Journal of Clinical Epidemiology 109 (2019) 70–79

Journal of Clinical Epidemiology

ORIGINAL ARTICLE

Overview authors rarely defined systematic reviews that are included in their overviews

Clovis Mariano Faggion Jr.[a,*], Karla Tatiana Diaz[b,c]

[a]Department of Periodontology and Operative Dentistry, Faculty of Dentistry, University of Münster, Münster, Germany
[b]Graduate School, Faculty of Dentistry, Universidad de Chile, Santiago, Chile
[c]Graduate School, Faculty of Dentistry, Universidad Privada San Juan Bautista, Lima, Peru

Accepted 15 January 2019; Published online 23 January 2019

Abstract

Objectives: To report systematic review definitions that are published in overviews of reviews and to propose a new classification of systematic reviews.

Study Design and Setting: In this review of overviews, we searched PubMed for systematic review definitions that were reported in overviews of reviews that were published in the medical literature between November 2017 and May 2018. Two independent authors extracted and descriptively reported the systematic review definitions from the overviews. The definitions were evaluated regarding whether the concepts of comprehensiveness and reproducibility were incorporated into them, as suggested by some published systematic review definitions.

Results: Initially, 138 documents were retrieved, and 111 overviews and protocols of overviews were included. Eight (8%) overviews explicitly reported a systematic review definition, whereas 25 (24%) overviews reported heterogeneous information about the criteria that were used to include systematic reviews in the overviews. Seventy-two (68%) overviews did not report any definition/criteria for including a systematic review. Two (2%) overviews reported a definition based on reproducibility, and none of the overviews reported the need to search for grey and unpublished literature for a review to be considered systematic.

Conclusion: Overview authors rarely define systematic reviews that are included in their overviews and the few that do include a definition that provides heterogeneous criteria.

Keywords: Review; Systematic review; Meta-analysis; Methods; Research design; Bias; Overview

1. Introduction

Systematic reviews provide important information regarding the management of diseases by collecting evidence from different types of primary research (e.g., randomized clinical trials). These reviews, as the name suggests, are performed in a systematic way and with a predefined methodology to avoid and/or reduce the influence of potential biases on the results [1]. Although some definitions of what comprises a systemic review have been published in the literature [2–4], there is currently a lack of consensus. A recently published study concluded that many of the reviews that are named as systematic present different levels (or thresholds) of reported methodologies [5]. Notably, in this study, most of the systematic reviews reported on the need to describe search strategies, data selection and extraction, and quality assessment (of primary studies), whereas others reported on only one or two of these items [5].

An important characteristic of any study, including a systematic review, is its reproducibility, which is defined by the Cochrane glossary as the ability to do the same work elsewhere [6]. Reproducibility is an important and timely topic in medical research [7,8] and is considered one of its cornerstones [9]. The concept implies that an independent research group should be able to replicate systematic review results by performing the same steps as the original research group. In the field of reviews, it is suggested that less-conservative conclusions occur in

Conflict of interest statement: None.

Authors' contributions: C.M.F. designed the study, searched, selected, and extracted the data, performed the formal analysis, and wrote the first draft of the manuscript. K.T.D. searched, selected, and extracted the data and contributed by revising and improving the manuscript for intellectual content.

Funding: This study was self-funded by the authors and their institutions.

* Corresponding author. Faculty of Dentistry, University of Münster, Waldeyerstrasse 30, Münster, 48149 Germany. Tel: +49 (0)251/83-47061; Fax: +49 (0)251/83-47134.

E-mail address: clovisfaggion@yahoo.com (C.M. Faggion Jr).

https://doi.org/10.1016/j.jclinepi.2019.01.004

What is new?

Key findings

- Although authors of overviews of reviews rarely report a definition of systematic reviews, a few report a definition that is based on heterogeneous criteria.

What this adds to what is known?

- Currently, there is no consensus on a systematic review definition. Due to this lack of uniformity, this study proposes a new classification for the definition of systematic reviews.

What is the implication and what should change now?

- Minimum requirements for a review being named as systematic should observe high standards regarding the concepts of both comprehensiveness and reproducibility.

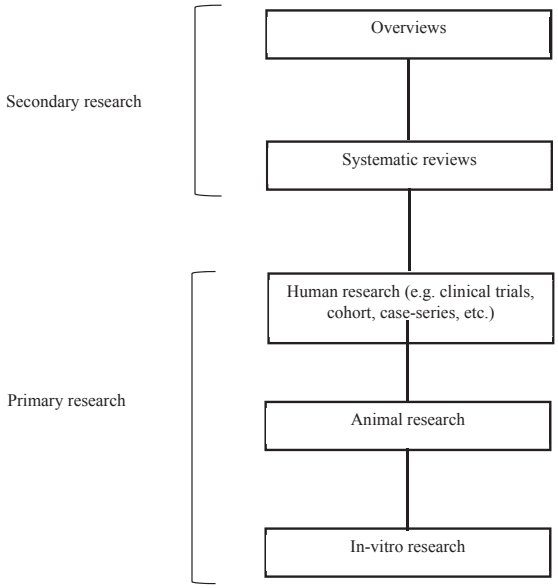

Fig. 1. Secondary and primary research.

reviews that lack a defined methodology (narrative reviews) when compared with systematic reviews [10]. Thus, reproducibility appears to be an important component when determining whether the performed research is highly regarded by scientists and interested professionals. Some publications have recently raised awareness regarding the lack of published information on the different systematic review procedures (for example, data search and selection). This could hamper reproducibility [11,12] and thus limit identification of potential biases and confounders, which could distort treatment effect estimates [13].

A systematic review should also include all potential literature about the researched topic to reduce the likelihood of publication bias [14]. The search within a systematic review should involve different major databases [15] and material that it is not easily found in readily available sources, such as books and journal articles, which is known as grey literature [16]. Meta-analytic estimates of intervention effectiveness may become exaggerated if grey literature is not included [17].

Overviews or umbrella reviews are studies that include multiple reviews and/or systematic reviews about specific topics or research questions [18]. These types of studies are important for collecting all potential systematic (and potentially unbiased) information from systematic reviews. An overview has a similar methodology to that of a systematic review; although, the former collects evidence from secondary research, and the latter collects evidence from primary research (Fig. 1).

The objectives of this article are two fold:

- To report systematic review definitions that have been described in overviews of systematic reviews of medical literature.
- To incite a debate by proposing a realistic classification of systematic reviews—based on the concepts of reproducibility and comprehensiveness—which can complement systematic review definitions that were previously published.

2. Materials and methods

2.1. Search and eligibility criteria

Two authors (C.M.F. and K.T.D.) independently searched the PubMed database for systematic review definitions that were described in overviews of systematic reviews and protocols of overviews that were published in the medical literature between November 2017 and May 2018. We used a predefined search strategy with keywords that were related to the overview of reviews and systematic reviews, which we combined with the Boolean operator "OR" (Table 1). Protocols of overviews that were published in peer-reviewed journals were also included. Only

Table 1. Search of the literature in PubMed database

4) (#1 OR #2) 138 (limited to 01 November 2017 to 10 May 2018)
3) (#1 OR #2) 1055
2) ("overview of reviews" or "overview of systematic reviews" or "umbrella review" OR AMSTAR OR AMSTAR-2 OR "AMSTAR 2" OR ROBIS OR "umbrella systematic review") 943
1) "meta review" OR meta-review OR "systematic meta-review" OR "systematic meta-review" 132

Abbreviations: AMSTAR, A MeaSurement Tool to Assess systematic Reviews; ROBIS, Risk of bias in systematic reviews.

overviews of systematic reviews in English were included. In addition, an overview had to report a predefined methodology, such as those reported in systematic reviews [19]. Overviews that included reviews but also other types of study design, such as any primary research design, were also included.

2.2. Data selection and extraction

Two authors (C.M.F. and K.T.D.) selected the overviews by firstly assessing titles and abstracts. Titles were excluded at this stage if they did not meet the eligibility criteria. Similarly, if full-text articles did not meet the eligibility criteria, they were excluded, and the reasons were recorded. We calculated the inter-rater agreement between the assessors through Cohen's Kappa [20] to determine the agreement strength [21].

We extracted the systematic review definitions that were reported in the overviews. If no systematic review definition was reported, the authors scrutinized the eligibility criteria section to determine why certain systematic reviews were included. Thus, these criteria, which are related to the methodological aspect of the review only, were reported for each included overview and each protocol of the overview. We then organized all the potential definitions/criteria of systematic reviews into tables.

2.3. Rationale on reproducibility and comprehensiveness

The definitions were descriptively compared with systematic review definitions that were previously reported in the literature [2–4] (Supplementary Material) to clarify the variability of the authors' understanding regarding what is systematic and what is not. The key criteria for comparison were the concepts of reproducibility [12] and comprehensiveness (regarding the inclusion of literature to address the research question [16,22]). In the current project, there was no intention to test for reproducibility, but we evaluated whether authors report the reproducibility concept in their definitions (reported: yes/no).

Because there is no threshold on the minimum number of information sources needed in a comprehensive literature search, we hypothesized that the greater the number of sources searched (in all potential languages), the more comprehensive the search. We mainly focused on the search of major databases, such as PubMed, grey literature, and unpublished material. Again, the aim was not to evaluate whether the review was comprehensive but rather to evaluate whether overview authors included the minimum number of databases and grey literature searches as criteria for defining a systematic review [22].

All disagreements during the selection, data extraction, and evaluation procedures were resolved via discussions to reach consensus.

3. Results

The search strategy initially identified 138 potential overviews and protocols of overviews. Twenty-one documents were excluded after an analysis of the titles and abstracts. Six articles were excluded after full-text analysis. The final sample included 105 overviews and 6 protocols of overviews. Inter-rater agreement in the selection process was 0.737, which showed a substantial agreement between the two assessors. Figure 2 shows the flow diagram of the selection process. The list of included and excluded articles (with respective reasons for exclusion) is reported in Supplementary Material.

We found that 8 (8%) overviews explicitly reported a systematic review definition, 25 (24%) overviews reported some information about the criteria used to include systematic reviews in the overviews (Table 2), and 72 (68%) of the overviews did not report any definition/criteria for what to include in a systematic review (Table 1, Supplementary File). One (17%) protocol explicitly reported a systematic review definition, 2 (33%) protocols reported the criteria used to include systematic reviews in the overviews (Table 3), and 3 (50%) protocols of overviews did not report any definition/criteria for what to include in a systematic review (Table 2, Supplementary File).

In addition, 2 (2%) overviews reported a definition based on reproducibility, although the definitions were only in partial agreement with two of the definitions that had been previously reported in the literature (Supplementary Material). Another (1%) overview reported that it followed the definition of the Cochrane Collaboration, although no details were reported. The remaining overviews reported less-strict criteria (in comparison to the definitions published in the literature) for defining a systematic review. For example, 6 (6%) overviews reported that the report of a search (or systematic search) was enough to define a review as systematic, two other (2%) overviews reported that having both the search strategy and eligibility criteria reported would be enough to define a review as systematic, and 6 (6%) overviews stated that they included systematic reviews when the authors explicitly reported their reviews as systematic (Table 2).

Regarding comprehensiveness, the overviews reported different thresholds for the minimal number of major databases (e.g., PubMed) searched for a review to be considered systematic: one database (n = 1, 1%); two databases (n = 4, 4%); two or more databases (n = 2, 2%). The other overviews (n = 98, 93%) did not report any threshold for a minimum number of major databases for a review to be considered systematic. None of the overviews reported the need to search for grey and unpublished literature for a review to be considered systematic (Table 2). One (17%) protocol of overviews reported the need of one database plus another source (e.g., search in references) for a review to be considered systematic (Table 3).

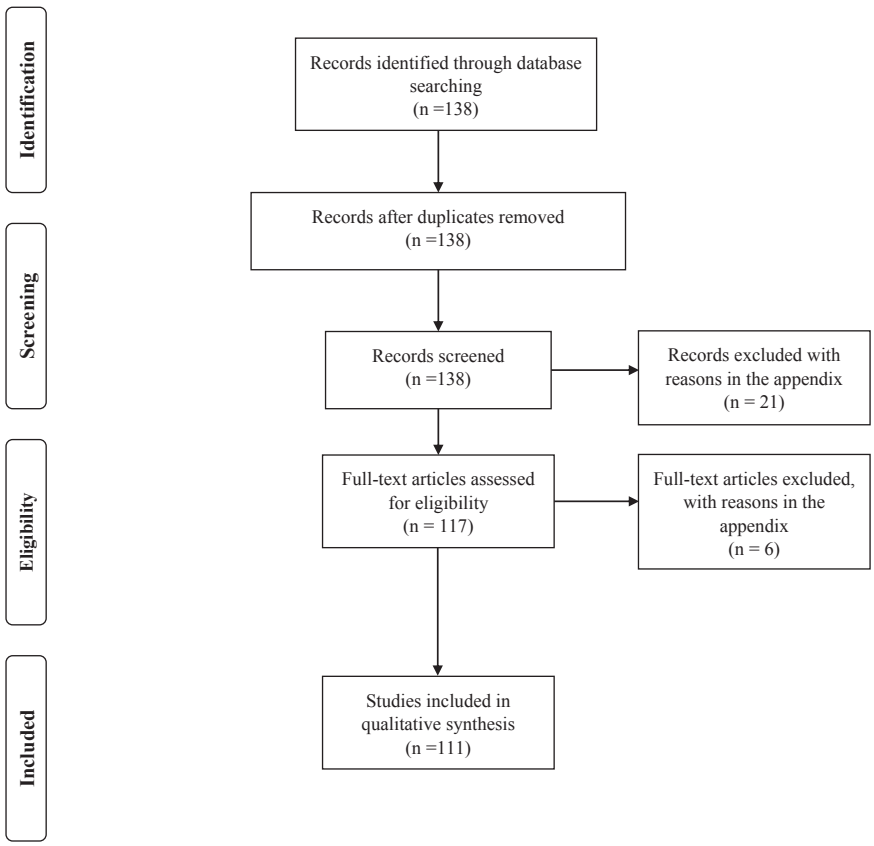

Fig. 2. Flow diagram of the selection process.

4. Discussion

4.1. Main finding

The analysis of recently published overviews of reviews in medical literature revealed that few overviews had defined the systematic reviews that they included. Furthermore, there was significant heterogeneity in the systematic review definitions for those overviews that reported definitions. Many of these definitions did not meet the criteria reported in previous definitions of systematic reviews [2–4]. As a consequence, many studies that were reported as overviews of systematic reviews may include nonsystematic reviews, at least if the criteria of these definitions are applied.

4.2. Reproducibility

Because reproducibility is only proven when all research steps can be performed again, it is incorrect to assume reproducibility when a review is systematic; some evidence suggests that many reviews that claim to be systematic might be not reproducible [12]. Thus, for the proposed classification, we suggest the wording "probably" reproducible based on the characteristics of the systematic review report (Fig. 3). This wording is in line with current rating systems for evaluating risk of bias (RoB) (in primary [23] and secondary [24] research), which try to reflect the confidence of the assessor regarding potential concerns during RoB assessment. Furthermore, by using appropriate methodological tools, such as A MeaSurement Tool to Assess systematic Reviews (AMSTAR-2) [22] and Risk Of Bias in Systematic reviews (ROBIS) [24], the assessor might be able to critically evaluate the characteristics of the systematic review to judge whether the review is potentially reproducible or not. Because these tools were not developed with reproducibility as their focus, in future tool updates, it will be important to address reproducibility.

To be "reproducible," a systematic review should allow both an audit and scrutiny of the process by readers and/or interested people who intend to reproduce the steps. Hence, the essential parts of a systematic review should be evaluated for reproducibility in the following areas: 1) research question; 2) eligibility criteria; 3) search strategy; 4) data selection; 5) data extraction; 6) methodological appraisal of primary studies included; and 7) results synthesis. To reach full reproducibility, these factors should be reported in detail. For instance, reporting only keywords without building the entire search strategy with Boolean operators makes any reproducibility of the search challenging, if not impossible. Similarly, interested readers will likely not be able to reproduce the steps for data selection if the systematic review's authors do not present a full report of

Table 2. Definitions of systematic reviews reported in the selected overviews of reviews

Overview	Study designs included	Explicit definition[a]	Eligibility criteria[b]
Briggs et al., 2018	Systematic reviews or meta-analyses	No definition	Reviews were selected if they included studies that used one of the review designs (e.g., systematic, meta-analysis, rapid, qualitative) as described by Grant and Booth
Cheng et al., 2018	Meta-analyses or systematic reviews	No definition	Systematic reviews of randomized trials (with or without meta-analysis) with clear inclusion/exclusion criteria and an explicit search strategy
Cunningham et al., 2018	Systematic reviews	Adopting predefined inclusion and exclusion criteria, systematic reviews are reproducible, involve the systematic presentation and synthesis of study characteristics and findings, and minimize bias	No further information
Delaney et al., 2017	Systematic reviews or meta-analyses	Papers to be analyzed were systematic reviews or meta-analyses, as defined by the Cochrane Collaboration	No further information
Faggion et al., 2018	Systematic reviews with or without a meta-analysis	No definition	Systematic reviews should be clearly reported as ''systematic'' in the title, abstract, or main text
Ge et al., 2018	Systematic reviews with or without meta-analysis	No definition	We included systematic reviews with or without meta-analysis that met the following criteria: explicitly stated methods to identify studies, explicitly stated methods of study selection, and explicitly described the methods of evidence synthesis
Giannakou et al., 2017	Systematic reviews and meta-analyses	No definition	Articles were eligible for inclusion if the authors had performed a systematic search to identify pertinent studies
Gomez-Garcia et al., 2018	Systematic reviews or meta-analyses	No definition	Meta-analyses without a systematic literature search were excluded
Gomez-Garcia et al., 2017	Systematic reviews or meta-analyses	No definition	Meta-analyses without a systematic literature search were excluded
Huis in het Veld et al., 2018	Systematic reviews	No definition	Systematic reviews that met the following criteria: (a) the review included a description of search terms and (b) searches were conducted in Medline or PubMed and at least one other international scientific database
Jadczak et al., 2018	Systematic reviews with or without meta-analysis	No definition	A clearly articulated and comprehensive search strategy including at least two or more bibliographic databases. Evidence of critical appraisal/assessment of risk of bias
Li et al., 2017	Systematic reviews	No definition	Either ''systematic review'' or ''meta-analysis'' should be mentioned in the title, or the review should be in compliance with the systematic review procedure; the Methods section should contain explicit selection criteria
Matthys et al., 2017	Systematic reviews	A review was considered a systematic review if two of the following criteria were met: a search strategy was reported, a search was performed in Medline (PubMed) at least, and the included studies were subjected to a methodological assessment	No further information
McNeil et al., 2018	Quantitative systematic reviews with or without meta-analysis, pooled analyses, comprehensive systematic reviews, or mixed methods reviews	No definition	Clearly articulated and comprehensive search strategy using multiple databases, and having evidence of critical appraisal and assessment of risk of bias

(*Continued*)

Table 2. Continued

Overview	Study designs included	Explicit definition[a]	Eligibility criteria[b]
Moore et al., 2018	Systematic reviews and overviews of reviews with or without meta-analysis	No definition	Identified by the authors as a systematic review; included an explicit description of the search strategy; conducted the search in at least two electronic databases. In addition, we selected reviews that ranked as moderate to high methodological quality
Olaithe et al., 2018	Systematic reviews	No definition	Systematic reviews and meta-analyses were included if they present a summary of the search terms selected, databases searched, and numbers of papers included and excluded at each stage of the selection process
Posadzki et al., 2018	Narrative and systematic reviews	Research articles with a replicable methods section, e.g., searches, eligibility criteria, and critical appraisal of primary studies	No further information
Price et al., 2018	Overviews and systematic reviews	No definition	Reviews were eligible if they searched a minimum two databases, appraised the included studies, provided summary findings, and included a synthesis of the data and the information retrieved
Rezende et al., 2017	Systematic reviews	No definition	We excluded systematic reviews that did not systematically search the literature and reviews that did not provided comprehensive data from individual studies (specifically information listed in the data extraction section)
Sharma and Oremus, 2018	Systematic reviews	No definition	We considered studies to be systematic reviews if the authors reported a systematic literature search strategy that identified databases, search dates, and search terms
Sideri et al., 2018	Systematic reviews with or without meta-analysis	Any publication that termed itself as such and used a systematic approach to identify, select, and appraise studies to answer a research question	No further information
Sun et al., 2018	Systematic reviews and/or meta-analyses	No definition	Included a search strategy in their methods
Suttle et al., 2017	Systematic reviews	Studies that had searched more than one database and had conducted a critical analysis of their included studies were considered to be systematic reviews	No further information
Tam et al., 2017	Systematic reviews	Systematic literature reviews or those that included the term ''meta-analyses'' in the title, abstract, or both	No further information
Tao et al., 2017	Systematic reviews	No definition	Eligible systematic reviews dependently according to the following criterion: was a review article and explicitly stated as a systematic review or meta-analysis
Thompson et al., 2018	Systematic reviews and meta-analyses	No definition	To be considered for this analysis, systematic reviews needed to answer a focused research question, clearly define the search strategy criteria in addition to study selection/inclusion and complete a comprehensive search of the literature
Thulliez et al., 2018	Systematic reviews with meta-analysis	No definition	Reviews were eligible if the authors had performed a systematic search to identify pertinent studies
Ting et al., 2017	Systematic review or meta-analysis	No definition	The review must be identified as a meta-analysis or a systemic review in the abstract or title

(*Continued*)

Table 2. Continued

Overview	Study designs included	Explicit definition[a]	Eligibility criteria[b]
Treanor et al., 2017	Any reviews	No definition	Articles that were described and/or indexed as a review were included
Vivares-Builes et al., 2018	Systematic reviews and meta-analysis	No definition	As far as possible, they were required to meet the main criteria established by the Cochrane Collaboration and the Center for Review and Dissemination
Welsh et al., 2018	Systematic reviews	No definition	For the purposes of this review, articles that stated that they were planned and reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses were deemed to be systematic
Wu et al., 2018	Systematic reviews or meta-analyses	Systematic reviews are defined as a type of literature review that critically appraises and formally synthesizes the best existing evidence to provide a statement of conclusion to resolve specific clinical problems	No further information
Yount et al., 2017	Reviews and primary studies	No definition	Eligible reviews were original reviews of the literature, whether or not the authors stated that the review was systematic

[a] As reported by overview authors.
[b] Information from the eligibility criteria section that could define a systematic review.

excluded documents (with reasons for exclusion) that begins at the first step of the selection (i.e., since title/abstract analysis) [12]. The current version of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist [19] seems limited for addressing the lack of reproducibility regarding guidance in reporting because some checklist items provide incomplete information to allow reproducibility [12].

Importantly, a new version of the PRISMA checklist is planned for 2019, and the topic of reproducibility is reported in its protocol [25]. It is expected that, with the updated PRISMA checklist, systematic review authors will report more detailed information, which might enable higher rates of reproducibility of the work. Some authors [26] have suggested the concept of reproducibility via different dimensions (labeled as methods, results, and inferential). In secondary research (in contrast to primary research), reproducibility within these different dimensions might be more likely due to potentially less sensitivity to different degrees of error than what usually occur in primary research [27].

4.3. Comprehensiveness

Another important component of a systematic review is the comprehensiveness of the evidence included. The key is to identify all potential evidence to address the topic (research question) to avoid and/or reduce the risk of publication bias [14]. Although the published definitions reported in this manuscript [2–4] appear to be quite comprehensive because they emphasize the need to include all potential relevant literature, most of the overviews of the present sample do not meet the criterion for comprehensiveness that has been reported in these definitions. Here, the criterion for defining a systematic review is meant to be included in the overview. For example, one published systematic review definition [2] refers to the need to include a search of grey literature [28], yet none of the overviews of this sample reported a search of grey and unpublished literature as an inclusion criterion for defining a systematic review. It is difficult to set thresholds for defining comprehensiveness; a systematic review should be considered comprehensive when all potential published and nonpublished evidence considers when the results were reported. Hence, the suggestion for a minimal standard of ‘‘comprehensiveness’’ would be the search for grey literature, together with a search in several major databases. This is in line with a recognized tool for evaluating the methodological quality of systematic reviews, which suggests more comprehensive searches based on the number of searched sources [22].

The present study intends to debate a classification for systematic reviews in the medical literature that could complement the existing definitions [2–4] by including any type of review, systematic or not (Fig. 3). Recent discussion in the literature [29,30] has reported different interpretations of review definitions. For example, forms other than the standard narrative and systematic reviews have been suggested, such as the realist and meta-narrative reviews [31,32]. In going beyond the discussion of the true nature of such reviews (systematic or not) [29,30], the focus should be on whether they could be categorized as probably

Table 3. Definitions of systematic reviews reported in the selected protocols of overviews of systematic reviews

Overview	Study designs included	Explicit definition[a]	Eligibility criteria[b]
Alexandre et al., 2017	Systematic reviews	Reviews will be considered to be ''systematic'' if authors use an explicit and reproducible methodology, including a description of the search strategy, application of predefined eligibility criteria to select primary studies, and a synthesis of results	No further information
Hines et al., 2018	Systematic reviews and meta-analyses	No definition	Following critical appraisal, reviews that do not meet a certain quality threshold will be excluded. The decision to exclude will be based on systematic review methodology not described or poorly conducted, critical appraisal of included studies not done, or literature review papers described as a systematic review but not including any features of accepted systematic review methodology
Naik et al., 2017	Systematic reviews	No definition	Systematic reviews meeting Database of Abstracts of Reviews of Effects (DARE) criteria: (i) a defined review question (which includes at least two out of population, intervention, comparison, outcomes, or study designs), and with a search strategy of a named database, and (ii) a search strategy including both a named database (at least) and one of the following: reference checking, hand searching, citation searching, or contact with authors

[a] As reported by overview authors.
[b] Information from the eligibility criteria section that could define a systematic review.

reproducible/comprehensive or probably not reproducible/comprehensive. For example, a review can be fully reproducible yet contain limited information, which can generate bias [14]. By contrast, a review can be comprehensive, in terms of the literature included, but not reported in enough detail to allow reproducibility. One can consider that, without a good level of reproducibility and comprehensiveness, a review can also raise questions about other types of bias that may threaten the results (e.g., financial conflict of interest [33]). Similarly, the proposed classification includes other forms of secondary research, such as reviews as objects of a study (Supplementary Material, Fig. 1). Again, the concept applied here is also based on reproducibility and comprehensiveness.

It is important to consider that the systematic review concept can be better applied to quantitative evidence,

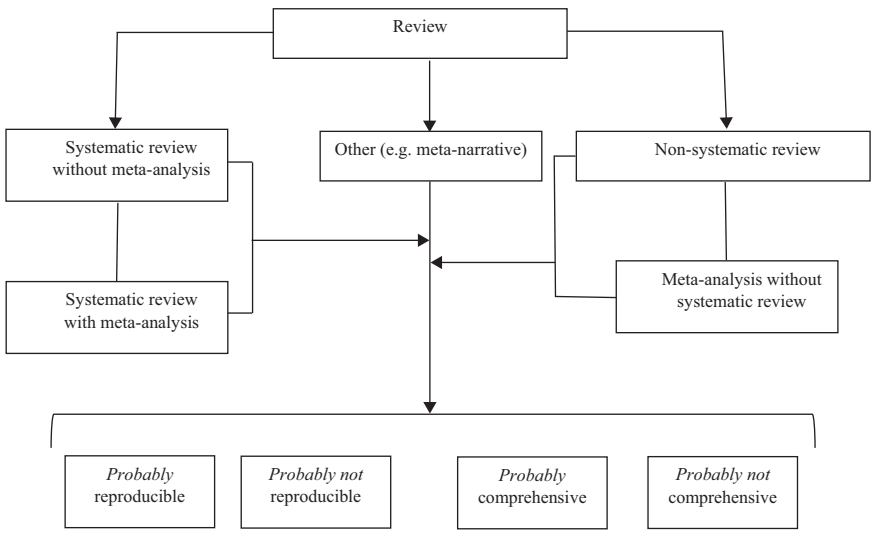

Fig. 3. Classification of types of reviews based on the comprehensiveness and reproducibility concepts.

which was the main focus of the present work. In fact, our study included systematic reviews with different purposes [34], although most of the overviews were related to quantitative evidence. For reviews that involve more qualitative evidence, such as those related to the patient experience of proposed diagnostic tests or therapies [34,35], it is likely more difficult to apply stricter systematic review definitions, including those based on reproducibility.

Some overviews have reported that the types of studies that were included were "systematic reviews or meta-analyses." Although this wording might suggest that a meta-analysis without a systematic review was also an inclusion criterion, it raises doubts about whether a systematic review is a requirement for performing a meta-analysis. Hence, we suggest a further clarification of the eligibility criteria for the reader (i.e., clearly reporting whether the meta-analysis that was included was supported by a systematic review). By conducting a meta-analysis without a systematic review, authors may increase the likelihood of producing potentially biased estimates due to the risk of publication bias [36,37].

The present classification suggests the use of the terms "probably reproducible" and "probably comprehensive." As reported previously, claiming reproducibility/comprehensiveness would require testing for every review, which was not the purpose of the present study. Furthermore, it seems challenging to think that every published review will be tested by an independent group. However, published data support the concept of performing comprehensive searches to either avoid or minimize publication bias [15,38,39]. Regarding reproducibility, the point of discussion should not be whether reproducibility is a requirement for methodological quality; rather, it should be a requirement for transparency and trust in research. Hence, reproducibility should be the final aim of a systematic review.

Our findings showed great variability regarding the thresholds used by overview authors to define a systematic review. For example, some set a minimum number of searched databases for defining a systematic review. However, these thresholds can leave important literature out of the assessment. For instance, if overview authors define a systematic review as one that performed the search in at least two databases, they may leave out reviews that performed the search in only one database yet theoretically have a higher methodological quality than the reviews that searched two databases. Hence, our proposed concept would allow more flexibility in the initial inclusion of reviews in the overview. More in-depth evaluation of the reviews would then be performed with methodological tools that consider the concepts of comprehensiveness and reproducibility.

4.4. Study limitations

This study has some limitations regarding data collection. The search included only one major database and was limited to a 6-month interval. Although this timeframe was limited, the search included the most recent overviews and protocols of overviews, which captured the most recent advancements in overview methodology. Furthermore, it was outside the scope of this article to evaluate the methodological quality [22] of the systematic reviews included in the overviews. Only with a comprehensive evaluation can we confirm whether the reviews included in the overviews are systematic. As reported previously, some evidence [5] suggests that reviews that are labeled systematic have heterogeneous methodologies, and this heterogeneity might be influenced by methodological thresholds that are used to define reviews as systematic. It is thus realistic to consider that the present sample of overviews is at risk of including reviews with large methodological variability, which may raise serious questions regarding the systematic component of these reviews.

5. Conclusions

Overview authors rarely define systematic reviews that are included in their overviews and the few that do include a definition to provide heterogeneous criteria. One can argue that some of the reviews included in these overviews have not achieved the minimum methodological standard to be labeled systematic. The Oxford dictionary defines the term "systematic" as "done or acting according to a fixed plan or system; methodical" [40], and Merriam Webster defines it as "methodical in procedure or plan" [41]. Therefore, the root of the word systematic might partially represent the expectations of a systematic review that is developed with high standards. By strictly following these definitions, a review could be considered systematic only when either one or a few pivotal systematic review steps (search, selection or data extraction, etc.) have been "systematically" performed. Therefore, the classification that is proposed in this article may fill this taxonomic gap and serve as a complement for systematic review definitions. In addition, it may more accurately reflect the methodological robustness of the systematic reviews that are published in the medical literature.

Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jclinepi.2019.01.004.

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