Barriers and facilitators systematic reviews in health: A methodological review and recommendations for reviewers

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Background: Systematic reviews cataloguing the barriers to and facilitators of various outcomes are increasingly popular, despite criticisms of this type of review on philosophical, methodological, and practical grounds. The aims of this review are to appraise, analyze, and discuss the reporting and synthesis practices used in recently published barriers and facilitators reviews in health services research.

Methods: All English-language peer-reviewed systematic reviews that synthesized research on barriers and facilitators in a health services context were eligible for inclusion. We searched 11 databases over a 13-month period (1 November 2017-30 November 2018) using an exhaustive list of search terms for “barrier(s),” “facilitator(s),” and “systematic review.”

Results: One hundred reviews were included. We found a high degree of variation in the synthesis practices used in these reviews, with the majority employing aggregative (rather than interpretive) approaches. The findings echo common critiques of this review type, including concerns about the reduction of complex phenomena to simplified, discrete factors. Although several reviews highlighted the “complexity” of barriers and facilitators, this was usually not analyzed systematically. Analysis of the subsample of reviews that explicitly discussed the barriers and facilitators approach revealed some common issues. These tended to be either conceptual/definitional (eg, ideas about interrelationships and overlap between factors) and methodological/practical (eg, challenges related to aggregating heterogeneous research).

Conclusion: Barriers and facilitators reviews should (a) clearly operationally define “barrier” and “facilitator,” (b) explicitly describe how factors are extracted and subsequently synthesized, and (c) provide critical reflection on the contextual variability and reliability of identified factors.
1 BACKGROUND

An increasing number of systematic reviews published in health journals set out to identify and synthesize research on barriers to and facilitators of the achievement of various outcomes. This type of review appeals to researchers and practitioners, in that it enables an overview of factors related to, for example, intervention uptake and implementation, patient recruitment, treatment, and access to care. Further, conceptualizing factors as barriers and facilitators to such desirable outcomes implies that efforts can be made to overcome identified barriers and to promote facilitating factors—an attractive prospect for policy audiences.

The concepts “barrier” and “facilitator” have been invoked in health services research to study, for example, the uptake by health professionals of complex social interventions, factors influencing various health-promoting behaviors, and predictors of adherence to prescribed treatment regimens. Barriers and facilitators reviews are often highly cited and published in high-ranking health and medical journals (eg, References 4–6). However, despite its apparent popularity, this type of review has been subjected to much criticism. For example, barriers and facilitators reviews are often criticized for relying on descriptive and aggregative synthesis approaches (such as “vote counting”), which are generally considered the least rigorous and often most biased forms of synthesis. Aggregative “syntheses” are accused, among other things, of failing to account for the methodological quality of included studies in forming their interpretations, of ignoring the role of context in constructing synthetic findings, and of incorrectly conflating the frequency with which findings appear in primary studies with the importance of those findings.

More fundamentally, both the scientific validity and practical utility of the barriers concept itself have been called into question. In a recent commentary on a barriers review in the climate adaptation literature, it was argued that, while perhaps a useful heuristic, the barriers concept is underpinned by functionalist assumptions, long discredited in sociology and political science. The same authors have previously argued that “barriers analysis” is reductionist in that “[c]ategorising any factor or process as a ‘barrier’ or ‘facilitator’ reduces complex and highly dynamic decision-making processes into simplified, static and metaphorical statements about why current outcomes are ‘incorrect’” (p. 493). In a reply by the review authors to the commentary, they argue that “barriers analysis contributes to improved understanding of features or factors that affect transformation and change processes, and it helps in explaining why a system is (or is not) responding to a particular driver of change” (p. 1249).

Further critiques have focused on whether barriers (and, by extension, facilitators), as reported in primary research, represent “real” obstructive (and enabling) factors that actually exist in policy and practice settings, or whether they are simplified constructs standing in for more complex underlying social realities. In a study of community mental health nurses struggling to implement evidence-based practice, Crawford et al argued that the barriers reported by their informants are not...
“neutral accounts” of obstructions in their work environments, but are social constructions deployed to serve a number of strategic functions; they are rhetorical devices that permit practitioners to construct a coherent narrative of how their professional milieu functions, and to resolve contradictions related to their role within it.12 These findings were echoed by Checkland et al, who interpreted the implementation barriers reported in general medical practice as strategic framings through which practitioners rationalize and make sense of challenging organizational realities.13 They argued that “the ‘barriers’ reported as preventing implementation are less important than the context and underlying social relations that have given rise to them” (p. 100) and that “the linear and simplistic language of ‘removing barriers’ inhibits understanding how change happens” (p. 100).

Setting aside the question of the ontological status of barriers and facilitators, a final debate concerns the extent to which the comprehensive catalogues of barriers and facilitators that tend to constitute the principal final product of these reviews are useful tools for supporting policy and practice.14 The main selling point of these lists seems to be that they ostensibly provide a “menu” of the most important barriers and facilitators, which interventions can be designed to overcome or amplify, respectively. For Brennan et al, this rationale is simplistic, ignores the interdependence of the various factors operating within complex social systems, and fails to consider the potential unintended consequences of intervening in this way15: “[s]olving barrier A may exacerbate barrier B, solving barrier C might create unintended consequence D, introducing facilitator E might be crushed by impediment F” (p. 5) and consequently “barriers are not [things] to be ticked off and torn down one at a time” (p. 5). Still, proponents of the barriers concept sway by its usefulness as a tool to inform decision-making and to facilitate the exchange of knowledge between different stakeholder groups. Eisenack et al16 insist that “barriers serve as a ‘boundary object’, intuitively and widely understood by both practitioners and scholars from different disciplines” and that the concept is therefore “an important device for fruitful interaction” (p. 495).

It is not our intention in this article to propose resolutions to these or any other debates on the merits of the barrier and facilitator concepts, nor on reviews that use them. Rather, we hope to inform future debate on barriers and facilitators reviews by providing a systematic snapshot of the synthesis and reporting practices used in such reviews, and by examining how the concepts of “barrier” and “facilitator” are defined, critiqued, defended, and otherwise critically engaged with in the text of these review papers.

2 | REVIEW OBJECTIVES

To date there has been no systematic attempt to analyze existing methodological practices in barriers and facilitators reviews. To inform the ongoing debate on the conduct of this type of review, this methodological systematic review aims to characterize existing synthesis practices undertaken by such reviews by identifying, appraising, and reviewing recent systematic reviews (SRs) that aimed to investigate factors operating as barriers and facilitators in the context of health services. The focus of this review is to describe, analyze, and discuss the reporting and synthesis methods applied in recently published (1 November 2017-30 November 2018) barriers and facilitators SRs.

3 | METHODS

To meet these objectives, we conducted a systematic review of reviews in accordance with the PRISMA guidelines17 (see PRISMA checklist in Data S1). A protocol for this review was prospectively registered in PROSPERO (CRD42018112361).

3.1 | Search strategy

The following databases were searched: ABI/INFORM Global, Applied Social Sciences Index & Abstracts (ASSIA), International Bibliography of the Social Sciences (IBSS), PAIS Index, Social Science Database and Sociology Database via ProQuest; Embase, Global Health, Medline, and PsycInfo via Ovid; and CINAHL via EBSCOhost.

There are multiple ways of denoting “barriers,” “facilitators,” and “systematic reviews.” We designed the search string to include an exhaustive list of synonyms for these terms (the search strategy can be found in Data S2). As our focus is on recent review practices, we restricted our search results to reviews from the 13 months preceding the searches (1 November 2017-30 November 2018), which is in line with previously published methodological reviews (eg, Reference 18). All studies that were available in full-text format during this period were eligible, meaning that “fast-track” and “online first” publications were also included.
3.2 Selection criteria and screening procedures

There were no restrictions regarding the field of study or the type of phenomenon being investigated as long as the reviews related to health services. We took health services research to refer to research using any methods to investigate the structure and/or functioning of health care systems, the actors working within these systems, and/or the delivery of medical care. We excluded reviews on the barriers to and facilitators of health-related behaviors (eg, diet and physical activity) unless related directly to a health care service (eg, adherence to a prescribed course of treatment, physical activity linked to a prescribed rehabilitation program). We did not include reviews on participation in research nor reviews in the public health field with no direct link to health care services. There were also no restrictions on the types of participants included by the reviews included studies. All English-language published peer-reviewed systematic reviews that synthesized either primary or secondary research with a focus on barriers and facilitators in a health-related context were eligible for inclusion. This includes, but is not limited to, barriers to and facilitators of the implementation of a social or medical intervention, or obstructers and enablers of the receipt of treatment by certain patient groups.

Since our aim was to investigate the practices of barriers and facilitators reviews—many of which do not follow “traditional” and “gold-standard” review practices—we did not restrict our sample to conventional systematic reviews, for example, studies reported following PRISMA guidelines. We used a definition of systematic review put forth by Greenhalgh (2014): “an overview of primary studies which contains a statement of objectives, sources and methods [and] has been conducted in a way that is explicit, transparent and reproducible.”19 Our selected definition is deliberately inclusive: for instance, in order to accommodate nontraditional (especially qualitative and mixed methods barriers and facilitators reviews) we selected a definition of systematic review that does not require search strategies that are “exhaustive,” that is, that capture all available eligible studies. This allowed for the inclusion of a diversity of classes of review, including realist reviews, meta-ethnographies, and qualitative meta-syntheses. In practice, we operationalized an “explicit, transparent and reproducible” review as one that formulated a clear review question and/or objective, reported on the search strategy used to identify relevant research, and included a clear set of selection criteria in sufficient detail to, in principle, reproduce the retrieval of studies.

We did not craft our own definitions for the terms “barrier” and “facilitator,” opting instead to include all eligible reviews that claimed to work with these or synonymous constructs. This was intentional. On the basis of our background reading of this literature, we anticipated a diversity of understandings of what these concepts precisely refer to. We also expected that many review authors would make use of these concepts without providing specific definitions, which would have complicated the process of screening against any definition that we constructed a priori. We reasoned, therefore, that the most informative way to review this literature would be to assess all eligible papers that make use of the terms “barriers” and/or “facilitators” (and their synonyms) in describing their review’s purpose, objectives, or research questions, without presupposing “appropriate” or “correct” operational definitions for the concepts.

All search results were independently reviewed for eligibility by both authors. Full-text versions of potentially relevant records were retrieved and also reviewed for eligibility by both authors. Disagreements during initial screening and full-text review were resolved through discussion.

3.3 Data extraction

We designed a data extraction tool including both structured and free-text domains. Both authors independently piloted the data extraction framework on a sample of five included studies before converging to critically discuss the clarity and usefulness of the tool and to consider possible changes. Following finalization of the tool, A.B.M. extracted data from the remaining included studies and B.V. reviewed a random sample of 20% of the studies in the final extraction sheet. A high degree of agreement was achieved between the two reviewers. Two of the included studies were authored by A.B.M.20,21 and the data extraction and quality assessment of those SRs were therefore done by B.V. The following information was extracted from the included studies:

- Title, publication year, and authors.
- Focus of the review (eg, research questions, objectives, etc.).
- Description of how the problem and/or intervention area is conceptualized.
- Rationale provided (if any) for using a barriers/facilitators approach.
- Stated assumptions and limitations (if any) of a barriers/facilitators approach.
- Inclusion criteria.
- Methods (eg, extraction, quality appraisal, and synthesis).
- Presentation of results and reporting methods.
- Discussion of barriers and facilitators approach.
3.4 | Transparency assessment

Given the range of review types considered for inclusion, it was important to develop a common assessment of transparency of our included studies. Drawing on existing systematic review reporting tools (e.g., AMSTAR-2), we constructed a bespoke list of domains designed to assess the transparency of the reporting of included reviews, with particular focus on their methodological features. This was done with understanding of the caveat that assessing the transparency and quality of research involves a degree of subjective judgment and, if applied in isolation, may be unhelpful for assessing the value of research. We also recognized the common pitfall—particularly within qualitative syntheses—of conflating poor reporting with poor study quality, and therefore, while forming our interpretations, endeavored to avoid treating detailed reporting as a proxy for rigor. However, the tool allowed us to provide a straightforward assessment of the reporting transparency of our included studies, itself an important feature of well-conducted systematic reviews.

3.5 | Data analysis

To analyze the included studies, the review drew on the guidelines outlined by Smith et al. and Lunny et al. and from methods employed by published examples of overviews of systematic reviews. Specifically, there were two stages to our analysis, which served separate but related objectives.

Our first aim was to generate a snapshot of the reporting, operationalization, and synthesis practices employed by recently published barriers and facilitators reviews. To achieve this objective, we used the completed data extraction and quality appraisal sheets to generate tabular and narrative summaries of the descriptive features of included reviews, such as reporting transparency, conceptualization of barriers/facilitators, and synthesis techniques. This stage was largely descriptive and mainly involved aggregating the results of the extracted data.

Second, we wanted to analyze and discuss the limitations of the barrier and facilitator approach based on the methodological reflections raised in the included reviews. Thus, we thematically analyzed all content within included papers on the limitations of employing a barriers and facilitators approach and the conceptualization of these concepts. Specifically, we coded all text fragments in included SRs related to the methodological challenges of analyzing barriers and facilitators and categorized them thematically to identify overarching methodological issues. This stage involved interpretative thematic analysis, in which both reviewers carefully read and catalogued all relevant discussion excerpts to develop overarching themes that were coherent across the full subsample of review that discussed their methodological approach (n = 37).

4 | RESULTS

4.1 | Included studies

A total of 3924 records were retrieved by the database searches, of which 2177 remained after removal of duplicates. These 2177 records were then independently double screened by both authors, 2037 of which were excluded based on an assessment of their titles and abstracts. The full-text versions of 140 studies were then retrieved and read by both authors, with 40 studies being excluded due to the reasons outlined in Figure 1. One hundred SRs were included in the final review (a full list of these can be found in Data S3).

4.2 | Reporting practice and transparency

A summary of our transparency appraisal of included reviews is displayed in Table 1 and the full assessment can be found in Data S4. In our assessment, 30 SRs were highly transparent, 57 moderately transparent, and 13 SRs were assigned a low transparency rating. Notably, most SRs (n = 68) did not refer to an accessible protocol in their manuscript, a striking figure considering that an increasing number of peer-reviewed journals require reviews to be registered prospectively in databases such as PROSPERO. This may be partially explained by the fact that barriers and facilitators reviews often do not explicitly include a “health outcome,” which is one of the requirements for protocol registration with PROSPERO.

Most included reviews provided sufficient detail regarding their searching and screening methods, and description of included studies, although 26 did not clearly specify how the synthesis was conducted. A substantial proportion of the SRs (n = 61) used an appropriate form of quality appraisal to assess included studies. However, only 39 drew on their quality assessments when discussing and/or interpreting their results. Most of the included SRs (n = 73) discussed whether and how the results might (or might not) generalize to other settings.
4.3 | Barriers and facilitators: Conceptualization and synthesis

Table 2 displays whether and how included SRs defined, operationalized, and synthesized factors operating as barriers and facilitators. Of the full sample, only 26 reviews explicitly defined their factors of investigation (barriers and facilitators), although we noted that in many cases it was possible to infer an implicit definition. Only two SRs explicitly discussed assumptions associated with applying a barriers and facilitators approach. Over two-thirds of the included studies (n = 72) provided no information about how barriers and facilitators were identified and extracted. Only one review explicitly described how they extracted factors of interest, although in 27 SRs some aspects of the extraction methods could be inferred. More details on the characteristics on the included reviews can be found in Data S5.

The majority of included SRs conducted a narrative synthesis (n = 26), generic thematic analysis (n = 27), or thematic synthesis (n = 12). We made a distinction between thematic “synthesis” and “analysis,” in which studies citing Thomas and Harden’s popular approach to thematic synthesis were classified as the former, and studies using any other types of thematic analysis the latter. Five reviews employed meta-ethnographic synthesis techniques, whereas five used framework synthesis. In 12 SRs the synthesis practices used were unclear.

Only eight reviews undertook a sensitivity or robustness analysis of the identified themes. Although there are no established guidelines on how to investigate the robustness of identified factors relating to barriers and facilitators, two reviews applied the method suggested by Rees et al., in which the robustness of identified themes is tested by removing studies of poor quality or by investigating whether certain types of research (eg, qualitative and quantitative) are overrepresented in certain thematic categories vs others.

Last, 37 of the 100 included reviews contained critical reflections on the limitations of, and
challenges associated with, employing a barriers and facilitators approach. In the sections that follow, we present the results of a thematic analysis conducted on all fragments of text from these 37 papers related to the barrier and facilitator concepts and to the conduct of barriers and facilitators reviews.

### TABLE 1  Transparency of included studies (n = 100):

| Domains                                                   | No  | Yes |
|-----------------------------------------------------------|-----|-----|
| Was the research design clearly described and justified?  | 0   | 100 |
| Were the research question and inclusion/exclusion criteria clearly specified? | 0   | 100 |
| Did the manuscript reference an accessible protocol that enabled the reader to investigate potential deviations? | 68  | 32  |
| Did the review authors use a transparent literature search strategy? | 0   | 100 |
| Did the review authors transparently describe the screening and data extraction process? | 8   | 92  |
| Did the review authors justify exclusions done at the full-text review stage in the main manuscript or PRISMA diagram? | 21  | 79  |
| Did the review authors describe the included studies in adequate detail? | 16  | 84  |
| Did the authors clearly describe how the synthesis of included studies was conducted? | 26  | 74  |
| Did the review authors use a satisfactory technique for assessing the quality and transparency of individual studies that were included in the review? | 39  | 61  |
| Did the review authors account for the methodological quality of individual studies when interpreting/discussing the results of the review? | 61  | 39  |
| Did the review authors provide a satisfactory explanation for, and discussion of, the generalizability and/or heterogeneity of the results? | 27  | 73  |

#### Overall transparency

| Low | Medium | High |
|-----|--------|------|
| 13  | 57     | 30   |

### TABLE 2  Operationalization and synthesis practice in included barriers and facilitators reviews (n = 100)

| Definition of barriers and facilitators | Number of citations |
|----------------------------------------|---------------------|
| No explicit definition                  | 74                  |
| Explicit definition                     | 26                  |

| Stated assumptions behind approach      |                     |
|----------------------------------------|---------------------|
| No                                     | 98                  |
| Yes                                    | 2                   |

| How were the factors extracted?         |                     |
|----------------------------------------|---------------------|
| Indirect description                    | 27                  |
| Explicit description (as identified in text) | 1   |
| Unclear                                | 72                  |

| Types of synthesis                     |                     |
|----------------------------------------|---------------------|
| Generic thematic analysis              | 28                  |
| Narrative synthesis                    | 27                  |
| Thematic synthesis (Thomas & Harden, 2008) | 12             |
| Meta-ethnography                       | 5                   |
| Framework synthesis                    | 5                   |
| Qualitative meta-summary               | 2                   |
| Meta-synthesis                         | 2                   |
| Content analysis                       | 2                   |
| Critical interpretive synthesis        | 1                   |
| Integrative review                     | 1                   |
| Thematic qualitative framework         | 1                   |
| Rapid realist review                   | 1                   |
| Meta-analysis                          | 1                   |
| Unclear                                | 12                  |

| Did the study test for the robustness of identified themes/factors? |     |
|---------------------------------------------------------------------|-----|
| No sensitivity analysis                                             | 92  |
| Sensitivity/robustness analysis undertaken                          | 8   |

| Reflections on analyzing barriers and facilitators                  |     |
|---------------------------------------------------------------------|-----|
| None                                                                | 63  |
| Some discussion                                                     | 37  |

#### 4.4  Reviewer reflections on analyzing barriers and facilitators

We thematically analyzed and categorized text fragments from the 37 reviews that discussed methodological and conceptual aspects of their barriers and facilitators approach. This subsample was generally of higher methodological quality compared to the full sample of reviews and only included one review.
with a low transparency rating. The full transparency ratings of the subsample can be found in Data S6. Two overall categories of themes emerged in the analysis: (a) Methodological and practical issues in conducting barriers and facilitators reviews, and (b) definitional and conceptual issues related to barriers and facilitators. The themes are displayed in Tables 3 and 4.

### 4.4.1 Methodological and practical issues in barriers and facilitators reviews

#### Grading and weighting of factors

Multiple reviews reflected on how to best determine the relative importance of identified factors. Notably, most reviews used language such as “key” or “central” barriers and/or facilitators without explicitly specifying how they determined the relative importance of some factors over others. However, some reviews (eg, References 32, 33, 60) assessed the importance of factors by identifying the frequency with which factors were reported. For example, Wandell et al\(^2\) only reported factors which had been identified by three or more studies, and made the explicit assumption that the greater number of studies reporting a finding, the more likely that finding is to be “true”:

If a barrier or facilitator is frequently reported, the likelihood of it being true is greater, which is why we also report those reported in three or more studies.
The authors concluded that this approach, while imperfect, was the best available option given the largely nonquantitative nature of their included studies:

A limitation of the present review relates to the fact that most of the articles included in the review were qualitative making the importance of the results challenging to quantify in any other way than the number of studies reporting each type of barrier and facilitator.\(^{32}\)

Similarly, in their meta-summary on self-care in heart failure patients, Herber et al\(^{60}\) constructed a “frequency effect size” measure for each barrier and facilitator—an indication of the proportion of included studies in which each factor was identified—and excluded factors from their synthesis if they appeared in fewer than 20% of studies. The underlying assumption of this sort of “vote counting” is that the frequency of the reporting of certain factors is indicative either of their importance or the likelihood that they are “real” or “true,” which may entail important logical and methodological flaws (which we elaborate on further in Section 5).

While some review authors acknowledged (usually in passing) that the “frequency equals importance” assumption is problematic, most seemed to insist that the reporting frequency was still the best way to identify “key” barriers and facilitators. The reflections of Geerligs et al, who reviewed the barriers and facilitators to hospital-based interventions, are indicative of this:

| Theme                           | Citations                                                                 | Summary explanation                                                                 |
|---------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Overlap of factors              | References 20, 21, 28, 34, 50, 51, 48, 52                                  | Most barriers and facilitators reviews organize identified factors into broad themes or according to a pre-existing thematic framework. Several reviews reported that the identified barriers and facilitators were not easily categorized and that the factors often overlapped across multiple categories and themes. This was a particularly prominent issue for reviews that used a predefined framework. |
| Interrelationship among identified factors | References 53, 54, 48, 45, 49                                              | The reporting of individual barriers and facilitators do not, in isolation, enable a clear understanding of the process and dynamics through which these factors influence an outcome. A number of reviews reflected on the importance of understanding the interrelationship among factors and acknowledged that such conceptualization is central to meaningfully inform intervention development and practice. However, few barriers and facilitators reviews formally analyze the interactions and connections between factors. |
| Differential impact of factors (including context-dependent effects) | References 20, 21, 55–59, 28, 31, 60, 40, 51, 43, 46, 61                    | Barriers and facilitators are convenient heuristics that enable clear (if simplistic) statements of what factors may be considered important to reaching an outcome. However, some reviewers questioned the generalizability of their findings, acknowledging that the identified factors may not apply universally across contexts. It was also observed that certain factors may operate as either a barrier or facilitators depending on the context. |
| Change of factors over time      | References 51, 62                                                          | Barriers and facilitators reviews usually offer a summary of the most commonly reported factors across a large literature without consideration of how the relevance and occurrence of certain factors may change with time. Barriers to and facilitators of health care outcomes are unlikely to remain static over time. Only two included reviews acknowledged the possible time-sensitivity of barriers and facilitators. |
We note that these are only the most commonly reported barriers, which does not indicate that they are the most critical or important. However, it does convey a sense of those issues most likely to occur in the hospital setting, when carrying out patient-focused interventions.34

**Issues regarding factor identification**

Some papers critically reflected on the origin of the factors reported in included studies, with particular focus on the reduction process through which participant data are condensed into the barriers and facilitators that are reported by study authors. Several of these reviews (eg, Reference 40) suggested that field notes might hold important insights not captured by study reports, the contents of which are obviously determined by the interpretation of the original study authors. In one review, this issue was addressed by comparing factors influencing the use of HIV pre-exposure prophylaxis (PrEP) among men who have sex with men reported in peer-reviewed literature with those found in online blog and social media posts to find a large range of themes from the online material that was not identified from reviewing the academic literature. In barriers and facilitators reviews, the reported factors will inevitably have been condensed by both the researchers and original study participants, and the nuances of these factors are likely to become increasingly blurred when synthesized in a systematic review. As well, some relevant factors may be omitted altogether if, for instance, they were identified but not deemed sufficiently important by the researchers:

[T]he results of the studies included in our review are already likely to be condensed. Other barriers may have been identified [by primary study authors] but not reported if the investigators did not feel that they were significant findings.41

Moreover, some factors may go unidentified altogether in primary studies, either as a function of the study design and methods employed, or because study participants do not consider them particularly salient or sufficiently important to mention in interviews or surveys:

[R]esearcher interest in certain barriers might bias their methodology to specifically solicit report of these barriers. Participants may also be biased toward discussing those barriers they feel most intensely and may not report other ‘minor’ barriers.28

Thus, barriers and facilitators reviews may be biased toward the identification of more salient, common, uncontroversial, and easily communicated factors, as well as those in which primary study authors have prior interest.

**Issues regarding aggregation of heterogeneous research**

Many included reviews had broad inclusion criteria and thus had to synthesize highly heterogeneous research. The difficulty constructing a coherent synthesis out of this heterogeneity was frequently mentioned as a limitation:

The studies that we included in this review were very heterogeneous as well as the outcome measure ‘barriers and facilitators’. We ended up with a broad range of results which were difficult to quantify, count or summarise.33

Many reviews included both qualitative and quantitative research, and review authors reported that it was challenging to synthesize these data meaningfully. Text fragments that discussed perceived review limitations indicated that several review authors seem to subscribe to the notion that meta-analysis constitutes the ideal approach to evidence synthesis:

[...]the different methods used in the studies complicated summarizing—quantitative and qualitative—findings and did not allow to pool data across the studies for meta-analysis.35

This is despite the fact that, in many of these cases, these reviews sought to address qualitative questions for which meta-analysis would not be an appropriate method of synthesis regardless of the homogeneity of the data.

Several reviews reported that the struggle to synthesize included evidence was driven, in part, by the fact that many included studies did not explicitly investigate or report barriers and facilitators (but rather were more general investigations of the phenomenon of interest), which compelled reviewers to indirectly infer the presence of barriers and facilitators from research not designed to identify these factors.53,60,63 Although it could be argued that this challenge is a result of overly broad inclusion criteria, several studies considered such inclusiveness a strength, emphasizing the added value of including research that did not explicitly investigate barriers and facilitators:
The synthesis of findings utilised a facilitators and barriers framework, which could mean other factors were excluded. However, to minimise this risk the search terms did not include ‘facilitators and barriers’ and issues were extracted irrespective of the specific terminology used.47

Issues regarding applying factors to pre-defined framework
Several of the included reviews organized their results according to a pre-identified set of domains using, for example, the social ecological model or the consolidated framework for implementation research. A subsample of these reviews reported this as a limitation to the analysis, in that it restricted the types of factors and domains that the synthesis could identify, and frustrated the identification of barriers and facilitators not anticipated by the framework. Some reviewers reported difficulties fitting the factors reported in primary studies into the conceptual domains of their chosen framework:

It was challenging to decide where specific barriers from the studies we reviewed would best fit with pre-defined framework domains. For example, due to the limited information provided in some studies, it was unclear at times where a barrier would fit within the [Consolidated Framework for Implementation Research] subdomains; this applied in trying to determine the role of an individual involved in engagement, as studies did not always provide sufficient detail to code this barrier into an ‘opinion leader’ versus a formally appointed ‘champion’.34

Two reviews34,64 abandoned use of their frameworks midway through the synthesis, based on the rationale that it constrained their ability to inductively identify emergent barriers and facilitators that were not included in the categories of the framework. It was further reported that using predefined frameworks did not enable a clear understanding of how the domains in which identified factors were placed related to one another:

The theoretical framework used was restricted in that it did not specify relationships between domains and hence the likely strength of the direct impact of barriers on behaviour is not known.27

4.4.2 | Definitional and conceptual issues related to barriers and facilitators

Overlap of factors
One of the main recurring themes concerns the overlap of identified barriers and facilitators. For example, there were often similarities between identified factors, which made categorizing factors under overarching themes important (eg, lack of training and lack of resources often relate to the same overarching problem).30 However, as discussed above, this also presented challenges for reviewers who based their analysis on an existing framework. In consequence, many reviews struggled to categorize their barriers and facilitators consistently and to clearly define the features and definitional boundaries of the identified factors:

Some facilitators and inhibitors were not exclusive to one theme, for example, continuity of older people’s values, beliefs and personal identity, and factors related to organisational culture.50

Interrelationship among identified factors
It was often unclear to what extent, if at all, identified factors influenced one another, although it was suggested that it was important not to consider factors in isolation, but rather in relation to each other. Consistent with documented criticism of reviews of this type,15 it was suggested that analyzing and reporting lists of factors as though they are isolated entities may be of little use in decision-making about policies and interventions. In their review on barriers to adherence to antiretroviral treatment regimens for people living with HIV, Engler et al reflected on this point:

Our findings also suggest that many, if not, most barriers must be understood through their interrelationships versus conceiving them as singular, independent entities. [...] The notion of barriers as constellations—as composed of interconnected, evolving, and contextualized impediments to adherence—could be helpful for further reflection. Indeed, without understanding their context, barriers like ‘forgetting’, among the most frequently reported, offer little clear direction for intervention.54

Differential impact of factors
Multiple reviews reported uncertainty about whether a factor should be defined as a barrier or a facilitator, in
that some studies would identify factors as barriers, whereas other would classify the same factors as facilitators:

[W]hat appear to be barriers to [voluntary medical male circumcision] uptake for some men were facilitators for others in the same contexts. While this may seem counterintuitive, the finding points to the differences by age and region within the same country as well as differences across countries likely based on level of VMMC uptake and on the normativity of VMMC in the regions. These differences indicate the importance of contextualised approaches addressing barriers and facilitators for various sub-groups and priority populations. Indeed, strategies to enhance VMMC uptake are likely to be more effective if designed for different profiles of youth and men who face different barriers and facilitators.51

While this might be addressed by attempting to theorize the context-dependent features of identified factors, few reviews incorporated such considerations in their analysis. Some review authors considered this an important shortcoming, as simply describing the most frequently reported factors may produce overly simple representations of the underlying issue being investigated. In other words, identifying barriers and facilitators to health-related phenomena will not, in isolation, provide insights on how this outcome can be improved through intervention.

Time-sensitivity of barriers and facilitators
Two reviews in our sample reflected on how barriers and facilitators may change over time.51,62 Only one of these reviews addressed this issue systematically, by considering the consistency with which factors were reported by studies over time:

Most types of barriers were reported consistently across the 10-year time period analyzed, suggesting that the same barriers have remained over time.62

Importantly, very few results—especially those relating to health care services across different national, cultural, and institutional contexts—can be thought universally applicable over time. However, most reviews did not discuss the potential influence of time on the identified barriers and facilitators, which were primarily reported as static concepts.

5 | DISCUSSION

5.1 | Summary of results

Our analysis of the methodological conduct of 100 barriers and facilitators reviews demonstrated that (a) there is a high degree of variation in the synthesis and categorization practices applied by these reviews, and (b) most reviews neither define, critically engage with, nor provide a rationale for using, the concepts of barrier and facilitator. These findings suggest, among other things, that improved clarity around the conceptualization of investigated factors would be helpful for future reviews of this type.

Our thematic analysis echoes some of the critiques that have been leveled against this type of review, including, for instance, concerns associated with the process of reducing potentially complex phenomena into simplified, discrete factors. Few included studies critically investigated the potential dynamic features of and inter-relationships between identified factors and their contextual variability, even though this was commonly acknowledged to be an important feature of the barrier and facilitator concepts. Although a number of review papers contained reflections on the complex nature of barriers and facilitators, this was usually discussed rather than systematically analyzed.

The sections below discuss how the findings can inform the future conduct and interpretation of barriers and facilitators reviews.

5.2 | Operationalizing “barriers” and “facilitators”

Most papers included in this review did not provide definitions for the terms barrier and facilitator, despite these being the core focus of these reviews. There appears to be a general lack of clarity in this literature about what these concepts specifically refer to, which has important implications for how factors are identified and extracted from included studies, and how the subsequent results of these reviews should be interpreted. An interesting contradiction emerged in that many reviews that criticized their included studies for failing to provide an explicit definition of barriers and facilitators themselves also failed to do so. Moreover, most of the reviews that did explicitly define barriers and facilitators simply described them as “factors that promote/facilitate/enable or prevent/obstruct a given phenomenon” without specifying, for example, the context or conditions under which these factors were thought to operate, and what “facilitating” and “obstructing” specifically entails.
While greater definitional clarity would not resolve the more fundamental debates about the scientific legitimacy of the barrier and facilitator constructs and, by extension, the validity of barriers and facilitators reviews, we believe that more explicit conceptual work on the part of reviewers would go a long way to maximizing the usefulness of these reviews. We contend that, at minimum, reviewers should provide clear definitions for “barrier” and/or “facilitator” and describe how these are thought to operate in relation to the focus of the review and/or within context(s) of interest. Are these factors to be understood as “real” material phenomena at work in, for example, policy and practice settings, as metaphorical heuristics co-constructed by researchers and informants, or as something different altogether? What implications, if any, does the reviewers’ conceptualization have for how review findings should be appraised and interpreted by readers? Based on our reading of 100 recently published barriers and facilitators reviews, we believe that greater clarity on these conceptual “starting points” would increase the likelihood that reviews of this type are comprehensible and useful, both for other researchers and for those with a practical interest in the issue being studied.

Additionally, more specific and explicit advance definitional and conceptual work—in which aspects relating to context, actors, and conditions are conceptualized as part of the protocol—may improve the transparency of data extraction and synthesis procedures. Although many reviews did recognize nuances in factors across different contexts and among different actors or stakeholders, this was typically done in the discussion section of papers, rather than constituting a formal part of the synthesis or analysis process. Further, none of the included reviews specifically addressed the potential interrelationships between different factors as part of the protocol or eligibility criteria.

5.3 | Synthesizing “barriers” and “facilitators”

A common methodological challenge raised in barriers and facilitators reviews is the struggle to determine the relative importance of the identified factors. Many of the included reviews reported the inability to conduct a quantitative meta-analysis as a limitation to the synthesis (eg, References 28, 31, 48, 65–68), despite the fact that they posed questions that were qualitative in nature. Notably, most included studies by the reviews were qualitative and a third of the SRs (31%) only included qualitative studies; however, many review papers adopted a quantitatively oriented language and either explicitly stated or implied that the most frequently reported factors were, in fact, the most important. The “frequency equals importance” assumption ignores other plausible and even likely explanations for the recurrence of certain themes within a set of included studies. Given that it is standard practice to orient research questions and objectives in relation to the findings of previous research, it should come as no surprise that certain concepts recur from study to study as a body of literature accumulates. Similarly, the accounts of individual primary study participants do not exist in a vacuum, and are no doubt influenced by popular sentiment, the views of peers and colleagues and, quite simply, those ideas (eg, barriers and facilitators) that are “top of mind,” seem plausible, and are easy to articulate in, for example, the context of an interview. In short, while the frequency with which certain barriers and facilitators appear in the literature may be suggestive of their significance, this is by no means a guarantee.

More fundamentally, it may be worth questioning whether establishing which barriers and facilitators are most (or least) important is really the most useful product of this type of review. Aggregative syntheses can generate inventories of the most commonly reported barriers and facilitators, and information on whether a certain category of factor tends to be reported more often as either a barrier or a facilitator. However, for the reasons discussed above, it is not obvious that such findings furnish accurate (or even approximate) assessments of relative importance, nor is it clear that such findings are of much use in decision-making. Indeed, such reviews may well be misleading to those in a position to act on their findings. Conversely, more interpretive review techniques (eg, meta-ethnography69 or realist review70) tend to eschew this frequentist logic, prioritizing instead the generation of synthetic interpretations using methods that incorporate the richness and complexity of qualitative research. The contribution of barriers and facilitators reviews of this sort may be, for example, to propose explanations about how and in what contexts certain factors influence outcomes of interest, and why these factors manifest as they do. The focus of such reviews thus revolves not around identifying the most “important” factors, but rather around attempting to generate novel theoretical explanations or conceptual understandings of the dynamics underlying barriers and facilitators and their interactions.

Last, the process through which barriers and facilitators were identified and extracted from the included studies was often unclear. Importantly, synthesis practices—especially those dealing with qualitative data—can vary considerably in the degree to which data (ie, primary study findings) are interpretively manipulated. While some methods entail faithfully describing and
summarizing (and eventually aggregating) findings from primary studies, others involve a much more interpretive process of data transformation in which novel synthetic findings are constructed that “go beyond” those findings that are locatable within individual studies. In other words, there is a distinction between the faithful extraction of barriers and facilitators as they are identified within included studies, and the interpretive construction of these by reviewers. We take no position on whether one approach is preferable to the other, but we do argue that, absent clearer reporting on data extraction practices, barriers and facilitators reviews are unnecessarily challenging for readers to understand, interpret, and critically appraise.

5.4 | Recommendations on the conduct of barriers and facilitators reviews

Important questions remain as to whether and how the constructs “barrier” and “facilitator” can be deployed as a useful heuristic for summarizing and communicating knowledge while resisting the inclination to revert to excessively aggregative synthesis practices that risk distorting the complexity of social phenomena and stripping context from their explanation. While our findings do not provide firm answers to these questions, they suggest some basic minimum measures that could be taken in future reviews of this type to ensure that they are conducted with a measure of transparency, critical conceptual reflection, and attention to complexity. Our recommendations are summarized in Table 5.

5.5 | Limitations of this review

This review is subject to the following limitations. First, the review was inclusive in terms of the type of reviews that it considered, which resulted in some nontraditional systematic reviews being included (eg, rapid realist reviews). This was a conscious choice based on the rationale that to best inform current review practices, it is essential to investigate the full spectrum of reviews attempting to identify barriers and facilitators. Second, our focus on SRs relating to health services may restrict the generalizability of our findings, as synthesis and reporting practices of barriers and facilitators reviews may differ in other fields and topic areas.

| TABLE 5 | Recommendations on the conduct of barriers and facilitators reviews |
| Recommendations | Elaboration |
| Reviews should explicitly define the factors under study (barriers and facilitators) and ideally clarify the presumed traits of such concepts | It is often implicitly assumed or explicitly stated that barriers can be overcome and facilitators promoted, which enables these reviews to make powerful (and perhaps exaggerated) inferences about how to improve policy and practice. Yet, most of the reviews included in our review did not clearly define the concepts “barrier” and “facilitator,” nor explain how they are presumed to operate |
| Review authors should clearly specify how factors were identified and extracted from included studies | Fully two-thirds of included reviews did not explicitly describe how barriers and facilitators were identified and extracted from primary studies. Virtually none of the mixed methods reviews (a majority of our included studies) addressed whether or how their extraction operations varied according to study type, despite important differences between how qualitative and quantitative research can furnish evidence on barriers and facilitators (eg, findings from survey studies are likely to be restricted to the barriers and facilitators pre-identified in the instruments used, whereas qualitative research is more likely to identify novel factors not considered prior to the investigation). It is therefore important that procedures for identifying, extracting, and coding barriers and facilitators are transparently reported |
| Reviews should assess the robustness of identified factors and/or themes and provide appraisals of the level of certainty in their findings | The relevance and importance of barriers and facilitators will almost always be context-dependent. Indeed, when it comes to complex health concerns in complex social systems, virtually no barrier or facilitator is likely to be universally applicable. However, by explicitly examining how factors tend to differentially manifest according to the presence or absence of study-level contextual features, these reviews can generate hypotheses about the contingency of barriers and facilitators. For reviews in which the methodological rigor of (some) included studies is also a concern, sensitivity analysis—in which the influence on the review findings of included studies assessed to be of “lower” quality is explored—can shed light on the robustness of the synthesis findings |
6 | CONCLUSION

A large volume of barriers and facilitators systematic reviews are published every year in high impact journals, despite the fact that there is little guidance on how to conduct reviews of this type. We identified and synthesized 100 reviews relating to health services published during a 13-month period. We found that many reviews of this genre fail to explicitly define barriers and facilitators and to explain how the identified factors were extracted from the included studies. However, many included reviews provided important reflections on some of the limitations associated with this type of review. Building on those reflections, we have proposed a number of suggestions on how to improve current practices in reviews of this kind. Chief among these is the recommendation that reviewers begin to engage more critically with the concepts underlying their analysis. This will be achieved, in part, through the thoughtful development of more explicit definitions of the concepts being investigated, the lack of which has hitherto operated as a barrier to these reviews being scientifically informative and practically useful. We humbly hope that this article will help to facilitate improved practice in barriers and facilitators reviews.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

AUTHOR CONTRIBUTIONS

The research objectives and research design were developed by both Anders M. Bach-Mortensen and Ben Verboom. Studies were double screened by both authors. Anders M. Bach-Mortensen extracted data from the full sample of studies, with Ben Verboom double-extracting a 20% random sample of included studies. The synthesis was conducted by Anders M. Bach-Mortensen in consultation with Ben Verboom. Both authors contributed to writing the manuscript.

DATA AVAILABILITY STATEMENT

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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