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STUDY PROTOCOL

REVISED An exploration of prenatal breastfeeding self-efficacy: a scoping review protocol

[version 3; peer review: 2 approved]

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Abstract

Objective: To synthesise the evidence on prenatal breastfeeding self-efficacy, including identifying concepts and theoretical frameworks that underpin its development, the evidence on its measurement, interventions used to improve it, and association with breastfeeding outcomes.

Background: Breastfeeding self-efficacy is described as a woman's self-belief and confidence in her perceived ability to breastfeed. It is a modifiable measure that is strongly associated with breastfeeding outcomes such as initiation, exclusivity, and duration. Interventions aimed at increasing self-efficacy are often in the postnatal period and have been shown to be effective at improving breastfeeding outcomes. The prenatal period appears to be underexplored in the literature and yet focusing on enhancing it may have the potential for further improvements in self-efficacy and on subsequent breastfeeding outcomes. A comprehensive knowledge synthesis on prenatal breastfeeding self-efficacy is lacking.

Methods: The search will include databases across health, psychology, sociology, and the grey literature on breastfeeding guidance. Once the PCC framework (Problem: breastfeeding, Concept: self-efficacy, Context: prenatal period) is met, sources of evidence from any contextual setting will be eligible for inclusion. Limits will not be applied on geographic location or year of publication. The PRISMA-ScR flow diagram of search and study selection will be used to report final figures. Two independent reviewers will perform title and abstract screening and full text review. Data will be charted to provide a logical and descriptive summary of the results that align with the objectives.

Conclusion: The results will provide an understanding of what has been done in the space and what gaps exist, informing

Open Peer Review

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	1	2
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Any reports and responses or comments on the article can be found at the end of the article.

recommendations for the timing of measurement and the design of prenatal interventions.

Keywords
Breastfeeding, lactation, prenatal, antenatal, self-efficacy, self-belief



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This article is included in the Health Sciences gateway.

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REVISED **Amendments from Version 2**

Version 3 of the manuscript contains clarification and explanation in the methods section, regarding the expansion of search terms in version 2. In the process of updating the text following reviewer feedback, the authors also noted that on reflection, there were three areas where minor changes were needed:
- Expansion of the description of eligibility criteria in Table 1;
- Refinement of the process for data extraction given the potential for a large number of records and the workload of the review team: from extraction conducted by two independent reviewers to it being done by the lead author with 20% being independently checked;
- Reference to a citation in the introduction needed to be adapted and the text has been changed accordingly.

Any further responses from the reviewers can be found at the end of the article

Plain language summary

Around the world, the number of babies that are breastfed is a lot lower than the recommendation for the best possible growth, development, and health. If someone believes that they will be able to breastfeed, they have a better chance of being successful. Their belief that they can breastfeed is something that can be enhanced. Higher self-belief (self-efficacy) leads to higher breastfeeding outcomes. Many interventions to enhance breastfeeding self-efficacy happen after babies are born and breastfeeding has started. There may be a missed opportunity to focus more on increasing breastfeeding self-efficacy early in pregnancy to increase the potential improvement of this self-belief. This review will look at what is known about women's belief in their ability to breastfeed while they are still pregnant. It will look at how and when this belief is measured and how it impacts breastfeeding. Trying to help grow this belief before the baby is born may help women start breastfeeding and breastfeed for longer.

Introduction

The World Health Organisation (WHO) recommends exclusive breastfeeding for the first six months of life to achieve optimal growth, development and health, followed by continued breastfeeding alongside nutritious, complementary foods, up to the age of two years or beyond. Breastfeeding is also integral to the United Nation's Sustainable Development Goals for 2030, in the areas of nutrition, health, inequity reduction and poverty reduction[1,2]. It is estimated that 820,000 deaths in children under 5 could be prevented annually, if all children 0–23 months old were optimally breastfed[3].

However, despite the benefits of breastfeeding to mothers, babies and wider society[3], breastfeeding rates fall short of the WHO recommendation, with only 44% of infants worldwide aged 0–6 months exclusively breastfed between 2015–2020. The World Health Assembly, as the decision-making body of the WHO, set a global nutrition target to increase exclusive breastfeeding in the first six months to 50% globally by 2025, which was revised to 70% by 2030.

Global feeding practices do vary. Zong *et al*. examined data from 57 low to middle income countries (LMICs) and concluded that breastfeeding practice improved from 2000–2018, but a big gap still exists when compared with WHO feeding recommendations, particularly for LMICs in the Eastern Mediterranean and European regions, and upper middle-income countries[4]. Victora *et al.* found the highest rates of breastfeeding at 12 months were in sub-Saharan Africa, South Asia and part of Latin America[3]. Most high-income countries had rates below 20% with important differences between the United Kingdom (<1%) and the United States (27%), and between Norway (35%) and Sweden (16%).

The multifaceted and complex nature of breastfeeding as a behaviour means that varying rates found between countries with similar sociocultural backgrounds exist. For example, women in Ireland and the UK are substantially less likely to breastfeed when compared with women in Australia[5]. The rates in high income western countries vary considerably. Over a 21 years period (1984–2015) breastfeeding initiation went from 97% to 95.5% in Sweden, 57% to 82.5% in the United States and 31.7% to 58% in Ireland[6]. Ireland has among the lowest breastfeeding rates in the world, Quinn *et al.*[7] reported the initiation rate in 2018 was 60%, compared with an average of 86% across OECD (Organization for Economic Co-operation and Development) countries. This increased to 63.7% in 2019 and dropped slightly to 62.3% in 2020. For most countries to achieve a meaningful increase in breastfeeding rates, strong action is required in almost all policy and programme areas[2]. Although modest gains in exclusive breastfeeding rates have been made, the World Bank do not expect the trends to continue without investment in comprehensive strategies[8].

The reporting of global, national and research breastfeeding data are inconsistent. The data are historically plagued with problems of collection and comparability[6]. The European Union reports that countries and monitoring groups appear to be applying different definitions and methods, and that WHO definitions and methods are frequently not applied. The report recommends great care is needed when making comparisons due to the lack of standardised data collection methods and in the application of definitions. In their highly cited publication on breastfeeding in the 21st Century, Victora *et al*.[3] were only able to access data from 37 out of 75 high income countries (HICs), with several of these only providing a subset of information. The authors subsequently warned that the data should be interpreted with caution. The situation within Europe appears to have not improved with Zakarija-Grković *et al.*'s recent assessment of the infant feeding strategy in Europe only able to report data from 18 of the 53 WHO/EURO Member States[9].

Many factors, both modifiable and non-modifiable, contribute to a woman's intention to breastfeed and their subsequent initiation and practice of breastfeeding. When supporting women to breastfeed, non-modifiable determinants include maternal age, socioeconomic status, marital status, education, geographical residence, and parity[10–13]. Modifiable factors include mode of

delivery, previous breastfeeding experience, breastfeeding self-efficacy, attitudes to infant feeding, knowledge of the benefits of breastfeeding, and social and professional support[5,14–16]. To tackle sub-optimal breastfeeding rates, Economou *et al.*[17] recommended that emphasis should shift to the modifiable determinants.

In general, self-efficacy is positively associated with decision making around health behaviours, both in terms of physical and mental health[18–20]. Breastfeeding self-efficacy has been identified as a strong modifiable predictor of breastfeeding initiation, duration, and exclusivity[21,22]. The term stems from Dennis' adaptation of Bandura's Social Cognitive Theory on self-efficacy and is described as a woman's self-belief and confidence in her perceived ability to breastfeed[23,24]. There is a growing body of literature on breastfeeding intention and self-efficacy, and their influence on breastfeeding outcomes and rates. Mothers with high levels of breastfeeding self-efficacy are more likely to breastfeed exclusively for longer[25]. It is therefore important to focus on maximising this modifiable determinant, especially in countries and cultures with relatively low breastfeeding rates.

Exploring the timing around when breastfeeding self-efficacy is developed, measured, and potentially influenced is important. Confidence and belief in the ability to breastfeed starts well before birth and Araban *et al.* reiterate the importance of there being an antenatal focus, stating that prenatal preparation was key to increasing self-efficacy[25]. Silva-Tubio *et al.* also outline the role of prenatal breastfeeding self-efficacy in both determining groups at-risk for early cessation and in evaluating programmes that promote breastfeeding[26]. However, much of the focus on improving self-efficacy is in the postnatal period and less attention has been paid to the prenatal one.

Breastfeeding assessment tools have been subject of systematic reviews exploring their clinical usefulness. Reviews on general tools[27,28] and those specifically measuring breastfeeding self-efficacy[29] exist. The self-efficacy tools provide a varying number of items (5–32) with a Likert-style scale based on either agreement, confidence, or perceived ability, which are scored[29]. The tools have been shown to be useful in measuring self-efficacy, identifying groups at higher risk of early breastfeeding cessation, exploring the changes in scores following an intervention, and in the relationship of scores with breastfeeding outcomes, such as initiation, exclusivity, and duration[30–32]. Specific tools exist to measure self-efficacy in the prenatal period, for example, the Prenatal Rating of Efficacy in Preparation to Breastfeed Scale (PREP to BF Scale)[33]. However, the postnatal tools are more commonly used[30], regardless of the administration timepoint, potentially to facilitate prenatal and postnatal comparisons following intervention. The timing of prenatal interventions and assessment are often in the third trimester, commonly 36–38 weeks gestation[34], rather than early in pregnancy. This may be a missed opportunity to focus on influencing self-efficacy scores over a longer period in pregnancy.

Social psychology can help to better understand the relationship between psychosocial determinants of breastfeeding self-efficacy and breastfeeding outcomes. The most frequently used theories have been the Theory of Reasoned Action, Theory of Planned Behavior, and the Breastfeeding Self Efficacy Framework[35]. Theoretical approaches, such as these, inform the content design of both tools used to assess breastfeeding self-efficacy and the interventions designed to impact self-efficacy scores and breastfeeding outcomes. The theoretical framework used to inform the design of four of the six breastfeeding self-efficacy assessment tools[21,36–38] was Bandura's Social Cognitive Theory[23,24]. This theory explains how people choose and maintain health behaviour, with the belief that they will attempt what they believe they can do. For example, the Breastfeeding Self-Efficacy Scale (BSES) has items on three factors: breastfeeding technique, intrapersonal thoughts, and support[21]. Others are based on the theory of planned behaviour and theory of reasoned action, stemming from Ajzen's guiding belief that people's intentions are strongly linked to their actual behaviour[39,40].

Interventions aimed at improving breastfeeding self-efficacy often focus on educational elements, which may not reflect the breadth of factors in the theories that underpin it. Systematic reviews examining interventions targeting breastfeeding self-efficacy and breastfeeding outcomes focused on education[30,32,41], with just one review having a wider scope that included education and support[34]. Maleki *et al.* observed that theory-based education led to greater improvement in self-efficacy scores compared with non-theory-based education[32]. Chipojola *et al.*[41] found that the theoretical approach used, impacted breastfeeding outcomes in different ways. In their systematic review and meta-analysis of theory-based educational interventions on breastfeeding self-efficacy and exclusive breastfeeding, breastfeeding self-efficacy scores at 1–2 months postpartum were improved when educational interventions guided by the breastfeeding self-efficacy framework were used, which was consistent with the findings from another systematic review conducted by Brockway *et al.*[30]. The educational interventions that used planned behaviour theory were more likely to lead to higher exclusive breastfeeding rates at 3–6 months. They recommended that future educational interventions to improve breastfeeding outcomes consider integrating aspects from both theoretical models into the design of their intervention[41].

This review will explore breastfeeding self-efficacy in the prenatal period. It is a modifiable measure that is strongly associated with breastfeeding outcomes such as initiation, exclusivity, and duration. Interventions aimed at increasing this measure have been effective at improving breastfeeding outcomes[30]. However, breastfeeding self-efficacy in the prenatal period appears to be underserved in the literature. The use of instruments and interventions in the prenatal period and their theoretical foundation will be explored. Enhancing breastfeeding self-efficacy antenatally may have the potential for greater improvements in subsequent breastfeeding outcomes. A comprehensive knowledge synthesis on breastfeeding self-efficacy in the prenatal period is needed.

Aims & objectives

Aim: To explore and synthesise the current literature and evidence base on prenatal breastfeeding self-efficacy.

Objectives:

- Identify and describe the theoretical frameworks and influencing factors that underpin prenatal breastfeeding self-efficacy.
- Identify and describe the evidence on the measurement of prenatal breastfeeding self-efficacy.
- Identify and describe the interventions used to improve prenatal breastfeeding self-efficacy and their impact on breastfeeding outcomes (initiation, duration, and exclusivity).

Methods

Study design

A scoping review was determined to be the most appropriate methodology to address the broad and holistic exploration needed. It facilitates the systematic mapping of the literature available, identifying the extent and nature of key concepts, theories, sources and types of evidence, and potential gaps in research. The review will be conducted in accordance with the Joanna Briggs Institute (JBI) approach for the conduct of scoping reviews, which was informed by Arksey & O'Malley[42] and Levac *et al.*[43]. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) checklist will be used in designing, reviewing, and reporting this review[44]. The scoping review is registered with Open Science Framework (10.17605/OSF.IO/U85WK).

Review team

The review will be conducted by a team that consists of an International Board-Certified Lactation Consultant - IBCLC (LMcG), registered midwife (LOT), registered dietitian (SOR) and obstetrician (FMcA). The team reflects the range of health professionals engaged in providing antenatal care to women for pregnancy and breastfeeding.

Eligibility criteria

Eligibility criteria will follow the PCC framework, using 'problem' for P rather than the more commonly used 'population'. The PCC framework (Problem, Concept, Context) will be used to define eligibility alongside additional inclusion and exclusion criteria (Table 1). In recognition of the move towards

Table 1. Eligibility criteria incorporating the (PCC) framework - Problem, Concept, Context.

Eligibility criteria	Description
Problem: Breastfeeding	It is important to be as inclusive as possible so no limits will be applied for this criterion. The review will include any literature with reference to: • Mode of breastfeeding - feeding at the breast, expressing milk by hand or pump, or using assistive devices like nipple shields or supplemental feeding systems This includes the use of the terms chestfeeding and human milk feeding for inclusivity. • Extent of breastfeeding - exclusively supplying their baby's needs or partial breastfeeding along with infant formula • Experience of breastfeeding - whether first or subsequent baby regardless of previous experience or duration of breastfeeding.
Concept: Self-Efficacy	The review will include literature related to breastfeeding self-efficacy and exclude those focusing on self-efficacy of other parenting areas, and studies on prenatal attachment. To avoid unintentional exclusion of relevant results that have not used 'breastfeeding self-efficacy' terminology, the search strategy will incorporate the use of additional terminology related to the concept and its development, for example: self-belief, confidence, motivation, and intention to breastfeed. Studies only focusing on broader motivation or intention, in terms of either measurement or intervention will be excluded.
Context: Prenatal Period	The review will consider results for inclusion that: • Focus on breastfeeding self-efficacy before birth, including pre-pregnancy • Provide relevant data spanning the prenatal and postnatal periods: a prenatal breastfeeding self-efficacy intervention with a measurement conducted prenatally or postnatally; or a prenatal measurement conducted as the baseline measure for the evaluation of a postnatal intervention. Studies with a postnatal breastfeeding self-efficacy measurement and a prenatal intervention that does not explicitly focus on building breastfeeding self-efficacy during pregnancy will be excluded.
Language	A limit of English language will be applied, due to time constraints.
Date range	The search will not be limited by date range.
Study design	This scoping review will include sources of research evidence from any contextual setting, once each source meets the inclusion criteria. • Experimental / quasi-experimental designs including randomised and non-randomised controlled trials, before and after studies and interrupted time-series studies • Analytical observational studies including prospective and retrospective cohort studies, case-control studies, and analytical cross-sectional studies • Descriptive observational study designs including case series, case reports and descriptive cross-sectional studies • Qualitative studies • Systematic reviews that meet the inclusion criteria, depending on the research question

more inclusive language in the field of lactation, the terms 'chestfeeding' and 'human milk feeding' are included in the search strategy under the breastfeeding criteria[45,46]. Both terms may be used by non-binary parents and those caring for them regarding their infant feeding, and chestfeeding may also refer to the use of donor milk or infant formula via a supplementer following transgender top surgery. For this scoping review an inclusive definition of breastfeeding will be applied within the search terminology and inclusion criteria.

A preliminary search conducted of MEDLINE, the Cochrane Database of Systematic Reviews, PROSPERO and the JBI Evidence Synthesis database did not identify any existing or registered reviews on the topic. Any existing or registered breastfeeding self-efficacy reviews focused on the postnatal period or had a narrow focus on specific intervention types.

Search strategy

Published and unpublished studies and literature will be sourced across a variety of disciplines including health, psychology, and sociology. To support the development of the search strategy, an initial, limited search of MEDLINE and EMBASE was undertaken to identify articles on the topic. The terminology used in the titles, abstracts and index terms of relevant articles was used to supplement an initial list of keywords, adding synonyms and variations where appropriate, for the sample search strategy provided in Table 2. The final search strategy, including all identified keywords and index terms, will be adapted for each database and/or information source to be searched, incorporating the database thesaurus / directory terms where applicable.

The databases to be searched are Medline (Ovid), Cumulative Index to Nursing and Allied Health Literature (CINAHL), EMBASE, PsycINFO, Global Health, International Bibliography of Social Sciences (IBSS), Applied Social Science Index and Abstracts (ASSIA) and Web of Science. A variety of grey literature sources will be searched to identify relevant content to be considered for inclusion, such as reviews, reports, and conference proceedings. A focused Google search will be performed alongside website searches of relevant international organisations that have policy, advisory or guidance roles in breastfeeding, including the World Health Organisation (WHO), United Nations International Children's Emergency Fund (UNICEF), the Global Breastfeeding Collective, the Academy of Breastfeeding Medicine, and La Leche League International. Theses and dissertations will also be considered for inclusion through searching the ProQuest Dissertation & Theses Global (PQDT) database.

Backward and forward snowballing will be used to source additional potential studies for inclusion. The procedure for backward snowballing will be through the screening of included article's reference lists. The forward snowballing will be through identification of new papers citing the included articles. Authors of primary studies may be contacted for further information, if required.

Study / Source of evidence selection

The citations identified will be exported and uploaded into Covidence (Veritas Health Innovation, Melb, AU) where duplicates will be removed. Screening consistency pilot tests will be conducted at both the title and abstract, and full text screening stages, where a minimum of 90% agreement is required between reviewers before progressing. Title and abstract screening, followed by full texts retrieval and screening, will be independently conducted by at least two reviewers using the inclusion criteria. Any disagreements between reviewers at either stage of the selection process will be resolved through discussion, or with an additional, independent reviewer.

The search results and study inclusion process, including the reasons for exclusion, will be reported in full using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Review (PRISMA-ScR) flow diagram[44].

Data extraction

The data will be extracted using different extraction forms developed by the reviewers in line with inclusion criteria related to each objective (Table 3). Some sources will have data

Table 2. Sample Search Strategy in EMBASE database.

	Search Terms & Commands
1	(breastfe* OR 'breast fe*' OR lactat* OR chestfeed* OR chestfed OR 'chest feed*' OR 'chest fed' OR ' human-milk-feed*' OR 'human-milk-fed'):ti:ab OR ('breastfeeding'/exp/mj OR 'lactation'/exp/mj)
	AND
2	('self efficacy' OR 'self-efficacy' OR efficacy OR 'confiden*' OR motivat* OR belief* OR 'inten* to breastfeed' OR 'breastfeed* intentioVn*'):ti:ab OR ('efficacy'/exp/mj OR 'confidence'/exp/mj OR 'motivation'/exp/mj)
	AND
3	(prenatal* OR antenatal* OR 'ante-natal*' OR 'pregnan*'):ti:ab OR ('prenatal'/exp/mj OR 'prenatal care'/exp/mj OR 'prenatal period'/exp/mj OR 'pregnant woman'/exp/mj OR 'pregnancy'/exp/mj)

Table 3. Data extraction criteria for each objective.

Objective 1:	Objective 2:	Objective 3:
Identify and describe the theoretical frameworks and influencing factors that underpin the development of prenatal breastfeeding self-efficacy	***Identify and describe the evidence on the measurement of prenatal breastfeeding self-efficacy***	***Identify and describe the interventions used to improve prenatal breastfeeding self-efficacy and their impact on outcomes***
Any of the following:	Any of the following:	Any of the following:
• Theoretical frameworks used in instruments to assess or interventions to influence prenatal breastfeeding self-efficacy	• Tools used to measure prenatal breastfeeding self-efficacy	• All levels of intervention to change prenatal breastfeeding self-efficacy, not limited to randomised controlled trials
• Theoretical frameworks referred to re: development of prenatal breastfeeding self-efficacy	• Measurements other than tools for prenatal breastfeeding self-efficacy	• Timing - description of the time periods involved in the interventions measuring prenatal self-efficacy, including those with postnatal interventions
• Discussion of factors that underpin, influence, or predict prenatal breastfeeding self-efficacy	• Content, format, use, timing, reliability and validity of instruments for prenatal breastfeeding self-efficacy	• Description of the intervention, delivery agent, setting, context, population, duration, effectiveness, and any other relevant study data

extracted for more than one objective of the scoping review. For consistency, the data will be extracted by the lead author with a minimum of 20% being checked independently and at random by another reviewer. The extraction of data on study characteristics and findings for primary studies will follow standard systematic review procedures. Similarly, data in systematic or scoping reviews will follow the same extraction process.

The data extraction for grey literature will depend on the nature of the data, following the methods outlined above when applicable and following a qualitative approach when required, extracting themes and quotes from sources. To maintain standards of transparency, each reviewer will keep notes on any areas of discrepancies or ambiguous descriptions to support resolution of conflicts.

The data extraction will be an iterative process and the data extraction tools may be modified and revised during the process. Any such modifications will be detailed in the final scoping review. Disagreements that arise between the reviewers will be resolved through discussion, or with an additional independent reviewer. If appropriate, authors of papers will be contacted to request missing or additional data, where required.

A draft extraction form is provided in Table 4. A critical appraisal of the evidence will not be conducted as this is beyond the purpose of a scoping review.

Table 4. Sample Data Extraction Form - Objective 2: Measurement of Breastfeeding Self Efficacy.

		Details
Title		
Author		
Journal / Reference		
DOI		
Measurement Method	Tool:	
	Other:	Content:Format:
Timing of measurement		
Reliability & Validity		
Method of administration		
Sample characteristics		
Outcome Measure		
Key Findings		
Conclusions		
Recommendations		

Data analysis and presentation

The analysis will focus on mapping the data from the data extraction templates against the review objectives. The primary study data will be presented describing the study characteristics and an exploratory narrative. The grey literature sources will be described as fully as possible, and an exploratory narrative will be used. The analysis of concepts and theories underpinning prenatal breastfeeding self-efficacy and synthesising the evidence available on its measurement and outcomes will be subject to the level and quality of data identified. The data will be presented in a tabular or diagrammatic form that most appropriately aligns to the objectives. The tables and charts will report on publication details and data specific to each of the objectives. Qualitative data will be content analysed using NVivo version 12, where appropriate (a free open source alternative is Taugette). A narrative summary will

accompany the results and will describe how they relate to the overall scope of the review.

Dissemination

The results of the review will be disseminated in a variety of ways. The primary planned outcome will be the full scoping review publication. The secondary planned outcome will be presentations at the Association of Lactation Consultants of Ireland and other international conferences. The third planned outcome would be blog and website posts developed for the EU Horizon2020 funded IMPACT DIABETES B2B project to potentially reach wider stakeholders including women and their partners. The final planned dissemination outcome, if appropriate, will be a policy brief for the relevant health service national breastfeeding coordinators in IMPACT DIABETES B2B partner countries.

Conclusion / discussion

This scoping review will provide an important synthesis of the literature on prenatal breastfeeding self-efficacy and develop our understanding of what gaps exist. The review will advance our knowledge of the theoretical basis underpinning prenatal breastfeeding self-efficacy, whether it has been applied to date and what gaps exist in any interventional settings. The review will also inform and support future research on the timing and methods of assessing prenatal breastfeeding self-efficacy and the design of effective prenatal interventions. In summary, this scoping review will make an important contribution to our understanding of prenatal breastfeeding self-efficacy and it's potential in delivering improvements in breastfeeding outcomes.

Data availability statement

No data are associated with this article.

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PubMed Abstract | Publisher Full Text

Open Peer Review

Current Peer Review Status: ✔ ✔

Version 3

Reviewer Report 27 January 2023

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✔ **Kathleen Kendall-Tackett**
Department of Pediatrics, School of Medicine, Texas Tech University Health Sciences Center, Amarillo, TX, USA

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 2

Reviewer Report 14 December 2022

https://doi.org/10.21956/openreseurope.16428.r30284

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? **Kathleen Kendall-Tackett**
[1] Department of Pediatrics, School of Medicine, Texas Tech University Health Sciences Center, Amarillo, TX, USA
[2] Department of Pediatrics, School of Medicine, Texas Tech University Health Sciences Center, Amarillo, TX, USA

I feel that the author has done a great job of addressing my original comments. My only remaining comment is on the choice of search terms on Table 2. The author is going to search using not only breastfeeding, but chestfeeding, and human-milk feeding. I have several concerns

with that strategy.

1. Where I suspect the literature is sparse on prenatal breastfeeding self-efficacy, I expect that it will be non-existent for prenatal chestfeeding and human-milk feeding.

2. And this is the larger concern. Every, single reference the author has included is on breastfeeding. There is not a single reference for the other two terms. These behaviors are quite different from each other. Does the BF self-efficacy scale even apply to *prenatal* chestfeeding or human milk feeding? Who plans to do that prenatally? We don't know. Many women who human-milk feed often did not plan to do that prenatally but often encountered an obstacle (or more than one) that stopped them from feeding at the breast. And what of chestfeeding? That can represent everything from just renaming breastfeeding to chestfeeding to having top surgery and feeding with a supplementer. Those are very different behaviors. Does that scale accurately measure it? We don't know. If the author is including these other terms, there needs to be rationale provided in her introduction. Yet, there's no mention of it at all. That is a significant oversight, in my view, that the author needs to address before this can move forward.

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 19 Jan 2023

Liz McGovern

"I feel that the author has done a great job of addressing my original comments."

Response: We thank the reviewer for this positive feedback.

"My only remaining comment is on the choice of search terms on Table 2. The author is going to search using not only breastfeeding, but chestfeeding, and human-milk feeding. I have several concerns with that strategy. 1. Where I suspect the literature is sparse on prenatal breastfeeding self-efficacy, I expect that it will be non-existent for prenatal chestfeeding and human-milk feeding. 2. And this is the larger concern. Every, single reference the author has included is on breastfeeding. There is not a single reference for the other two terms. These behaviors are quite different from each other. Does the BF self-efficacy scale even apply to prenatal chestfeeding or human milk feeding? Who plans to do that prenatally? We don't know. Many women who human-milk feed often did not plan to do that prenatally but often encountered an obstacle (or more than one) that stopped them from feeding at the breast. And what of chestfeeding? That can represent everything from just renaming breastfeeding to chestfeeding to having top surgery and feeding with a supplementer. Those are very different behaviors. Does that scale accurately measure it? We don't know. If the author is including these other terms, there needs to be rationale provided in her introduction. Yet, there's no mention of it at all. That is a significant oversight, in my view, that the author needs to address before this can move forward."

Response: We thank the reviewer for raising these concerns in points 1 and 2. The terms 'chestfeeding' and 'human milk feeding' were added to the search strategy in response to a peer reviewer recommendation for term inclusivity. We agree that it is very unlikely in a field where there is a dearth of evidence generally, that there will be many results focusing on these specific circumstances, but recognise the importance of their inclusion, particularly within a scoping review methodology. We acknowledge that the self-efficacy scales are general and may not yet have been applied or may not apply to specific circumstances. It is possible that a study may explore whether parents with higher prenatal breastfeeding self-efficacy scores, using the assessment tools available or another measure of breastfeeding confidence, are more likely to provide human milk (expressed or donor) rather than infant formula, or to chestfeed for whatever reason. Such a study may exclusively use the included terms instead of breastfeeding. We remain convinced that an inclusive definition of feeding practices will benefit this scoping review. We thank the reviewer for highlighting the need for clarification around the inclusion of these terms in the sample search strategy in Table 2. We have added the following paragraph to the inclusion criteria within the methods section:

In recognition of the move towards more inclusive language in the field of lactation, the terms 'chestfeeding' and 'human milk feeding' are included in the search strategy under the breastfeeding criteria [refs]. Both terms may be used by non-binary parents and those caring for them regarding their infant feeding, and chestfeeding may also refer to the use of donor milk or infant formula via a supplementer following transgender top surgery. For this scoping review an inclusive definition of breastfeeding will be applied within the search terminology and inclusion criteria.

References: Dinour LM. Speaking Out on "Breastfeeding" Terminology: Recommendations for Gender-Inclusive Language in Research and Reporting. Breastfeed Med. 2019 Oct;14(8):523-532. doi: 10.1089/bfm.2019.0110 MacDonald TK. Lactation Care for Transgender and Non-Binary Patients: Empowering Clients and Avoiding Aversives. J Hum Lact. 2019 May;35(2):223-226. doi: 10.1177/0890334419830989

The breastfeeding inclusion criterion in Table 1 has also been modified for clarity as follows:

Breastfeeding It is important to be as inclusive as possible so no limits will be applied for this criterion. The review will include any literature with reference to:

- Mode of breastfeeding - feeding at the breast, expressing milk by hand or pump, or using assistive devices like nipple shields or supplemental feeding systems. This includes the use of the terms chestfeeding and human milk feeding for inclusivity.
- Extent of breastfeeding - exclusively supplying their baby's needs or partial breastfeeding along with infant formula.
- Experience of breastfeeding - whether first or subsequent baby regardless of previous experience or duration of breastfeeding.

Competing Interests: No competing interests were disclosed.

Reviewer Report 08 December 2022

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Lyndsey Hookway
[1] School of Health and Social Care, Swansea University, Swansea, UK
[2] School of Health and Social Care, Swansea University, Swansea, UK

Thank you for the revisions. I feel that the protocol now has more clarity of purpose and scope and more clearly outlines the goal of the review. The wording in the introduction and the explanation of the timing of self-efficacy interventions is much better.

Thank you for addressing the minor methodological inconsistencies relating to the use and implementation of the final review to inform practice in terms of scoping vs systematic review aims and purpose. I feel this is now clearer for the reader to understand the possible contribution the findings will have.

I look forward to reading the review.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Lactation, children's health, paediatrics, medical complexity breastfeeding, sleep, responsive parenting

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Version 1

Reviewer Report 05 September 2022

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Lyndsey Hookway
[1] School of Health and Social Care, Swansea University, Swansea, UK
[2] School of Health and Social Care, Swansea University, Swansea, UK

[3] School of Health and Social Care, Swansea University, Swansea, UK

The authors propose a scoping review which has been well-designed with clear objectives and transparent process. I particularly note the acknowledgement of very low breastfeeding rates in the UK and Ireland and wonder whether the review will consider geographical disparities both in the implementation and also outcomes of self-efficacy promoting strategies. Obviously, rates of breastfeeding and the extent to which breastfeeding motivation may be modifiable by self-efficacy interventions are likely to vary. Will there be some discussion about geographically/culturally/contextually different reasons for differing breastfeeding rates? My concern is that it may be difficult to distinguish the other confounding factors to isolate self-efficacy interventions as the reason for improved breastfeeding rates. Essentially - does the intervention always have the same outcome in all populations, or will there be some discussion of which communities may be essentially 'lower hanging fruit'? And to what extent will other factors influence breastfeeding rates above and beyond self-efficacy measures?

The authors also note that most self-efficacy strategies are implemented postnatally and postulate that antenatally implemented strategies may be more effective. Is this an assumption, or will there be some attempt to compare the efficacy of different timings? This part of the review could perhaps be clearer. If one of the aims is to elucidate the effectiveness of prenatal versus postnatal self-efficacy work it feels important to clarify whether there is a demonstrable improvement on breastfeeding outcome with prenatal intervention versus postnatal.

One minor suggestion is to include the term chestfeeding and human milk feeding to the search terms for completeness.

Finally, at times, this scoping review reads like a protocol for a systematic review. I feel like the distinction between systematic reviews and scoping reviews could be clearer, with perhaps some theoretical justification for the choice of a scoping review versus a systematic review. For example, in the conclusion, the authors state that the review will establish whether prenatal self-efficacy has a sufficient evidence base to support this intervention. Systematic reviews are more commonly used to inform the development of clinical recommendations, and assess whether a particular practice is sufficiently evidence based. If this is a scoping review, then determining whether the evidence for prenatal intervention is of sufficient quality to justify its use may be beyond the commonly recommended indications for this type of review (particularly if you are using grey literature without clear protocols for whether you will be using CASP criteria to assess their rigour). It sounds in places like the methodology has become slightly mixed. I like Munn *et al* (2018) for a very clear explanation of the differences.[1]

Overall, this is an interesting area of breastfeeding research and could have the potential to improve our delivery of antenatal care, especially to vulnerable populations with very low breastfeeding rates. I look forward to reading it.

References

1. Munn Z, Peters M, Stern C, Tufanaru C, et al.: Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Medical Research Methodology*. 2018; **18** (1). Publisher Full Text

Is the rationale for, and objectives of, the study clearly described?

Yes

Is the study design appropriate for the research question?
Partly

Are sufficient details of the methods provided to allow replication by others?
Partly

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Lactation, children's health, paediatrics, medical complexity breastfeeding, sleep, responsive parenting

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 06 Oct 2022

Liz McGovern

We would like to thank you for your time and expert peer review of our manuscript. We appreciate your feedback and feel it has improved the quality of the protocol. We have provided a point-by-point response (in italics) indicating how we addressed each concern raised by each reviewer and the changes made. The changes are approved by all authors and highlighted in bold in addition to being tracked changes in the accompanying manuscript.

Reviewer Comment: The authors propose a scoping review which has been well-designed with clear objectives and transparent process.
Response: We thank the reviewer for their positive feedback.

Reviewer Comment: I particularly note the acknowledgement of very low breastfeeding rates in the UK and Ireland and wonder whether the review will consider geographical disparities both in the implementation and also outcomes of self-efficacy promoting strategies. Obviously, rates of breastfeeding and the extent to which breastfeeding motivation may be modifiable by self-efficacy interventions are likely to vary. Will there be some discussion about geographically/culturally/contextually different reasons for differing breastfeeding rates? My concern is that it may be difficult to distinguish the other confounding factors to isolate self-efficacy interventions as the reason for improved breastfeeding rates. Essentially - does the intervention always have the same outcome in all populations, or will there be some discussion of which communities may be essentially 'lower hanging fruit'? And to what extent will other factors influence breastfeeding rates above and beyond self-efficacy measures?

Response: We agree with the reviewer that these are very valid considerations within the area of breastfeeding rates and interventions to improve self-efficacy. This scoping review will explore the current evidence on prenatal breastfeeding self-efficacy and although we will potentially be able to explore some geographical and/or cultural aspects, this will be contingent on the data identified. The scoping review seeks to identify and map evidence in relation theories used, measurements of self-efficacy, interventions used and stated outcomes. Ideally this will help inform future work on the topic.

Reviewer Comment: The authors also note that most self-efficacy strategies are implemented postnatally and postulate that antenatally implemented strategies may be more effective. Is this an assumption, or will there be some attempt to compare the efficacy of different timings? This part of the review could perhaps be clearer. If one of the aims is to elucidate the effectiveness of prenatal versus postnatal self-efficacy work it feels important to clarify whether there is a demonstrable improvement on breastfeeding outcome with prenatal intervention versus postnatal.
*Response: Our postulation about the effectiveness of enhancing antenatal self-efficacy forms part of our rationale of conducting the scoping review. The postnatal period is beyond the scope of our review so no comparison of these timepoints will be attempted. If sufficient data is identified, it may be possible to explore different timepoints across the prenatal period but this is not one of our objectives. We aim to describe the work to date in the area, which may inform future work to allow such a comparison. We have changed the wording at the end of the introduction section to improve the clarity of this: "***This review will explore breastfeeding self-efficacy in the prenatal period. It is a modifiable measure that is strongly associated with breastfeeding outcomes such as initiation, exclusivity, and duration. Interventions aimed at increasing this measure in antenatal and postnatal care have been effective at improving breastfeeding outcomes 27 . However, breastfeeding self-efficacy in the prenatal period appears to be underserved in the literature."**

Reviewer comment: One minor suggestion is to include the term chestfeeding and human milk feeding to the search terms for completeness.
Response: We thank the reviewer for these suggestions and agree they are valuable terms to include for completeness. We have incorporated them into the search strategy. **"(breastfe* OR 'breast fe*' OR lactat* OR chestfeed* OR chestfed OR 'chest feed*' OR 'chest fed' OR ' human-milk-feed*' OR 'human-milk-fed'):ti:ab"**

Reviewer comment: Finally, at times, this scoping review reads like a protocol for a systematic review. I feel like the distinction between systematic reviews and scoping reviews could be clearer, with perhaps some theoretical justification for the choice of a scoping review versus a systematic review. For example, in the conclusion, the authors state that the review will establish whether prenatal self-efficacy has a sufficient evidence base to support this intervention. Systematic reviews are more commonly used to inform the development of clinical recommendations, and assess whether a particular practice is sufficiently evidence based. If this is a scoping review, then determining whether the evidence for prenatal intervention is of sufficient quality to justify its use may be beyond the commonly recommended indications for this type of review (particularly if you are using grey literature without clear protocols for whether you will be using CASP criteria to assess their rigour). It sounds in places like the methodology has become slightly mixed. I like Munn et al (2018)

for a very clear explanation of the differences.
Response: We thank the reviewer for this valuable feedback. We do state our justification for conducting a scoping review in the methods section: **"A scoping review was determined to be the most appropriate methodology to address the broad and holistic exploration needed. It facilitates the systematic mapping of the literature available, identifying the extent and nature of key concepts, theories, sources and types of evidence, and potential gaps in research."** *However, we agree that parts of the conclusion section veer into the area of implications for practice, which is outside the scope of a scoping review. We thank you for highlighting this minor methodological inconsistency. To address this, we have made the following changes to the conclusion section:* **"The review will also potentially inform recommendations and support future research on the timing and methods of assessing prenatal breastfeeding self-efficacy assessment and the design of effective prenatal interventions. In summary, this scoping review will make an important contribution to advancing whether our knowledge of prenatal breastfeeding self-efficacy has a sufficient evidence base and it's potential to support delivering improvements in breastfeeding outcomes."** *In response to feedback from both reviewers on our treatment of grey literature and assessment of quality of evidence, we have removed the reference to assessing the level of evidence against the JBI categories in the final paragraph of the data extraction section (see below). We will not be seeking to evaluate the quality of the evidence as this aligns with the focus of a systematic review and we do not yet have the knowledge of the extent of the literature to undertake such work, hence our need for a scoping review. We thank the reviewers for highlighting our methodological inconsistency and feel this change aligns the manuscript more fully with scoping review methods.* **"A draft extraction form is provided in Table 4. A critical appraisal of the evidence will not be conducted as this is beyond the purpose of a scoping review. In its place, the reviewers will assess what level of evidence each individual source comes from against the JBI categories. This will give the scoping review the ability to provide comment on the quality of the evidence informing the state of understanding."** *To address the rigour of study selection and data extraction, a systematic approach is being adopted, including all stages of screening and data extraction conducted independently by at least 2 authors. The characteristics of any grey literature included in the review will be described. However, we agree that more clarity would be helpful and we have amended the text in the data extraction section as follows:* **"The data extraction for grey literature will depend on the nature of the data, following the methods outlined above when applicable and following a qualitative approach when required, extracting themes and quotes from sources."**

Reviewer Comment: Overall, this is an interesting area of breastfeeding research and could have the potential to improve our delivery of antenatal care, especially to vulnerable populations with very low breastfeeding rates. I look forward to reading it.
Response: We thank the reviewer for their positive feedback and enthusiasm.

Competing Interests: No competing interests were disclosed.

Reviewer Report 25 August 2022

https://doi.org/10.21956/openreseurope.16142.r29765

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[1] Department of Pediatrics, School of Medicine, Texas Tech University Health Sciences Center, Amarillo, TX, USA
[2] Department of Pediatrics, School of Medicine, Texas Tech University Health Sciences Center, Amarillo, TX, USA
[3] Department of Pediatrics, School of Medicine, Texas Tech University Health Sciences Center, Amarillo, TX, USA

In this manuscript, the authors propose a systematic review of the literature on breastfeeding self-efficacy during pregnancy. Overall, the authors have been clear about their goals.

One suggestion is to expand the section on self-efficacy. Tell readers how it influences health behavior and is super relevant to many aspects of physical and mental health. Then leap to Dennis' adaptation of it to breastfeeding.[1] I've always thought that it was relevant.

I'm not sure if you want to include this, but so much of the literature is about prenatal attachment and breastfeeding. The authors might want to distinguish between the two and offer justification for why they are focusing on self-efficacy.

Are there a lot of articles looking at self-efficacy in early pregnancy? I would think that that is a fairly novel idea. Would there be enough literature to compare early vs late prenatal self-efficacy?

Is the aim to "explore the theoretical underpining" of self-efficacy? That seems different than what was described in the intro. What constructs would the authors explore? It might be good to highlight those if the authors have some ideas about what they are.

The authors forgot to add "lactation" to their list of data sources. They will find a lot there.

PubMed is not included in the search? That seems like a key source. It would be good to include it.

I am a bit concerned that much of the "grey literature" would not have the rigor required to be included. Will this literature be subjected to the same criteria or will it be different?

I'm looking forward to seeing the final review. I think it will be helpful.

References

1. Dennis CL: Theoretical underpinnings of breastfeeding confidence: a self-efficacy framework.*J Hum Lact*. 1999; **15** (3): 195-201 PubMed Abstract | Publisher Full Text

Is the rationale for, and objectives of, the study clearly described?

Yes

Is the study design appropriate for the research question?
Yes

Are sufficient details of the methods provided to allow replication by others?
Partly

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Health psychology, lactation, perinatal mental health, trauma, women's health, breastfeeding

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 06 Oct 2022

Liz McGovern

We would like to thank you for your time and expert peer review of our manuscript. We appreciate your feedback and feel it has improved the quality of the protocol. We have provided a point-by-point response (in italics) indicating how we addressed each concern raised by each reviewer and the changes made. The changes are approved by all authors and highlighted in bold in addition to being tracked changes in the accompanying manuscript.

Reviewer Comment: In this manuscript, the authors propose a systematic review of the literature on breastfeeding self-efficacy during pregnancy. Overall, the authors have been clear about their goals.
Response: We thank the reviewer for this positive feedback.

Reviewer Comment: One suggestion is to expand the section on self-efficacy. Tell readers how it influences health behavior and is super relevant to many aspects of physical and mental health. Then leap to Dennis' adaptation of it to breastfeeding.1 I've always thought that it was relevant.
Response: We agree and thank the reviewer for this suggestion. We have included this point and expanded on the references to improve the coverage of the review. The text in paragraph 7 of the introduction now reads: **In general, self-efficacy is positively associated with decision making around health behaviours, both in terms of physical and mental health1-3. Breastfeeding self-efficacy has been identified as a strong modifiable predictor of breastfeeding initiation, duration, and exclusivity 18, 19 . The term stems from Dennis' adaptation of Bandura's Social Cognitive Theory on self-efficacy and is described as a woman's self-belief and confidence in her perceived ability to breastfeed 20, 21** .
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Psychology. 1998;19((2-3)):248–73.
2. Sachs-Ericsson N, Medley AN, Kendall-Tackett K, Taylor J. Childhood Abuse and Current Health Problems among Older Adults: The Mediating Role of Self-Efficacy. Psychol Violence. 2011;1(2):106-20.
3. Sheeran P, Maki A, Montanaro E, Avishai-Yitshak A, Bryan A, Klein WMP, et al. The impact of changing attitudes, norms, and self-efficacy on health-related intentions and behavior: A meta-analysis. Health Psychology. 2016;35(11):1178-88.

Reviewer comment: I'm not sure if you want to include this, but so much of the literature is about prenatal attachment and breastfeeding. The authors might want to distinguish between the two and offer justification for why they are focusing on self-efficacy.
Response: We agree that a lot of valuable literature on prenatal attachment and breastfeeding exists. We feel that breastfeeding self-efficacy is under-explored within the prenatal period, which is our rationale for focusing on this area. We agree that clarification would be helpful and have amending the eligibility criteria to exclude prenatal attachment studies [Table 1. Eligibility criteria incorporating the (PCC) framework - Problem, Concept, Context]:
Concept: Self-Efficacy - The review will include literature related to breastfeeding self-efficacy and exclude those focusing on self-efficacy of other parenting areas, and studies on prenatal attachment.

Reviewer comment: Are there a lot of articles looking at self-efficacy in early pregnancy? I would think that that is a fairly novel idea. Would there be enough literature to compare early vs late prenatal self-efficacy?
Response: Thank you for this observation. We agree that there may not be a lot of articles, which is why we selected a scoping review methodology to map the literature that does exist. We will potentially be able to explore the timing of self-efficacy measurements across the prenatal period, but this will be contingent on what data is identified.

Reviewer comment: Is the aim to "explore the theoretical underpining" of self-efficacy? That seems different than what was described in the intro. What constructs would the authors explore? It might be good to highlight those if the authors have some ideas about what they are.
Response: Thank you for this question, one of our three aims is to: **"identify and describe the theoretical frameworks and influencing factors that underpin prenatal breastfeeding self-efficacy"** [Aims & Objectives] *We plan to look at the way studies have constructed the theories that underpinned their examination of self-efficacy, either in their approach or analysis. We do not have a theoretical lens that we are imposing on our mapping of the literature.*

Reviewer comment: The authors forgot to add "lactation" to their list of data sources. They will find a lot there.
Response: Thank you for highlighting this. Lactation is included as a truncated form **(lactat*)** *in the first line of Table 2.*

Reviewer comment: PubMed is not included in the search? That seems like a key source. It would be good to include it.
Response: We agree that PubMed is a very useful database. Medline and PubMed cover the same databases and our specialist librarian advised us to use Medline.

Reviewer comment: I am a bit concerned that much of the "grey literature" would not have the rigor required to be included. Will this literature be subjected to the same criteria or will it be different?
Response: Thank you for raising this concern. Scoping reviews are useful tools to systematically identify and map the existing evidence. We will not be seeking to evaluate the quality of the evidence as this aligns with the focus of a systematic review and we do not yet have the knowledge of the extent of the literature to undertake such work, hence our need for a scoping review. To address the rigour of study selection and data extraction, a systematic approach is being adopted, including all stages of screening and data extraction conducted independently by at least 2 authors. The characteristics of any grey literature included in the review will be described. However, we agree that more clarity would be helpful and we have amended the text in the data extraction section as follows: **"The data extraction for grey literature will depend on the nature of the data, following the methods outlined above when applicable and following a qualitative approach when required, extracting themes and quotes from sources."** *In response to feedback from both reviewers on our treatment of grey literature, we have removed the reference to assessing the level of evidence against the JBI categories in the final paragraph of the data extraction section (see below). We thank the reviewers for highlighting our methodological inconsistency and feel this change aligns the manuscript more fully with scoping review methods.*
"A draft extraction form is provided in Table 4. A critical appraisal of the evidence will not be conducted as this is beyond the purpose of a scoping review. In its place, the reviewers will assess what level of evidence each individual source comes from against the JBI categories. This will give the scoping review the ability to provide comment on the quality of the evidence informing the state of understanding."

Reviewer comment: I'm looking forward to seeing the final review. I think it will be helpful.
Response: We thank the reviewer again for their feedback and encouragement.

Competing Interests: No competing interests were disclosed.