8.4.1 MMSR questions that take a CONVERGENT INTEGRATED approach to synthesis and integration

MMSR questions that take a CONVERGENT INTEGRATED approach to synthesis and integration

If the review question(s) can be addressed by both quantitative and qualitative studies, an integrated approach to synthesis and integration is undertaken. In this approach quantitative and qualitative data are synthesized/combined together through data transformation.

Protocol development

Commonly a review following this approach comprises one review question and primarily lends itself to the PICo criteria, where P is the population of interest, I is the Phenomena of interest and Co is the Context. However, where a review question does not fit the PICo approach, reviewers may consider using a different framework (e.g. PICO) to structure their question. The guidance for protocol development provided in Chapter 2 (Systematic reviews of qualitative evidence) of this online reviewer’s manual can be followed however some additional considerations are needed for a MMSR and these are detailed below.

Title of a MMSR protocol

The title should be informative and give clear indication of the topic and population of the MMSR. Titles should not be phrased as questions and there should be congruency between the title, review question(s) and inclusion criteria. The title should always include the phrase “…: a mixed methods systematic review protocol” to allow easy identification of the type of document it represents. An example title may be:

Barriers and facilitators to asthma self-management in adolescents: a mixed methods systematic review protocol

Abstract

This section is a summary of the protocol in 300 words. The following headings should be included in the abstract - Objective, Introduction, Inclusion Criteria, Methods, Systematic review registration number (if applicable) and Keywords. The abstract should not contain abbreviations or references.

Introduction

As with all JBI systematic review protocols, the introduction to a MMSR should describe and situate the topic of interest under review. Definitions can assist to provide clarity. Explanation of how the review question can be answered by both quantitative and qualitative studies is required as is an explanation on how the review will add to the evidence base or inform clinical practice.

Additionally, a statement that a preliminary search of databases (with databases listed) has been undertaken and no existing or ongoing mixed method or individual systematic reviews on the topic have been identified should be provided. If other systematic reviews on the topic exist, indication on how the proposed systematic review will differ should be detailed. Finally, the introduction should conclude with an overarching review objective that captures and aligns with the core elements/mnemonic (i.e. PICo) of the inclusion criteria. The introduction should be of sufficient length to discuss all of the elements of the proposed plan for the review; usually all the relevant information may be provided in approximately 1000 words. This section should be written in simple prose for non-expert readers.

Review question(s)

Clarity in the review question(s) assists in developing a protocol and also ultimately, the conduct of the review. The review question(s) guide and direct the development of the specific review inclusion criteria and facilitate more effective searching, and provide a structure for the development of the full review. There should also be consistency between the review title and the review question(s). Typically for a MMSR that follows a convergent integrated approach to synthesis a broad review question is posed that can be addressed by both quantitative studies and qualitative studies. As such PICo should be used to develop the review question as well as the inclusion criteria. An example of a PICo question that may be posed by a MMSR is:

1. What are the barriers and facilitators to self-management in adolescents with asthma?
In the above example, adolescents with asthma (i.e. those managing their own asthma), healthcare professionals (i.e. those involved in supporting adolescents to self-manage their asthma) and policy makers (i.e. those that assist in deciding how asthma is managed at a population level) are the target audiences since the intention is to determine how adolescents with asthma can best manage their asthma.

Inclusion criteria

This section of the protocol details the basis on which studies will be considered for inclusion into the systematic review and should be as clear and unambiguous as possible. Inclusion criteria should be reasonable, sound and justified. These criteria will be used in the selection process, when it is decided if a study will be included or not in the review.

Population

There needs to be a clear and direct link between the review question, title and the participant characteristics in the inclusion criteria. This section should specify the details about the types of participants considered for the review. Consider what are the most important characteristics of the population? (e.g., age, disease/condition, severity of illness, setting, gender, ethnicity etc.).

For example:

This review will consider studies that include #describe population#

Phenomena of interest

A phenomenon of interest is the experience, event or process occurring that is under study. The level of detail ascribed to the phenomena may vary with the nature or complexity of the topic.

This review will consider studies that investigate #insert text#

Context

Context will vary depending on the question(s) of the review. Context may include, but is not limited to consideration of: cultural or sub-cultural factors, geographic location, specific racial or gender based interests, or detail about the specific setting (such as acute care, primary health care, or the community).

For example:

This review will consider studies that investigate #insert text#

Types of studies

This section should include the relevant information related to both quantitative and qualitative studies. The time frame chosen for the search should be justified and any language restrictions stated. For example:

This review will consider quantitative, qualitative and mixed methods studies. Quantitative studies will include #insert text#. Qualitative studies will include #insert text#. Mixed method studies will only be considered if data from the qualitative or quantitative components can be clearly extracted.

Studies published in #insert language(s)# will be included. Studies published from #database inception/or insert date# to the present will be included as #justify date range#

There should be a match in this section between the methodology of the primary research studies to be considered for the review and the review question.

Methods

Reference to the JBI methodology for MMSR should be provided. Additionally if the review title has been registered, the name of the registry (e.g. PROSPERO) and the registration number should be reported below the Methods heading. For example:

The proposed systematic review will be conducted in accordance with the JBI methodology for MMSR #insert a citation to the Chapter in the JBI Reviewer's Manual # Note: if the review title has been registered, report the name of the registry (e.g. PROSPERO) and the registration number.

Search strategy
This section of a review protocol should provide explicit and clear information regarding two different aspects of locating studies: all information sources that will be searched for the review, and the strategies used for searching. The aim of a systematic review is to identify all relevant studies, published or not, on a given topic. Searching should be based on the principle of comprehensiveness, with the widest reasonable collection of information sources that are considered appropriate to the review.

The databases to be searched must be listed, including the search platform used where necessary, along with a completed search strategy for one major database which should be presented as an Appendix.

This section is universal for example:

The search strategy will aim to locate both published and unpublished studies. An initial limited search of #MEDLINE and CINAHL change as appropriate# was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for #report the name of the relevant database# (see Appendix #). The search strategy, including all identified keywords and index terms will be adapted for each included information source. The reference list of all studies selected for critical appraisal will be screened for additional studies.

Information sources

This section is universal for example:

The databases to be searched include: #insert text#

The search for unpublished studies and gray literature will include: #insert text#

Study selection

This section should describe the process of reviewing the results of the search to see if they meet inclusion criteria and subsequently deciding which of the papers are to be retrieved.

This section is universal for example:

Following the search, all identified citations will be loaded into #insert the name of the bibliographic software or citation management system e.g. EndNote version/year (Clarivate Analytics, PA, USA)# and duplicates removed. Titles and abstracts will then be screened by two independent reviewers for assessment against the inclusion criteria for the review. Potentially relevant studies will be retrieved in full and their citation details imported into the Joanna Briggs Institute’s System for the Unified Management, Assessment and Review of Information (JBI SUMARI; Joanna Briggs Institute, Adelaide, Australia). The full text of selected citations will be assessed in detail against the inclusion criteria by two independent reviewers. Reasons for exclusion of full text studies that do not meet the inclusion criteria will be recorded and reported in the systematic review. Any disagreements that arise between the reviewers at each stage of the study selection process will be resolved through discussion, or with a third reviewer. The results of the search will be reported in full in the final review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram. #Insert reference to the PRISMA statement#

Assessment of methodological quality

This section should describe the critical appraisal process and instruments that will be used in the review process and the procedures for solving disagreements between reviewers.

Studies that are eligible for inclusion in the review must be assessed for methodological quality. The decision as to whether or not to include a study can be made based on meeting a pre-determined proportion of all criteria, or on certain criteria being met. It is also possible to weight certain criteria differently. Decisions about a scoring system or any cut-off for exclusion should be made in advance and agreed upon by all reviewers before critical appraisal commences.

All included studies need to be critically appraised using the standard JBI critical appraisal instruments (qualitative instrument available in Appendix 2.1 and quantitative instruments available in Appendices 3.1-3.4). For mixed methods studies the relevant JBI qualitative and quantitative tools can be used. The source of the JBI critical appraisal tool should be cited in the protocol.

The recommended set text should therefore include the relevant information related to both quantitative and qualitative studies, for example:

Quantitative studies (and quantitative component of mixed methods studies) selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using standardized critical appraisal instruments from JBI SUMARI. #Insert reference to appraisal tools#

Qualitative studies (and qualitative component of mixed methods studies) selected for retrieval will be assessed by two independent reviewers for methodological validity prior to inclusion in the review using the standardized critical appraisal instrument from JBI SUMARI (The Joanna Briggs Institute et al., 2017).
Authors of papers will be contacted to request missing or additional data for clarification, where required. Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer. The results of critical appraisal will be reported in narrative form and in a table.

Choose from one of the following two options:

- All studies, regardless of the results of their methodological quality, will undergo data extraction and synthesis (where possible). 
- Following critical appraisal, studies that do not meet a certain quality threshold will be excluded. This decision will be based on the decision rules.

**Data extraction**

This section of the review protocol should specify the data extraction process and instruments that will be used in the review process, as well as the procedures for solving disagreements between reviewers.

For a MMSR that follows a convergent integrated approach, this section should specify what information from the quantitative and qualitative studies will be considered as constituting the findings.

- Quantitative studies typically include descriptive, or analytic studies that provide information about magnitude and statistical significance.
  - For descriptive studies, the extracted data might comprise an average or a percentage that profiles the sample or members of it.
  - For analytic studies, where the study examines a relationship between variables, data extraction should include ALL relationships RELEVANT to the review question, that is, both significant and non-significant results. Variables/outcomes not reaching statistical significance are important to report, as they may validate or highlight inconsistencies in the literature when integrated and pooled with other quantitative or qualitative findings.

- Qualitative studies typically include descriptive, or analytic studies that provide information about magnitude and statistical significance.
  - For qualitative studies, themes or subthemes relevant to the review question are extracted and supported with illustrations (i.e. a direct quotation from a participant, an observation or other supporting data from the paper) to preserve the context of the findings. Each finding should then be assigned a level of credibility based on the congruency of the finding with supporting data.

There are three levels of credibility:

- Unequivocal - relates to evidence beyond reasonable doubt which may include conclusions that are matter of fact, directly reported/observed and not open to challenge.
- Credible - relates to those conclusions that are, albeit interpretations, plausible in light of the data and theoretical framework.
- Not Supported - is when the findings are not supported by the data.

*’Not Supported’ data are not included in the synthesis of data.*

Example text that can be reported in this section is as follows:

Quantitative and qualitative data will be extracted from studies included in the review by two independent reviewers using the standardized Joanna Briggs Institute data extraction tool in JBI SUMARI (tool provided at Appendix 8.1) #modify if other software or processes will be used for your review#. #Cite the tool to be used or append the data extraction tool if an existing tool has been modified or a new tool developed. Any modifications to existing tools should be described in the text#. The data extracted will include specific details about the populations, study methods, phenomena of interest, context and outcomes of relevance to the review question(s). Specifically, quantitative data will comprise of data-based outcomes of descriptive and/or inferential statistical tests. In addition, qualitative data will comprise of themes or subthemes with corresponding illustrations, and will be assigned a level of credibility.

Any disagreements that arise between the reviewers will be resolved through discussion, or with a third reviewer. Authors of papers will be contacted to request missing or additional data, where required.

**Data transformation**

Following extraction, quantitative data are then transformed into qualitized data. This section of the review protocol should describe how the extracted quantitative data are converted into qualitized data to facilitate integration with data extracted from qualitative studies (and qualitative component of mixed methods studies). For example:

The quantitative data will then be converted into ‘qualitized data’. This will involve transformation into textual descriptions or narrative interpretation of the quantitative results so as to respond directly to the review question.

**Data synthesis and integration**

This section should describe how the data will be combined and reported in the systematic review. For a MMSR that follows a convergent integrated approach this should include the relevant information related to how qualitized data and data from qualitative studies will be integrated, for example:
This review will follow a convergent integrated approach according to the JBI methodology for mixed methods systematic reviews using JBI SUMARI. #Insert a citation to the methodology#. This will involve assembling the qualitized data with the qualitative data. Assembled data are categorized and pooled together based on similarity in meaning to produce a set of integrated findings in the form of line of action statements.

Please note: Due to the complexities associated with recommendations being derived from both streams of evidence and the impact of data transformation and/or integration on the grading process, an assessment of the certainty of the evidence using either the GRADE or ConQual approach is currently not recommended for JBI MMSR following either the integrated or segregated approach and requires further investigation.

Conflicts of interest and acknowledgements

Details of requirements in these sections are described in Section 1.6 of this Manual.

Conflicts of interest

A statement which either declares the absence of any conflicts of interest or which describes a specified or potential conflict of interest should be made by the reviewers in this section.

Acknowledgements

Any acknowledgements should be made in this section e.g. sources of external funding or the contribution of colleagues or institutions. It should also be noted if the systematic review contributes towards a degree award.