

Designing, planning, and conducting systematic reviews and other knowledge syntheses: Six key practical recommendations to improve feasibility and efficiency

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ABSTRACT

Background: Knowledge syntheses, such as systematic reviews, scoping reviews and realist reviews, are crucial tools to guide nursing practice, policy and research. However, conducting high-quality knowledge syntheses is a complex and time-consuming endeavour. It is imperative for nursing students, clinicians and researchers to be aware of key practical recommendations regarding the conduct of knowledge syntheses to improve the feasibility and efficiency of such projects.

Aim: The aim of this paper is to discuss key practical recommendations for designing, planning and conducting knowledge syntheses relevant to nursing policy, practice and research.

Methods: The recommendations discussed are based on best-practice guidance about knowledge synthesis methodology proposed by The Campbell Collaboration (2020), Cochrane (2019) and the Joanna Briggs Institute (2020), and on strategies used by the authors to improve the feasibility and efficiency of knowledge syntheses.

Results: This paper highlights six key practical recommendations that nursing students, clinicians and researchers should take into account when deciding to embark on a knowledge synthesis project: 1) determining if (and why) knowledge synthesis should be conducted; 2) selecting the appropriate type of knowledge synthesis, as well as the associated methodological guidance and reporting standards; 3) developing a search strategy that balances sensitivity and specificity; 4) writing a protocol and obtaining feedback; 5) determining the resources required to conduct the different stages of the knowledge synthesis; and 6) keeping an audit trail. Fifteen common types of knowledge synthesis are presented with their definitions, relevant methodological guidance and reporting standards.

Linking Evidence to Action: The recommendations discussed, used in conjunction with appropriate methodological guidelines, may help ensure the success of a knowledge synthesis project by providing best-practice and experience-based guidance to newcomers in the field.

Keywords: knowledge synthesis, evidence-based practice, evidence-informed practice, systematic reviews, scoping reviews, evidence synthesis

BACKGROUND

Properly conducted knowledge syntheses are essential to guide nursing policy, practice and research (Higgins et al., 2019; Jordan et al., 2018; Tricco et al., 2011). Knowledge syntheses aim to answer a specific research question based on a systematic and rigorous process of identifying and synthesizing the literature within the context of global evidence. These projects are particularly useful for identifying gaps in the literature and orienting future research (Stern et al., 2018). Knowledge syntheses can also provide the evidence base for knowledge translation tools, such as policy briefs, patient decision aids, and care pathways (Graham et al., 2006). Multiple types of knowledge syntheses and associated methodologies have emerged. These include, but are not limited to, systematic reviews, scoping reviews, rapid reviews, realist reviews, and integrative reviews (Moher et al., 2015; Straus et al., 2016; Tricco et al., 2016).

Granting agencies often require that justification for the need to conduct primary studies, such as randomized controlled trials, be based on knowledge syntheses (Canadian Institutes of Health Research, 2020; National Institutes of Health, 2021). In addition, many universities require students to complete knowledge syntheses as part of their graduate studies (ten Ham-Baloyi & Jordan, 2016). While researchers and students can generally interpret the findings of knowledge syntheses, many are less familiar with their methodology and how to lead efficiently

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3 45 these projects. Conducting a knowledge synthesis can represent a complex, resource-intensive,
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5 46 and lengthy endeavour, especially for newcomers in this field. Previous papers have focused on
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7 47 specific methodological recommendations for conducting and reporting knowledge syntheses,
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9 48 like selecting the appropriate type of meta-analysis to summarize intervention effects on a
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11 49 specific outcome (Mahood et al., 2014; Siddaway et al., 2019; Stern & Jordan, 2014; Tufanaru et
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13 50 al., 2015). Yet, less attention has been given to the practical recommendations arising when
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15 51 designing, planning, and conducting knowledge syntheses. By practical recommendations, we
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17 52 refer to ways of addressing potential issues that could affect the feasibility (i.e., the ability to
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19 53 complete all steps) and efficiency (i.e., the speed and ease to complete each step) of knowledge
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21 54 syntheses (Horsley, 2019; Siddaway et al., 2019).

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27 55 The purpose of this paper is to discuss key practical recommendations for designing,
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29 56 planning and conducting knowledge syntheses in nursing and health sciences. We contend that
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31 57 being aware of these practical recommendations may improve their feasibility and efficiency of
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33 58 such projects.

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37 59 **METHODS**

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40 60 Best-practice guidance proposed by The Campbell Collaboration (The Campbell Collaboration,
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42 61 2020), Cochrane (Higgins et al., 2019) and the Joanna Briggs Institute (JBI) (Joanna Briggs
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44 62 Institute, 2017; Stern et al., 2018) was explored to identify key practical recommendations to
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46 63 improve the feasibility and efficiency of knowledge syntheses. These were complemented by
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48 64 strategies used to this effect by the authors who collectively have a broad experience in
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50 65 knowledge synthesis. Authors have more experience in quantitative and mixed knowledge
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52 66 synthesis methods, which may color the discourse and recommendations in this paper.

DISCUSSION

Recommendation #1: Determining why (and if) a knowledge synthesis should be conducted and formulating one or more review question(s)

As with any other research project, students, clinicians, and researchers (hereafter ‘reviewers’) first need to determine why (and if) a knowledge synthesis should be conducted. The primary motivation to conduct a knowledge synthesis is to provide a comprehensive, up-to-date, unbiased “summary of the state of research knowledge on an intervention, diagnostic test, prognostic factor or other health or healthcare topic” (Higgins et al., 2019, p. 3) to inform policy, practice or research. Reviewers should thus justify the need for a knowledge synthesis based on the lack of comprehensive, up-to-date, unbiased knowledge on the intervention, diagnostic test, prognostic factor or topic under study (Higgins et al., 2019; Joanna Briggs Institute, 2017).

Chronologically, reviewers should first **explore the literature in the field of interest**. Conducting a preliminary investigation of the literature is crucial to determine if studies are available on the topic of interest (Joanna Briggs Institute, 2017). If this preliminary search indicates that there are potentially very few or no studies available on the topic of interest, it might be better to work on a different project rather than conducting a knowledge synthesis.

Exploring the literature in the field of interest should lead to one or a few **preliminary review questions**. These questions, in turn, will guide more **in-depth research and analysis of the literature** in the field of interest to ultimately **identify the knowledge gap**. Importantly, in addition to exploring primary research papers and abstracts, reviewers should search major electronic databases to determine that there have been no recently published knowledge syntheses or protocols on the same topic. Reviewers should also search the International

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89 Prospective Register of Systematic Reviews (PROSPERO) to determine if there is an ongoing
90 knowledge synthesis on the topic of interest. If a recently published knowledge synthesis, or
91 protocol, already exists on the topic, reviewers should think carefully about embarking on a new
92 project to reduce research duplication and waste (Joanna Briggs Institute, 2017). However,
93 important reasons may warrant an additional knowledge synthesis even if one has recently been
94 published or is ongoing (Siddaway et al., 2019). Reviewers should consider the following
95 questions (Forshaw et al., 2018; Higgins et al., 2019; Joanna Briggs Institute, 2017):

- 96 • Is the last update of the identified knowledge synthesis more than three years old?
- 97 • Are there conflicting results or ambiguities in the findings of previous knowledge
98 syntheses?
- 99 • Are there flaws or areas for improvement regarding the methods used for searching,
100 selecting, critical appraisal or synthesis?
- 101 • Is there a specific gap in terms of population, intervention, comparator, outcome, study
102 type or paper type that has not been addressed?

103 After having identified the knowledge gap regarding the topic of interest, one or more
104 **clear review question(s) should be formulated** with input from people with relevant and
105 complementary perspectives (Higgins et al., 2019). Seeking guidance from senior reviewers and
106 experts in the field may help in formulating focused and scientifically relevant review questions.
107 Reviewers can use the Feasible, Interesting, Novel, Ethical and Relevant (FINER) criteria to
108 guide the formulation of the review question (Hulley et al., 2007). Reviewers should also
109 consider who will be the target audience of the knowledge synthesis (Tricco et al., 2011).

110 **Recommendation #2: Selecting the appropriate type of knowledge synthesis**

111 When the need for a knowledge synthesis has been established and the review question(s) have
112 been defined, reviewers face the task of choosing the most appropriate type of knowledge
113 synthesis. There is often a misconception that reviewers should strive to conduct systematic
114 reviews incorporating meta-analytical methods, since they are often considered as the highest
115 levels of evidence (Stegenga, 2011). Meta-analyses can provide answers to a restricted set of
116 questions about the quantitative efficacy of an intervention on a specific outcome. Yet, various
117 types of knowledge syntheses can answer different types of questions and reflect a wide range of
118 epistemological stances. For example, critical realists may opt to conduct a realist review, while
119 constructivists might be more inclined to conduct a meta-synthesis.

120 In **Table S1**, we present 15 common types of knowledge synthesis, with their definitions,
121 relevant methodological guidance and reporting standards. This table is a useful tool to choose a
122 type of knowledge synthesis that aligns with the review question or objective.

123 Organizations like Cochrane, the JBI and the Realist And Meta-narrative Evidence
124 Syntheses: Evolving Standards (RAMESES) projects have developed guidance and offer online
125 classes to present the aims and main methodological elements of different types of knowledge
126 syntheses (Cochrane, 2019; Greenhalgh et al., 2021; Joanna Briggs Institute, 2018). From our
127 experience, following the methodological guidance not only increases the rigor of the process but
128 also improves efficiency.

129 **Recommendation #3: Developing a search strategy that balances sensitivity and specificity**

130 Reviewers should ask for the assistance of a trained librarian to develop the search strategy.
131 Librarians are experts at developing comprehensive search strategies, identifying appropriate

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3 132 sources, and retrieving potentially relevant references. Reviewers may be asked to provide
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5 133 examples of articles that the search strategy should be able to locate, as well as relevant
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7 134 keywords and descriptors (e.g., Medical Subject Headings [MeSH] terms, Thesaurus of
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9 135 Psychological Index Terms). Developing a rigorous search strategy is a lengthy and iterative
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11 136 process. From our experience, several strategies need to be tested to find the optimal
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14 137 combination of keywords and descriptors which will be included in the final search strategy.

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17 138 As presented in **Figure 1**, reviewers need to develop a search strategy that balances
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19 139 sensitivity and specificity. Sensitivity can be defined as the proportion of all relevant studies on
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21 140 the topic of interest that are retrieved. Specificity can be defined as the proportion of non-
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23 141 relevant studies on the topic of interest that are not retrieved (Montori et al., 2005). To increase
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25 142 specificity, reviewers can circumscribe the terms used in the search strategy regarding the
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27 143 population of interest, the context of the studies, the concept(s)/intervention(s), the outcome
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29 144 measures (if applicable), and the types of literature or study designs under consideration. To
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31 145 increase sensitivity, reviewers can expand on the same factors in the search strategy (e.g.,
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33 146 including additional keywords with OR as a Boolean operator). Generally, reviewers should
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35 147 strive to build a search strategy that achieves a good balance between sensitivity and specificity.

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39 148 [Insert Figure 1]

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44 149 **Recommendation #4: Writing a protocol and obtaining feedback**

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47 150 Writing a detailed protocol describing the review rationale, questions, methods, and analyses is
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49 151 extremely helpful to avoid problems down the line and streamline the review process. Failure to
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51 152 focus on details such as a sufficiently specific review question or methods may lead to
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54 153 difficulties in later review steps. For example, reviewers may end up with studies that are too

heterogenous in terms of population or outcomes to produce meaningful results. Seeking feedback from knowledgeable peers is critical and will enhance the likelihood of a high-quality review (Forshaw et al., 2018; Stern et al., 2018; ten Ham-Baloyi & Jordan, 2016).

To help write a review protocol more effectively, some organizations like the Cochrane Effective Practice and Organization of Care (EPOC) Group offer templates. The Cochrane EPOC Group has developed a protocol template for intervention reviews and a protocol template for qualitative evidence syntheses (Cochrane Effective Practice and Organisation of Care (EPOC), 2022). Exploring the methodological guidance available for a particular review type is helpful in writing the review protocol (Table S1).

For some types of knowledge syntheses, reviewers can prospectively register their protocol before beginning data extraction in online repositories (such as PROSPERO, FigShare and institutional repositories). This is considered best practice to ensure the transparency of the research process (Abuabara et al., 2019). However, publishing the protocol in a peer-reviewed journal is optional and should be considered for its pros and cons (Allers et al., 2018). The publication process of a knowledge synthesis protocol provides insights from external peers regarding the relevance and the scientific integrity of the proposed work. This may improve and refine the knowledge synthesis rationale and methods. Furthermore, the publication of a protocol may highlight the knowledge gap, showcase how a team is currently working to address it, as well as minimize duplication and research waste.

Publishing a protocol may be particularly interesting in less formalized fields of research, where reviewers can define the conceptual boundaries of a problem or topic. For students, this may serve as a first experience in publishing and help them familiarize with the publication

process. However, reviewers should be aware of the time required to publish the protocol (in our experience, from four weeks to almost a year from initial submission), the usual duration of peer review (about six to eight weeks per review round, but could be longer depending on the journal), and the possibility that peer reviewers suggest extensive changes to the protocol.

Recommendation #5: Determining the resources required to conduct the different stages of the knowledge synthesis

The time to complete a knowledge synthesis will depend on the nature of the knowledge synthesis, the methodology utilized, the number of records to screen, the number of studies to extract, and the composition and experience of the project team. Each knowledge synthesis our team has conducted took between 4 and 18 months to complete, from the initial designing stage to the submission of results to a peer-reviewed journal. Our experience is in line with others' (Allers et al., 2018). Importantly, knowledge syntheses can quickly become outdated depending on how fast a research field is evolving. Although Cochrane recommends submitting findings in the year following the last search in bibliographical databases, some journals expect knowledge syntheses to be submitted for publication within three months of the last bibliographical search, which may force reviewers to update their search before submission (Horsley, 2019).

Knowledge syntheses are time and labor intensive and cannot be conducted solely by one student over a semester (Forshaw et al., 2018; Stern et al., 2018). Properly conducted knowledge syntheses based on Campbell, Cochrane, JBI guidelines or other methods are usually conducted by multi-author teams. Thus, the decision to conduct a knowledge synthesis should be based on the ability to form a dedicated team and the availability of sufficient resources (e.g., time) to

properly carry out the different steps of the project. The human, material and financial resources required to conduct properly a knowledge synthesis are presented in **Table 1**.

[Insert Table 1]

Our team has found it useful to conduct weekly, bi-weekly or monthly team meetings to report on the advancement of ongoing review steps, discuss the difficulties encountered, and plan and assign upcoming tasks. Building and updating a project management timeline, such as a Gantt Chart, can help reviewers in managing the workflow. Hereafter, we present the other resources to consider at the key stages of knowledge synthesis projects.

Screening stage

Screening entails examining identified articles against eligibility criteria to determine if they should be included in the knowledge synthesis. The time and resources needed for screening are greatly influenced by the number of unique records and the ease and speed in applying eligibility criteria. Eligibility criteria that can be applied solely by reading the article title or taking a quick look at the abstract will facilitate the screening process.

Reviewers should decide at the title and abstract screening stage if the application of eligibility criteria should be done in duplicate by two reviewers (more resource intensive but more likely that all relevant articles are included) or a single reviewer (less resource intensive but at the risk of excluding relevant articles and including irrelevant ones). This depends on the type of knowledge synthesis conducted; a single reviewer can be sufficient for rapid reviews, while two reviewers are necessary for systematic reviews (Higgins et al., 2021).

To perform reference selection, reviewers usually need to use knowledge synthesis software. To guide their choice of software, reviewers should inquire about the availability of

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219 such resources at their institution. For reviewers unexperienced in using knowledge synthesis
220 software, librarians often hold training sessions. Moreover, training modules can easily be found
221 for free online, such as on the Cochrane YouTube channel.

222 Pilot screening exercises can also be useful to streamline the screening process. After
223 beginning screening, we recommend that reviewers organize a meeting to discuss ambiguities in
224 the eligibility criteria. Operational definitions, examples of relevant articles, and a list of
225 borderline cases that are either considered for inclusion or have been excluded can be provided
226 to avoid such ambiguities.

227 ***Data extraction stage***

228 Data extraction involves extracting relevant information from included articles. The types of
229 articles included and the volume of data to extract are of great importance to consider when
230 planning the time and resources needed. Publications that are often lengthy (e.g, thesis) or
231 unstructured (e.g., opinion paper) complexify extraction. Their inclusion depends mostly on the
232 review question and type of knowledge synthesis; their exclusion can be hardly methodologically
233 defensible for some types of knowledge synthesis (e.g., scoping review).

234 Each additional data item increases the time needed for extraction. Data unrelated to the
235 review questions extracted solely for descriptive purposes should be kept to a minimum.
236 Accurate data extraction is critical to ensure the validity of findings; reviewers should consider if
237 it will be performed by a single author or in duplicate by consulting the chosen methodological
238 guidelines. Reviewers should first consider using or adjusting an existing data extraction form,
239 such as those provided by some Cochrane Groups (Cochrane Effective Practice and Organisation
240 of Care (EPOC), 2017). If reviewers prefer to design and use an original data extraction form,

guidance has been provided. Li et al. (2015) published a paper explaining in eight steps how to construct easy-to-use data forms to collect complete and unambiguous data that faithfully represent the source (e.g., assembling and grouping data items, identifying the optimal way of framing the data abstraction item). Data items to be extracted should be specified in the review protocol and be represented in the extraction form. Piloting the data extraction process can help greatly in improving the clarity of data extraction.

Reviewers should extract data items the way they plan to use them during data analysis or present them in their findings. For example, if reviewers plan to analyze and present research designs according to predetermined categories, then it will be more efficient to extract data in the same way. Narrative data extraction should be kept to a minimum and only in the case where reviewers plan to use inductive data analysis methods or to present their findings narratively.

Data synthesis stage

Data synthesis involves summarizing data through various methods, depending on the type of knowledge synthesis. The more precisely the data synthesis methods are defined at the protocol stage, the more efficient it will be to conduct the data synthesis stage of the knowledge synthesis. If reviewers plan to determine the methods of synthesis only after data extraction (which can sometimes be favored, such as in some types of meta-synthese or in realist reviews), they should consider the time that will have to be allocated to this step in terms of synthesis attempts.

If a meta-analysis is planned, the assistance of a biostatistician is advised. Reviewers should also familiarize themselves with statistical analysis software (e.g., RevMan, SPSS). The knowledge of basic statistical concepts (e.g., central tendency measures, statistical dispersion measures) is essential before undertaking a meta-analysis.

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Risk of bias or quality assessment

Assessing the risk of bias or the quality of evidence in a knowledge synthesis is often as important as analyzing the data within. It is important that the appropriate guidelines be followed and used appropriately. Cochrane has different types of tools to assess risk of bias for different types of studies (Cochrane, 2022); the Cochrane Risk of Bias (RoB) 2 Tool for Randomized Controlled Trials; the Cochrane RoB 2 Tool for Cluster Randomized Trials and the Risk Of Bias In Non-Randomized Studies of Interventions (ROBINS-I) tool. In addition, the JBI provides checklists for the appraisal and assessment of most types of studies (Joanna Briggs Institute, 2022). Furthermore, Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklists are often used to measure the quality of cohort, case-control and cross-sectional studies (STROBE, 2022). Using these tools is no simple endeavour and appropriate training should be obtained prior to performing the risk of bias assessment.

Recommendation #6: Keeping an audit trail

Data management is critical in any knowledge synthesis to ensure replicability and rigor. Keeping an audit trail of the changes made to the protocol after the start of the review, the rationale behind these changes, and specific elements inherent to each stage of the knowledge synthesis is strongly suggested (**Table 2**).

[Insert Table 2]

We strongly recommend that reviewers keep up-to-date backups of reference libraries, data extraction and analysis files, manuscript versions, search strategies, and project meeting minutes. Depending on the type of knowledge synthesis, referring to its reporting standards may assist reviewers in planning their audit trail (**Table S1**).

285 Linking Evidence to Action

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| <ul style="list-style-type: none">• As knowledge syntheses become more sophisticated and refined, it is critical to be aware of practical recommendations that might make or break such projects. |
| <ul style="list-style-type: none">• Six key practical recommendations should be considered when deciding to embark on a knowledge synthesis project. |
| <ul style="list-style-type: none">• These recommendations should be complemented by the methodological guidelines provided by organizations such as the JBI and Cochrane. |
| <ul style="list-style-type: none">• Choosing wisely the type of knowledge synthesis is key; this paper includes an overview of 15 common types of knowledge syntheses, accompanied by their methodological guidance and reporting standards. |
| <ul style="list-style-type: none">• Reviewers who are unfamiliar with certain types of knowledge synthesis should partner with more experienced researchers and colleagues in this field. |

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287 CONCLUSION

288 Nursing clinicians, students and researchers are conducting an increasing number of knowledge
289 syntheses to answer important questions related to health and healthcare. We presented six key
290 practical recommendations for designing, planning and conducting of knowledge syntheses
291 based on best-practice guidance and on our own experiences. Designing and planning carefully
292 knowledge synthesis projects is the key to success. Efforts dedicated to the preparation of the
293 project will save a lot of time and minimize potential hurdles further down the road.

294 Conflict of interest

295 No conflict of interest has been declared by the author(s).

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For Peer Review

394 SUPPORTING INFORMATION

395 Table S1. Common knowledge synthesis types, definitions, methodological guidance and
396 reporting standards.

397

For Peer Review

Table 1.—Human, material and financial resources to consider while planning a knowledge synthesis.

Elements to consider	Justification
<i>Human resources</i>	
Team of reviewers	To validate the conceptual and methodological choices made while also assisting in the different steps of conducting the knowledge synthesis. Someone who has already conducted a knowledge synthesis should preferably be among the team.
Librarian	To collaboratively draft the search strategy and to help conduct the search in electronic bibliographical databases.
Research assistant(s)	To perform the reference selection, data extraction and synthesis, and to draft the results.
Biostatistician	To perform or to supervise the quantitative data analyses if applicable.
<i>Material resources</i>	
Reference management software/Systematic review software	To perform study selection and data extraction (e.g., Covidence, DistillerSR, EPPI-Reviewer, Rayyan, EndNote, JBI Summary).
Statistical analysis software	To perform quantitative data analyses if applicable (e.g., SPSS, RevMan, Excel, SAS, R).
Qualitative data analysis software	To perform qualitative data analyses, if applicable (e.g., QDA Miner, NVivo).
Mixed-methods data analysis software	To perform mixed-methods data analyses, if applicable (e.g., MaxQDA).
Data sharing software	To facilitate the collaboration between team members (e.g., Dropbox, OneDrive).
Online meeting software	To organize meetings between team members (e.g., Zoom, Microsoft Teams).
Word processor	To write all documents in relation to the project (e.g., Microsoft Word, Pages)
<i>Financial resources</i>	
Open-access fees	To publish the protocol or the results article in an open-access journal.
Salary of research assistants	If the team deems it relevant to hire research assistants to perform some steps of the project.
Fees to obtain documents not directly accessible to the review team	If documents are not directly available to the team, fees can be required to access the missing documents or to transfer them to the research institution.
Translation or language editing	To translate screened articles published in languages not understood by reviewers, or to translate and edit the article in the language of the selected journal.
Graphic design	To create figures.
Knowledge translation	To conduct knowledge translation activities with key stakeholders and knowledge users and present results in conferences.

Table 2. —Main elements to consign in the audit trail

Stage of the knowledge synthesis	Main elements to consign
<i>Searching references</i>	Electronic databases searched
	Journals and previous reviews hand-searched
	Date of literature search in each database
	Keywords and MeSH terms used
	Number of references found in each database, journals, previous reviews, and included articles
	Authors that were contacted for additional references
	Number of references left after the removal of duplicates
<i>Screening stage</i>	Number of references left after 1) the screening of titles and abstracts and; 2) the full-text assessment stage
	Detailed reasons of exclusion for each reference at the full-text assessment stage
	Measure of interrater agreement used (if applicable, e.g., Kappa statistics)
	All requests for documents not directly available
<i>Data extraction stage</i>	Data extraction files
	Measure of interrater agreement used and for what data item (if applicable, e.g., Kappa statistics)
	Authors that were contacted for data validation or regarding missing data (as well as who responded)
<i>Data synthesis stage</i>	Number of articles included in the different syntheses conducted (e.g., qualitative synthesis, quantitative synthesis)
<i>Risk of bias or quality assessment</i>	Measure of interrater agreement used (if applicable)

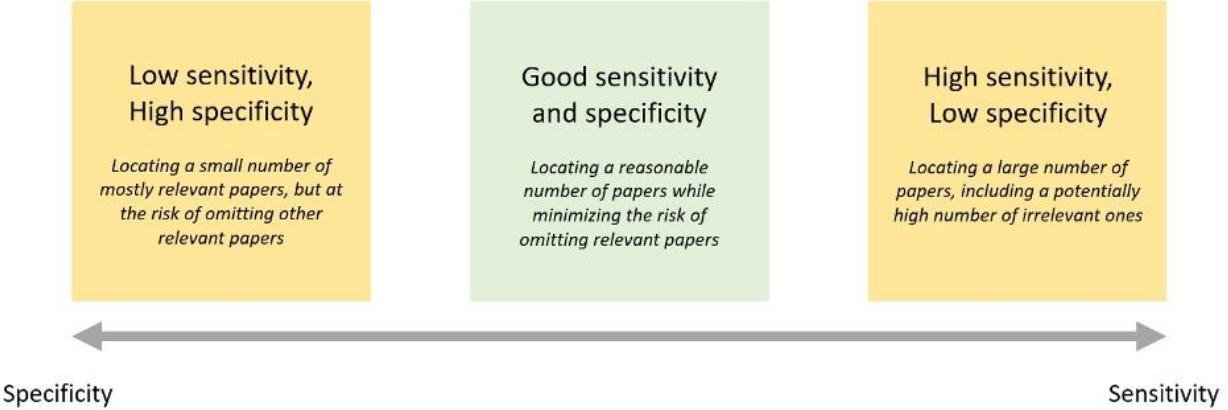


Figure 1. Balance between specificity and sensitivity in the search strategy.

Table S1*Common Knowledge Synthesis Types, Definitions, Methodological Guidance, and Reporting Standards*

KNOWLEDGE SYNTHESIS TYPES AND DEFINITIONS	EXAMPLE OF QUESTION OR OBJECTIVE	METHODOLOGICAL GUIDANCE	REPORTING STANDARDS
NARRATIVE REVIEW Narrative reviews “attempt to identify what has been written on a subject or topic. [...] Narrative reviews are usually selective in that they do not involve a systematic and comprehensive search of all of the relevant literature. [...] they survey only that literature and evidence that are readily available to the researchers.” (Paré et al., 2015, p. 185)	“Summarize the self-management strategies used by young adults (18–39 years of age) who have undergone hematopoietic stem cell transplantation as a treatment for leukemia or lymphoma.” (Vinette et al., 2021, p. 470)	<ul style="list-style-type: none"> • Booth et al. (2016) • Dijkers (2009) • Gregory and Denniss (2018) 	<ul style="list-style-type: none"> • None at time of publication
INTEGRATIVE REVIEW Integrative reviews “summarize past empirical or theoretical literature to provide a more comprehensive understanding of a particular phenomenon or healthcare problem.” (Whittemore & Knafl, 2005, p. 546)	“To describe the underlying discourse in the literature on the “good death” in Western societies.” (Cottrel and Duggleby, 2016, p. 686)	<ul style="list-style-type: none"> • Toronto and Remington (2020) • Torraco (2016) • Whittemore and Knafl (2005) 	<ul style="list-style-type: none"> • None at time of publication
SCOPING REVIEW Scoping reviews “can be used to map the key concepts that underpin a field of research, as well as to clarify working definitions, and/or the conceptual boundaries of a topic.” (Peters et al., 2020)	“Map features that promote fidelity and authenticity in simulation-based health professional education.” (Lavoie et al., 2020, p. 24)	<ul style="list-style-type: none"> • Arksey and O'Malley (2005) • Levac et al. (2010) • Peters et al. (2020) 	<ul style="list-style-type: none"> • PRISMA for scoping reviews (PRISMA-ScR) (Tricco et al., 2018)
QUALITATIVE META-SYNTHESIS Qualitative meta-syntheses aim to integrate and interpret the findings of qualitative studies to provide a new perspective on a complex phenomenon (Hannes & Lockwood, 2012).	“What do health practitioners perceive enhances their readiness to address domestic violence and abuse?” (Hegarty et al., 2020, p. 3)	<ul style="list-style-type: none"> • Hannes and Lockwood (2012) 	<ul style="list-style-type: none"> • Enhancing transparency in reporting the synthesis of qualitative research (ENTREQ) (Tong et al., 2012)
DESCRIPTIVE REVIEW Descriptive reviews “seek to determine the extent to which a body of empirical studies in a specific research area supports or reveals any interpretable patterns or trends with respect to pre-existing propositions, theories, methodologies or findings.” (Paré et al., 2015, p. 186)	“What is the content of behavior change counseling training programs assessed with nurses and nursing students?” (Fontaine et al., 2019, p. 38)	<ul style="list-style-type: none"> • None at time of publication 	<ul style="list-style-type: none"> • None at time of publication

<p>SYSTEMATIC REVIEW OF EFFECTIVENESS</p> <p>Systematic reviews of effectiveness “examine the extent to which an intervention, when used appropriately, achieves the intended effect.” (Tufunaru et al., 2020). Systematic reviews of effectiveness can be accompanied by a meta-analysis or network meta-analysis:</p> <ul style="list-style-type: none"> • Meta-analyses “yield an overall statistic (together with its confidence interval) that summarizes the effectiveness of an experimental intervention compared with a comparator intervention.” (Deeks et al., 2021) • Network meta-analyses “combines direct and indirect estimates across a network of interventions in a single analysis. [...] It consists of nodes representing the interventions in the network and lines showing the available direct comparisons between pairs of interventions.” (Chaimani et al., 2021) 	<p>“What is the effect of inspiratory muscle training versus no specific training on dyspnea and functional ability?” (Tufunaru et al., 2020)</p>	<ul style="list-style-type: none"> • Higgins et al. (2021) • Tufunaru et al. (2020) 	<ul style="list-style-type: none"> • Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 (Page et al., 2021) • PRISMA for Protocols (PRISMA-P) 2015 (Moher et al., 2015) • PRISMA Search extension (PRISMA-S) (Rethlefsen et al., 2021) • PRISMA for Network Meta-Analyses (Hutton et al., 2015)
<p>SYSTEMATIC REVIEW OF DIAGNOSTIC TEST ACCURACY</p> <p>Systematic reviews of diagnostic test accuracy “synthesize data from primary studies to provide insight into the ability of medical tests to detect a target condition; they also can provide estimates of test performance, allow comparisons of the accuracy of different tests, and facilitate the identification of sources of variability.” (McInnes et al., 2018, p. 389). They can be accompanied by a meta-analysis.</p>	<p>“In children and young people under 16 years of age with a petechial rash, can non-specific laboratory tests (C-reactive protein, white blood cell count, blood gases) help to confirm or refute the diagnosis of meningococcal disease?” (National Institute for Health and Care Excellence, 2012)</p>	<ul style="list-style-type: none"> • Cochrane (2013) • Campbell et al. (2020) 	<ul style="list-style-type: none"> • PRISMA for Diagnostic Test Accuracy (PRISMA-DTA) (McInnes et al., 2018) • Standards for Reporting Diagnostic Accuracy (STARD) 2015 (Bossuyt et al., 2015) • Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) (Whiting et al., 2011)
<p>SYSTEMATIC REVIEW OF PROGNOSTIC</p> <p>Systematic reviews of prognostic “determine the overall prognosis for a condition, the link between specific prognostic factors and an outcome and/or prognostic/prediction models and prognostic tests.” (Munn et al., 2018). They can be accompanied by a meta-analysis.</p>	<p>“Are there factors related to the individual (characteristics either of the individual or of the act of self-harm) that predict outcome (including suicide, non-fatal repetition, other psychosocial outcomes)?” (National Institute for Health and Care Excellence, 2012)</p>	<ul style="list-style-type: none"> • Moons et al. (2018) • Riley et al. (2019) 	<ul style="list-style-type: none"> • None at time of publication
<p>SYSTEMATIC REVIEW OF PREVALENCE AND INCIDENCE</p> <p>Systematic reviews of prevalence and incidence “describe the geographical distribution of a variable, variation between subgroups and informing health care planning and resource allocation. Pooling of such data is necessary to monitor trends in disease burden and emergence and to contribute to the design of</p>	<p>“The objective of this review is to assess the prevalence and incidence of perinatal depression among women in Australia.” (Munn et al., 2020)</p>	<ul style="list-style-type: none"> • Munn et al. (2015) • Munn et al. (2020) 	<ul style="list-style-type: none"> • Joanna Briggs Institute (2017) • Migliavaca et al. (2020)

further etiological studies.” (Munn et al., 2020) They can be accompanied by a meta-analysis.

SYSTEMATIC PSYCHOMETRIC REVIEW

Systematic psychometric reviews “provide a comprehensive overview of the measurement properties of patient-reported outcome measures and supports evidence-based recommendations in the selection of the most suitable patient-reported outcome measures for a given purpose (i.e., research or clinical practice, or discriminative, evaluative or predictive applications).” (Prinsen et al., 2018, p. 1148). They can be accompanied by a meta-analysis.

“Analyse, evaluate, and synthesize the measurement properties of scales used to assess new graduate nurses' clinical competence in clinical settings.” (Charette et al., 2020, p. 2)

- COSMIN (2021)
- Prinsen et al. (2018)
- Stephenson et al. (2020)

- COSMIN reporting guideline for studies on measurement properties of patient reported outcome measures (Gagnier et al., 2021)

UMBRELLA REVIEW

Umbrella reviews “use explicit and systematic methods to search for and identify multiple systematic reviews on related research questions in the same topic area for the purpose of extracting and analysing their results across important outcomes.” (Pollock et al., 2021). They can be accompanied by a meta-analysis.

“Summarize the qualitative and quantitative evidence that comes from systematic qualitative, quantitative, and mixed-studies reviews regarding the effects of e-learning on nursing care among nurses.” (Rouleau et al., 2019, p. 2)

- Aromataris et al. (2020)
- Ioannidis (2009)
- Pollock et al. (2021)
- Smith et al. (2011)

- Aromataris et al. (2015)
- Preferred Reporting Items for overviews of systematic reviews (PRIO) (Bougioukas et al., 2019; Bougioukas et al., 2018)

RAPID REVIEW

Rapid reviews are “a type of knowledge synthesis in which systematic review processes are accelerated and methods are streamlined to complete the review more quickly than is the case for typical systematic review.” (Tricco et al., 2017, p. 3). They can be accompanied by a meta-analysis.

“The psychological impact of pandemics/epidemics on the mental health of HCPs, what factors may protect or increase the risk of this impact and what evidence there is for prevention/intervention strategies to reduce this impact.” (Stuijzand et al., 2020, p. 2)

- Garrity et al. (2021)
- Dobbins (2017)
- Tricco et al. (2017)

- Tricco et al. (2017)
- PRISMA-RR (under development)

MIXED METHODS REVIEW

Mixed method reviews aim to “combine quantitative and qualitative data (from primary studies) or integrate quantitative evidence and qualitative evidence to create a breadth and depth of understanding that can confirm or dispute evidence and ultimately answer the review question/s posed.” (Lizarondo et al., 2020)

“What are the barriers and facilitators to self-management in adolescents with asthma?” (Lizarondo et al., 2020)

- Lizarondo et al. (2020)
- Hong et al. (2017)
- Pearson et al. (2015)
- Pluye et al. (2016)
- Stern et al. (2020)

- None at time of publication

REALIST REVIEW

Realist reviews are useful “for synthesizing research which has an explanatory rather than judgemental focus. [They seek] to unpack the mechanism of how complex programmes work (or why they fail) in particular contexts and settings.” (Pawson et al., 2005, p. 21)

“What are the outcomes in workplace Mindfulness-based programmes? (2) What are the mechanisms causing these outcomes? (3) What conditions (contexts) do these mechanisms become active?” (Micklitz et al., 2021, p.2)

- Pawson et al. (2005)
- Rycroft-Malone et al. (2012)

- Realist And Meta-narrative Evidence Syntheses: Evolving Standards (RAMESES) (Wong et al., 2013)

METHODOLOGICAL REVIEW

Methodological reviews aim to “examine and investigate current research methods and potentially their impact on research quality” (Munn et al., 2018, p. 3)

“Identify eligible reviews by type (e.g., realist reviews) and group reviews by methodological approach (e.g., mixed-methods reviews) and topic (e.g., health-related interventions and exploration of experiences).” (Tsang & Maden, 2021, p. 578)

- Clarke (2020)

- Guide to the contents of a Cochrane Methodology protocol and review (Clarke, 2020)

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- a. Meta-analysis and network meta-analysis are not knowledge synthesis methods, but rather statistical analysis methods. Nevertheless, they are included in the table since they are often associated with different types of systematic reviews.

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