

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3 245 * Kaupapa Māori (literally, a Māori way) research "assumes the existence and validity of Māori knowledge,
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6 246 language and culture" (p.48)[36] and is underpinned by a set of principles that guide research by, with and for
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8 247 Māori [36, 37].
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11 248 **Patient and public involvement**
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13 249 No patients were involved in the protocol design.
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16 250 **ETHICS AND DISSEMINATION**
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19 251 Ethical approval will not be required for this scoping review as all data reviewed and
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22 252 collected will be obtained from publicly available sources. Dissemination of the scoping
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24 253 review results will include publication in a peer-reviewed journal and presentations to
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27 254 stakeholders and at conferences.
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30 255 **Acknowledgements:** We thank Christy Ballard, the subject librarian for the Department of
31
32
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34
35 257 development of the search strategy. We also thank Associate Professor Nicole Rankin, Unit
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39
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42
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44
45 261 ML, PG and YAA developed the search strategy; KB, AF and PP contributed to methods
46
47
48 262 design. PG, YAA and ML drafted and edited the manuscript and SC, KB, PC, PP, AF, RB and
49
50 263 MR provided critical revisions. The final version was read and approved by all authors.
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59 266 **Competing interests:** None.
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Supplemental file 1. Database search strategies.

MEDLINE search strategy

Research question 1	
1.	(implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2.	(framework* or theor* or model* or checklist* or classifi* or categor* or concept* or tool or protocol).af.
3.	1 and 2
4.	(health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
5.	3 and 4
6.	limit 5 to (english language and humans and yr="2011 -Current")
7.	(equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.
8.	6 and 7
Research question 2	
1.	(implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2.	(health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
3.	1 and 2
4.	(equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.
5.	3 and 4
6.	limit 5 to (english language and humans and yr="2011 -Current")
7.	barrier* or hinder or obstacle* or imped*
8.	6 and 7
9.	(facilitat* or enabl* or moderat* or influence* or impact or aid or assist or enhanc*).af.
10.	6 and 9

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CINAHL search strategy

Research question 1
1. implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation
2. framework* or theor* or model* or checklist* or classifi* or categor* or concept* or tool or protocol
3. S1 AND S2
4. health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*
5. S3 AND S4; Limiters - Published Date: 20110101-20220131 ; English Language; Human
6. equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*
7. S5 AND S6
Research question 2
1. implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation
2. health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*
3. S1 AND S2
4. equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*
5. S3 AND S4; Limiters - Published Date: 20110101-20220131 ; English Language; Human
6. barrier* or hinder or obstacle* or imped*
7. S5 AND S6
8. facilitat* or enabl* or moderat* or influence* or impact or aid or assist or enhanc*
9. S5 AND S8

D&I database search strategy

Search criteria:
1. D And/Or I: Implementation
2. Socio-Ecological levels: All
3. Constructs: Health Equity

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BMJ Open

Supporting implementation of interventions to address ethnicity-related health inequities: frameworks, facilitators, and barriers: A scoping review protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2022-065721.R1
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Keywords:	PUBLIC HEALTH, QUALITATIVE RESEARCH, Organisation of health services < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health Equity

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Manuscripts

Supporting implementation of interventions to address ethnicity-related health inequities: frameworks, facilitators, and barriers: A scoping review protocol

Corresponding author: Professor Sue Crengle, PO Box 56, Dunedin, New Zealand 9054
sue.crengle@otago.ac.nz

Authors

Papillon Gustafson, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0001-8645-8490

Yasmin Abdul Aziz, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0002-0564-664X

Michelle Lambert, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0002-0439-7557

Karen Bartholomew, Waitematā District Health Board and Auckland District Health Board, Auckland, Aotearoa New Zealand, ORCID: 0000-0002-1517-2134

Rachel Brown, National Hauora Coalition, Auckland, Aotearoa New Zealand

Peter Carswell, Synergia Ltd, Auckland, Aotearoa New Zealand

Adam Fusheini, Preventive and Social Medicine, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0001-7896-3841

Mihi Ratima, Taumata Associates, Hāwera, Aotearoa New Zealand

Patricia Priest, Preventive and Social Medicine, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand

Sue Crengle, Ngāi Tahu Māori Health Research Unit, Division of Health Sciences, University of Otago, Dunedin Campus, Dunedin, Aotearoa New Zealand, ORCID: 0000-0001-9367-1492

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Word count (excluding title page, abstract, references, figures and tables): 2328

ABSTRACT

Introduction

Health inequities are differences in health between groups of people that are avoidable, unfair and unjust. Achieving equitable health outcomes requires approaches that recognise and account for the differences in levels of advantage between groups. Implementation science, which studies how to translate evidence-based interventions into routine practice, is increasingly recognised as an approach to address health inequities by identifying factors and processes that enable equitable implementation of interventions. This article describes the protocol for a scoping review of the literature relating to the equitable implementation of interventions, focusing on ethnicity-related health inequities. The scoping review aims to identify equity-focused implementation science theories, models and frameworks (TMFs) and to synthesise and analyse the evidence relating to the factors that aid or inhibit equitable implementation of health interventions.

Methods and analysis

The scoping review is guided by the methodology developed by Arksey and O'Malley and enhanced by Levac and colleagues. Relevant literature will be identified by searching electronic databases, grey literature, hand-searching key journals and searching the reference lists and citations of studies that meet the inclusion criteria. We will focus on literature published from 2011 to the present. Titles, abstracts and full-text articles will be screened independently by two researchers; any disagreements will be resolved through discussion with another researcher. Extracted data will be summarised and analysed to address the scoping review aims.

Ethics and dissemination

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3 66 The scoping review will map the available literature on equity-focused implementation
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6 67 science TMFs and the facilitators and barriers to equitable implementation of interventions.
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8 68 Ethical approval is not required. Dissemination of the results of the review will include
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11 69 publications in peer-review journals and conference and stakeholder presentations. Findings
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13 70 from the review will support those implementing interventions to ensure that the
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16 71 implementation pathway and processes are equitable, thereby improving health outcomes
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18 72 and reducing existing inequities.
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21 73 **Strengths and limitations of this study**
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23 74 • To the best of our knowledge, this will be the first scoping review of the literature on
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26 75 equity-focused implementation science TMFs and the facilitators and barriers to the
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28 76 equitable implementation of interventions.
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31 77 • The review is based on triangulation of sources, which implies the use of a range of
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33 78 strategies to identify potentially relevant sources, including databases, grey
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36 79 literature, hand-searching key journals and reviewing the reference lists and
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38 80 citations of included studies.
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41 81 • The scoping review will be limited to literature published in English and from 2011 to
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43 82 the present; this may bias the analysis by excluding potentially relevant sources.
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46 83 • The grey literature search will focus on New Zealand, which may limit the
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48 84 generalisability of the findings to other health systems.
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51 85 **INTRODUCTION**
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53 86 Health inequities are differences in health between groups of people that are avoidable,
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56 87 unfair and unjust, where these groups may be defined socially, economically,
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58 88 demographically or geographically [1-3]. The causes of health inequities are complex and
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multifactorial; historic and contemporary political, legal, social, economic and institutional structures and processes shape how power and resources are distributed, disadvantaging some groups relative to others [3, 4]. Within the health system, inequities are perpetuated through its structures, policies and processes, which manifest as a lack of services that are affordable, accessible and culturally responsive and safe, and involve actors at multiple levels (e.g. healthcare professionals, administrators, managers, funders) [5].

Ethnicity and 'race'-related health inequities have been well-documented locally and internationally [5-10]. Minoritised groups have poorer access to the social determinants of health, less access to and use of health services, poorer quality of care and worse health outcomes, including reduced life expectancy and increased morbidity and mortality associated with various communicable and non-communicable diseases [5-10]. A population study of Indigenous and tribal peoples in 23 countries, including Aotearoa New Zealand, Australia, Brazil and Canada, found poorer health and social outcomes compared to non-Indigenous populations across a range of measures, although these differences were not uniform across each country or population [6]. In Aotearoa New Zealand, there are persistent inequities in the health of Māori (the Indigenous peoples), Pacific and other minoritised groups when compared with the majority European-New Zealand population [8, 11]. Often these ethnicity-related inequities are evident after socioeconomic status and geographic differences are accounted for [12]. While the implementation of evidence-based interventions has contributed to overall improvements in morbidity and mortality, inequities in access to and provision of health services and interventions (e.g. cardiovascular disease risk assessment, cancer screening, diabetes screening, vaccination) has meant the health benefits of these interventions have been inequitable [8, 11, 13-19].

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Achieving equitable health outcomes requires approaches that recognise and account for the differences in levels of advantage between groups [2]. Implementation science is being increasingly recognised as an approach to reduce health inequities [20-26]. Implementation science is defined as the "scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services and care" [27]. Implementation research seeks to understand the multi-level factors influencing health intervention design and delivery [4, 21]. Applying an 'equity lens' to implementation science can therefore facilitate understanding of the factors influencing the equitable design and delivery of health interventions and guide the process of equitable implementation [4, 20, 26].

Implementation science utilises theories, models and frameworks (TMFs) as the basis for understanding how and why implementation of an evidence-based intervention or practice succeeds or fails [28]. Nilsen outlines three overarching aims of implementation science TMFs: (1) to describe and/or guide the process of translating research into practice, (2) to understand and/or explain what influences implementation outcomes and (3) to evaluate implementation [28]. A number of implementation science TMFs have been adapted or developed in recent years to incorporate equity as an explicit focus [20, 23]. To the best of our knowledge, these have yet to be comprehensively reviewed.

Optimising an intervention's ability to address health inequities requires an understanding of the factors that aid or inhibit equitable implementation. Identifying facilitators and barriers to implementation enables intervention or service design and delivery to be adapted to ensure that it meets the needs of the target population and improves health outcomes [28]. Similarly, identifying the facilitators and barriers to

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equitable implementation provides an opportunity to design or adapt the implementation pathway to ensure that the intervention is delivered equitably.

The aim of the scoping review is to explore the literature relating to the equitable implementation of health interventions. Our specific objectives are to: (1) identify and describe implementation science TMFs that have an equity focus, including their purpose, components and operationalisation (if applicable), and (2) identify and analyse literature relating to the factors that aid or inhibit the achievement of equity in health intervention implementation. A scoping review was identified as the most suitable methodology for the study as it is a type of knowledge synthesis that addresses an exploratory research question by identifying and mapping key concepts, evidence and research gaps in a particular field or area [29]. In contrast to a systematic review, this methodology allows exploration of the breadth of evidence from diverse sources, including grey literature, while not requiring an assessment of the quality of the evidence [30, 31]. It is also critical in examining the extent, variety and characteristics of evidence on a particular topic or question by providing clarity to the concepts and identifying the gaps in knowledge to inform practice, policy and future research [32]. The scoping review will form part of the first phase of a research programme to develop an equity-focused implementation science framework and an equity readiness assessment tool appropriate for the Aotearoa New Zealand context. The results will also support health researchers, clinicians, funders and other decision-makers to implement interventions to achieve equitable outcomes.

METHODS AND ANALYSIS

This scoping review will be conducted following the methodological framework developed by Arksey and O'Malley[30] and refined by Levac and colleagues [33]. These

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3 159 authors outline a six-stage process for scoping reviews: (1) identifying the research
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6 160 question; (2) identifying the relevant studies; (3) study selection; (4) charting the data; (5)
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8 161 collating, summarising and reporting the results; (6) consultation [30, 33]. The Preferred
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11 162 Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review
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13 163 (PRISMA-ScR) checklist will be used to guide the reporting of the results [32]. As the scoping
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16 164 review process is iterative, changes to the protocol may be required as the review
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18 165 progresses. Any adjustments will be clearly documented and justified in the scoping review
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21 166 results.
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23 167 **Stage 1: identifying the research question**
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26 168 To guide the scoping review, two research questions have been developed in consultation
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28 169 with the research team: (1) What equity TMFs have been developed to inform the design
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31 170 and implementation of interventions in the health sector? (2) What implementation factors
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33 171 aid or inhibit the achievement of equity in health interventions?
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36 172 **Stage 2: identifying relevant studies**
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38 173 Literature will be identified in four phases: (1) electronic database searching, (2) grey
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41 174 literature searching, (3) hand-searching of key journals, and (4) searching the reference lists
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43 175 and citations of studies meeting the inclusion criteria.
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46 176 The MEDLINE (Ovid) and CINAHL databases will be used to search for literature relating
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48 177 to the research questions published from 1 January, 2011 to the present. Preliminary
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51 178 searches revealed that discussions about equity in implementation science have occurred
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53 179 predominantly in the last five years. Therefore, limiting the search to 2011 onwards will
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56 180 provide good coverage of the implementation science literature, as well as ensuring that the
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58 181 search is current at the time it is executed. The list of initial search terms was developed
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60 182 from the research questions and previous knowledge, and reviewed by the research team.

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3 183 The Research Fellow and a subject librarian at the University of Otago reviewed MeSH terms
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6 184 to ensure that the key search terms were comprehensive. Preliminary searches were
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8 185 conducted in MEDLINE and the search terms and strategies were refined based on screening
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11 186 article titles, abstracts and keywords (see Table 1 for the MEDLINE search strategy). The
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13 187 MEDLINE search strategy will be adapted for the CINAHL database (see online supplemental
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16 188 file 1). The Dissemination and Implementation Models database (https://dissemination-
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18 189 implementation.org/index.aspx) will also be searched to identify any additional
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21 190 implementation science TMFs with a health equity focus (see online supplemental file 1).
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23 191 International and local literature from the database searches will be eligible for inclusion.
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26 192 The grey literature search will be conducted using Google and the following search terms:
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28 193 "health" AND "equity" and "implementation" and "framework or model or theory". This
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31 194 search will be limited to New Zealand as we are particularly interested in scoping the
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33 195 literature on the factors that influence whether the implementation of an intervention has
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36 196 an impact on health inequities in Māori and Pacific populations. The key journal titles to be
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38 197 hand-searched will be finalised once the database searches are completed and the most
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40 198 relevant journals have been identified. As with the database searches, the grey literature
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43 199 and key journal searches will be limited to literature published from 1 January, 2011 to the
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48 201 **Table 1.** Search strategy developed in MEDLINE.
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Research question 1
1. (implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2. (framework* or theor* or model* or checklist* or classifi* or categor* or

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concept* or tool or protocol).af.
3. 1 and 2
4. (health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
5. 3 and 4
6. limit 5 to (english language and humans and yr="2011 -Current")
7. (equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.
8. 6 and 7
Research question 2
1. (implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2. (health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
3. 1 and 2
4. (equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.
5. 3 and 4
6. limit 5 to (english language and humans and yr="2011 -Current")
7. barrier* or hinder or obstacle* or imped*
8. 6 and 7
9. (facilitat* or enabl* or moderat* or influence* or impact or aid or assist or enhanc*).af.
10. 6 and 9

Stage 3: study selection

References identified through the MEDLINE, CINAHL and Dissemination and Implementation Models databases will be exported to Endnote X9.3.3 to identify and remove any duplicates.

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References will also be imported to Microsoft Excel Version 2209 and the titles and abstracts screened independently by two researchers to determine at a broad level whether they meet inclusion criteria and do not satisfy any exclusion criteria; any disagreements will be resolved through discussion with a third researcher. Studies identified as likely eligible for inclusion through the screening process will then undergo full-text review by at least two researchers to make a final determination of eligibility for inclusion in the scoping review.

To identify potentially relevant studies from relevant journals and reference lists by handsearching, article titles will first be reviewed to determine whether they broadly meet the inclusion criteria. The abstracts of potentially eligible articles will then be reviewed according to the process described above for references identified through the database searches. Grey literature and any literature identified by handsearching journals, reference lists or citations will be manually added to Endnote and Microsoft Excel.

Criteria for research question 1

Studies will be included if they (1) describe an equity-focused implementation science TMF, i.e. equity is explicitly mentioned in the TMF or addressing health equity is an explicit aim of the TMF, or (2) utilise an established implementation science TMF to implement an intervention in Indigenous or other minoritised ethnic populations known to experience health inequities. Studies that describe the operationalisation of an equity-focused TMF will also be included.

Criteria for research question 2

Studies will be included if they (1) describe a health intervention implemented in target populations experiencing ethnicity-related health inequities, or (2) describe a health intervention implemented in whole populations, but where ethnicity-related inequities are

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explicitly considered as part of the implementation process; and (3) refer to facilitators or barriers to implementation.

Exclusion criteria

Commentaries, discussion and working papers, policy documents, editorials, expert opinions, letters, conference proceedings, case reports, quantitative research that does not otherwise meet the inclusion criteria for research question 1 or 2, and studies in non-English languages or that describe interventions conducted in non-healthcare settings will be excluded. As this review focuses on ethnicity-related health inequities, interventions implemented in populations experiencing other types of inequity are beyond the scope of this study.

Stage 4: charting the data

Studies will be charted in Microsoft Excel using a data charting form; separate charting forms will be developed for the two research questions (Table 2). The data charting forms will be piloted on five to ten studies by two researchers independently. The researchers will then meet to review the data charting process, make any necessary revisions to the data charting form and check for consistency between the two researchers. Data charting will be completed by two researchers, with cross-checking by a third researcher.

Table 2. Preliminary data charting forms for data collection from studies meeting the inclusion criteria for research questions one and two.

Research question 1	Research question 2

• Study characteristics
• Aims
• Framework characteristics
• Description/s of framework operationalisation (if available):
  ○ Study demographics
  ○ Setting
	• Study characteristics
	• Aims
	• Description of the intervention
	• Facilitators and barriers to implementation

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○ Methodology ○ Outcomes	

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249 **Stage 5: collating, summarising and reporting the results**

250 A descriptive summary of the equity-focused implementation science TMFs and the
251 literature describing the facilitators and barriers to equitable implementation will be
252 provided. An analysis of the findings in relation to the research questions will be presented,
253 including how well equity and system-level factors influencing implementation are
254 incorporated into the implementation science TMFs and a thematic analysis of the
255 implementation factors aiding or inhibiting the achievement of equity in health
256 interventions.

257 **Stage 6: consultation**

258 Consultation with experts and stakeholders is recommended throughout the scoping review
259 process [29, 34]. It is also a critical aspect of the Kaupapa Māori research methodology* that
260 informs the wider research programme [35]. The research team includes experts in the
261 fields of health equity (SC, KB), implementation science (PC) and Māori health (SC, RB, MR)
262 who will review the search findings and identify any potentially relevant literature that is
263 missing. A Kāhui (group) comprising experts in Māori health research and service provision,
264 Iwi (tribe) representatives and health service consumers will also be consulted to identify
265 any potentially relevant local resources that are not identified through the grey literature
266 search. The Kāhui will also review and provide feedback on the findings of the review as it
267 progresses.

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3 268 * Kaupapa Māori (literally, a Māori way) research "assumes the existence and validity of Māori knowledge,
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6 269 language and culture" (p.48)[36] and is underpinned by a set of principles that guide research by, with and for
7
8 270 Māori [36, 37].
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11 271 **Patient and public involvement**
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13 272 No patients were involved in the protocol design.
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16 273 **ETHICS AND DISSEMINATION**
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19 274 Ethical approval will not be required for this scoping review as all data reviewed and
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22 275 collected will be obtained from publicly available sources. Dissemination of the scoping
23
24 276 review results will include publication in a peer-reviewed journal and presentations to
25
26
27 277 stakeholders and at conferences.
28
29
30 278 **Acknowledgements:** We thank Christy Ballard, the subject librarian for the Department of
31
32
33 279 Preventive and Social Medicine at the University of Otago, for her assistance in the
34
35 280 development of the search strategy. We also thank Associate Professor Nicole Rankin, Unit
36
37
38 281 Head for the Evaluation and Implementation Science Unit at the University of Melbourne,
39
40 282 for her guidance in developing the protocol methodology.
41
42
43 283 **Authors' contributions:** SC, KB, PC, PP and AF conceptualised and designed this study. SC,
44
45 284 ML, PG and YAA developed the search strategy; KB, AF and PP contributed to methods
46
47
48 285 design. PG, YAA and ML drafted and edited the manuscript and SC, KB, PC, PP, AF, RB and
49
50 286 MR provided critical revisions. The final version was read and approved by all authors.
51
52
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54
55
56 288 number HL-T32CR-08.
57
58
59 289 **Competing interests:** None.
60

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Supplemental file 1. Database search strategies.

MEDLINE search strategy

Research question 1	
1.	(implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2.	(framework* or theor* or model* or checklist* or classifi* or categor* or concept* or tool or protocol).af.
3.	1 and 2
4.	(health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
5.	3 and 4
6.	limit 5 to (english language and humans and yr="2011 -Current")
7.	(equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.
8.	6 and 7

Research question 2	
1.	(implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation).af.
2.	(health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*).af.
3.	1 and 2
4.	(equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*).af.
5.	3 and 4
6.	limit 5 to (english language and humans and yr="2011 -Current")
7.	barrier* or hinder or obstacle* or imped*
8.	6 and 7
9.	(facilitat* or enabl* or moderat* or influence* or impact or aid or assist or enhanc*).af.
10.	6 and 9

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CINAHL search strategy

Research question 1
1. implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation
2. framework* or theor* or model* or checklist* or classifi* or categor* or concept* or tool or protocol
3. S1 AND S2
4. health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*
5. S3 AND S4; Limiters - Published Date: 20110101-20220131 ; English Language; Human
6. equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*
7. S5 AND S6

Research question 2
1. implementation science or implementation framework or implementation research or implementation process or implementation effectiveness or knowledge transfer or knowledge exchange or knowledge translation
2. health intervention or health care or healthcare or evidence-based intervention or evidence-based practice or health service*
3. S1 AND S2
4. equity or health equity or inequal* or health inequal* or disparit* or health diparit* or inequit* or health inequit*
5. S3 AND S4; Limiters - Published Date: 20110101-20220131 ; English Language; Human
6. barrier* or hinder or obstacle* or imped*
7. S5 AND S6
8. facilitat* or enabl* or moderat* or influence* or impact or aid or assist or enhanc*
9. S5 AND S8

D&I database search strategy

Search criteria:
1. D And/Or I: Implementation
2. Socio-Ecological levels: All
3. Constructs: Health Equity

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Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	

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SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.
* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.
† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).
‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.
§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

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