Chapter 21. How to peer review a protocol and a review

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Key points:

- Peer review of protocols and reviews is essential for publishing reviews in the Cochrane and Campbell libraries
- Review authors are responsible for submitting a high quality manuscript that is ready for peer review
- Peer review is designed to further improve the standard of protocols and reviews
- Peer reviewing is a skilled, systematised, and voluntary activity that is expected of all review authors, methodologists and information specialists
- Stakeholders such as policy and decision-makers can provide reviews that assess and make suggestions to strengthen the value and relevance of the protocol or review report for decision-making
- Patients and the public with experience of the condition, intervention or topic under review can play an important role in the peer reviewing process

21.1 Introduction

This chapter provides authors and peer reviewers with practical guidance on how to peer review a manuscript that reports a qualitative evidence synthesis (QES) or mixed-methods review that includes a qualitative component. Even though QESs and mixed-methods reviews are relatively new within the evidence synthesis family their methods are supported by increasing numbers of resources, either specific to QESs or mixed-methods reviews, or informed by wider guidance within Cochrane and Campbell on preparing reviews of intervention effectiveness. A QES shares the general requirement for all systematic reviews to be based on a pre-developed and peer-reviewed protocol which

outlines the methods and processes to be used in the review. Such precautions build confidence in the review process and thus enhance the transparency and trustworthiness of the review findings.

The Cochrane Database of Systematic Reviews (CDSR) and the Campbell Systematic Reviews Journal are peer-reviewed publications. All Cochrane and Campbell QES and mixed-methods protocols and reviews are peer reviewed. Whilst peer review is important and ubiquitous, collective experience in, and standardisation of, the peer review process - specifically for QESs and mixed-method reviews that incorporate a qualitative component - remains in relatively short supply. Published guidance on how to peer review QESs and mixed-method reviews is scarce (Butler, Hall, and Copnell 2016). It is imperative that review authors and peer reviewers are familiar with peer review processes and know what to expect in order to extract the most from peer review. This chapter aims to fill this gap and raise standards in the peer review of QESs and mixed-method reviews that include a qualitative component. Chapter 20 provides guidance on how to report a protocol and review and is to be read in conjunction with this chapter.

The chapter begins by providing an overview of the purpose of peer review and outlines the role of peer reviewers. It then presents different types of peer review before taking an in-depth look at the typical processes involved in peer review. This comprehensive guide covers the entire process from nominating peer reviewers to the provision of peer review feedback and publication of peer reviewer reports post review publication. The chapter then moves to providing guidance on how to peer review and covers assessing: a QES protocol and review report; the choice and application of methods; methodological limitations; a qualitative component in a mixed methods review, and the search strategy. By learning how to peer review, peer reviewers will not only ensure that the findings and recommendations from QESs are based on trustworthy, high-quality evidence, but they will also sharpen their own skills enabling them to generate robust and relevant review outputs to better support decision-making. The chapter also includes consideration of the role of stakeholder engagement and involvement, equity, diversity and inclusion, and reflexivity in the peer review process.

21.2. The purpose of peer review and the role of peer reviewers

Peer review of systematic review protocols is important as the feedback can be used to further improve the methods, conduct and overall quality of the subsequent review. Peer review of the systematic review report is also critical to improving the conduct and reporting of all types of systematic reviews, including QESs and mixed-method syntheses with a qualitative component (Moher 2015).

Peer review requires submitting a protocol or review to the scrutiny of other people (peer reviewers) not associated with producing the work. Peer review serves multiple purposes. First, it acts as a filter to ensure that only high quality protocols and reviews proceed to publication. Second, peer review is intended to improve the quality of protocols and reviews through a process of feedback and further development by the review authors.

The main role of the peer reviewer is to provide an objective assessment of the strengths and limitations of the protocol or review. A scoping review of peer reviewer roles however identified diverse potential roles and expressed concern that peer reviewers should not be over-burdened by the demands that are placed upon them (Glonti et al. 2019). The review also revealed frequent overlap of roles between the Editor and peer reviewers. Five of 76 identified roles were deemed as inappropriate for peer reviewers:

1. Being decision makers: acknowledging that the final decision rests with the Editor
2. Being copy editors (i.e. offering editorial comments about grammar and spelling)
3. Asking for unreasonable or pivotal change
4. Being overly critical or detailed: they should not 'nit-pick' or overwhelm the authors
5. Adding additional subsequent requests unrelated to the original revisions

21.3. Types of peer review

Cochrane and Campbell policies on peer reviewing can be found on their respective websites. Cochrane policies are detailed and explicit and set out processes, principles and standards to ensure the fair and transparent process of peer reviewing. Review editors, authors and peer reviewers should make sure that they are aware of the current policies and adhere to them. Cochrane policy is regularly updated and the focus is primarily on the peer review of protocols and review reports that focus on intervention effectiveness. Many of the policy requirements apply equally to peer review of QES protocols and review reports, such as the workflow process for obtaining peer review, adherence to the conflict of interest policy, recommendations about the number and type of peer reviewers and standards for the acknowledgement of peer reviewer contributions.

Three types of peer review are common:

Open review – the authors and peer reviewers both know the identity of each other

Single blind review – the peer reviewer knows the identity of the authors but the authors do not know the identity of the reviewers

Double blind review – neither the authors nor peer reviewers know the identity of each other.

Cochrane currently operates an open peer review process, whereas Campbell follows a single blind review process with peer reviewers remaining anonymous to review authors. Authors should be aware that even in double blinded peer review systems, it is considered best practice for peer reviewers to locate the protocol and check the registration entry against the review report. It is not possible to blind peer reviewers to a protocol or registration entry once published.

21.4 The peer review process

The peer review process within Cochrane and Campbell shares many similarities to that for other journals and publishers. The following sections outline author and peer reviewer responsibilities in the peer review process, and opportunities for including peer review in the publication process.

21.4.1 Author responsibilities

All review authors are responsible for ensuring that an accurate and appropriately reported protocol or review manuscript is submitted for peer review. The entire authorship team have a role in providing critical feedback prior to submission for peer review. Each review author brings a different perspective (methodologist, subject specialist, information specialist, patient etc) to guide the process of refining and further enhancing the clarity of the protocol or review report and bring it to an optimal state, ready for peer review. The first phase of internal team review concludes with 'signing off' the manuscript as appropriate to submit for peer review and subsequent potential publication. The lead review author should only submit a manuscript for peer review when all authors confirm that this point has been reached.

It is helpful if review authors themselves possess experience of the peer review process, or of being a peer reviewer, so they know exactly what the peer review process involves and what the peer reviewers will be checking for in their manuscript.

21.4.2 Informal peer review prior to submission for publication

Informal peer review from critical friends, prior to submission of a protocol or review for peer review, often proves invaluable. A critical friend provides constructive feedback and has not been closely involved in the protocol or review production and has relevant experience and expertise. Be clear about what you are asking them to do and what you want from your critical friend. Share and discuss feedback from critical friends with the entire review author team and make any amendments to the manuscript.

21.4.3 Nominating peer reviewers

Optimally, peer reviewers include one or more methodologists with appropriate expertise and experience of the methods (Lasserson, Thomas, and Higgins 2019) together with subject experts who are sensitised to the subject of the protocol or review, information specialists who can review the search strategy, and patients and the public with lived experience of the condition, intervention or topic under review. Editors can select peer reviewers from a database, but in Cochrane and Campbell those experienced in peer reviewing QESs and mixed-method reviews with a qualitative component are less plentiful.

It can sometimes be helpful for review authors to nominate potential peer reviewers with specific expertise of the methodology/methods or subject or lived experience of the condition/situation/intervention. If the review is linked with an associated intervention effect review, it will be helpful to ask these review authors to peer review. Review authors should think carefully when nominating potential peer reviewers as they need to meet the

eligibility criteria and adhere to the conflict of interest policy (see the Cochrane and Campbell websites for up to date policies). The Editor may select from the nominated reviewers or a wider database of people with the relevant expertise, or a combination of the two (Herber et al, 2020). The Cochrane Qualitative and Implementation Methods Group convenors may nominate named methodological reviewers to peer review protocols and reviews. Some editorial processes also enable review authors to specify who they want to exclude from reviewing their manuscript and why (e.g. if they are a direct competitor in a highly sensitive or niche area of research).

21.4.4 Peer Reviewer Responsibilities

Multiple peer reviewers will be selected specifically for their expertise. Peer reviewers need not be able to peer review every aspect of the protocol or review. An information scientist, for example, is typically asked to peer review the search strategy. Subject specialists, methodologists, patients and people with lived experience may be able to comment on aspects of the search strategy, but not the technical aspects of its design. Peer reviewers should make transparent what they can comfortably peer review and any aspects for which they lack expertise and will not comment in detail. Peer reviewers should decline the invitation if they do not feel comfortable with providing a review or if they have persistent doubts about their ability to critique a particular methodology (Herber et al. 2020). This is really important as QES authors do not want to receive feedback that is ill informed, inaccurate or inappropriate. However, many novice peer reviewers start by working alongside experienced peer reviewers until they feel confident enough to produce an independent verdict (Herber et al. 2020). This helps in both professional development and capacity building. In such cases, both novice and experienced reviewer should be identifiable from the report but the experienced reviewer serves as guarantor for the review. When planning to mentor a junior colleague It is courtesy to let the Editor know this before commencing the review.

As the peer review process cannot offer review authors anonymity, peer reviewers should adhere to the principles of the Cochrane policy on peer reviewer conduct, which can be found on the Cochrane website. Campbell provides an overarching document on all aspects of the authoring and peer review processes (Collaboration. 2020). Both Cochrane and Campbell policies adhere to the Committee on Publication Ethics guidance on peer reviewing (COPE). In summary, peer reviewers should:

- only agree to review manuscripts for which they have the subject (or specifically requested) expertise required to carry out a proper assessment and which they can assess in a timely manner.
- respect the confidentiality of peer review and not reveal any details of a manuscript or its review, during or after the peer-review process, beyond those that are released by the journal.
- not use information obtained during the peer-review process for their own or any other person's or organization's advantage, or to disadvantage or discredit others.

- declare all potential conflicting interests, seeking advice from the journal if they are unsure whether something constitutes a relevant interest.
- not allow their reviews to be in influenced by the origins of a manuscript, by the nationality, religious or political beliefs, gender or other characteristics of the authors, or by commercial considerations.
- be objective and constructive in their reviews, refraining from being hostile or inflammatory and from making libellous or derogatory personal comments.
- acknowledge that peer review is largely a reciprocal endeavour and undertake to carry out their fair share of reviewing in a timely manner.
- provide personal and professional information that is accurate and a true representation of their expertise.
- recognize that impersonation of another individual during the review process is considered serious misconduct.

21.4.6 Peer reviewer reflexivity and integrity

Reflexivity in this context refers to the conscious and unconscious personal biases and conflicts of interest that peer reviewers might have and how these biases and conflicts may influence the peer review process and outcome. In addition to adhering to the respective Cochrane and Campbell conflicts of interest policies for peer reviewers (see Cochrane and Campbell websites for up to date policies), potential peer reviewers should be transparent about their wider beliefs and positioning that may influence their view of the intervention and associated phenomenon of interest reported in the protocol or review and in their feedback. Cochrane and Campbell publish protocols and reviews on diverse interventions, some of which attract the attention of people who hold strong, and sometimes controversial, views. All peer reviewers should support an evidence-led approach and maintain equipoise when conducting their peer review (i.e. be open to the possibility that the intervention may or may not be beneficial or harmful).

In addition to adhering to the relevant peer review and conflict of interest policies, peer reviewers should ideally maintain sufficient distance and independence from the authors and the protocol or review in order to provide an objective opinion and feedback. This would mean a peer reviewer would not seek collaboration with the review team whilst undertaking a peer review.

Achieving a degree of independence can be challenging in a "small pond" where those with expertise in and experience of specific methodologies, methods and subjects are few in number and/or are known to each other (Hutchison 2006). Where authors and reviewers are known to each other, the key principle is transparency. Peer reviewers should make clear any issues with potential impact on their impartiality. It is still possible to provide an objective peer review by making transparent any relationships and focussing on identification of the strengths and limitations of the protocol or review under scrutiny in an objective and systematic way. Peer reviewers must declare potential conflicts of interest before they undertake peer review of a Cochrane protocol or review.

21.4.7 Stakeholder engagement and involvement

Peer review by stakeholders including patients and people with relevant lived experience is important in Cochrane and Campbell to strengthen the peer review process and to ensure the protocol and review has maximum utility for service and intervention recipients, policy-makers and commissioners. Optimally, each review will require its own appropriate identification, engagement and involvement of important stakeholders. Review teams should have engaged these groups and sought their input when developing the review question and scope. Involving stakeholders in the peer review process is a further opportunity to assess whether the questions, phenomena of interest and outcomes being addressed are important and meaningful to review users. At the protocol stage, peer review by these groups can assess whether methods specified for the involvement of these groups are appropriate. A peer reviewer with an expert by experience background will specifically look to establish whether stakeholders have been appropriately included within the review process (Harris et al. 2018), and whether particular perspectives have been excluded. They can also provide feedback on the lay summary and public facing outputs as well as the readability and utility of the full protocol or review. In addition, peer reviews from other types of stakeholders, such as policy and decision-makers, will be valuable when assessing the value and relevance of the review for informing decision-making and when suggesting how the value and relevance of the review can be maximised (the latter offering a particular opportunity at the protocol stage).

21.4.8 Equality, diversity and inclusion

Peer reviewers can play an important role in assessing whether equality, diversity and inclusion have been appropriately considered in reviews that incorporate qualitative evidence. For example, by peer reviewing the sample of included studies and the types and characteristics of people and their geographical locations they can see if there is a good fit when addressing the review question. The presence or absence of an equity lens may be an important factor to explore when considering review questions where equity, diversity and inclusion are considered critical. For example, a QES exploring women's access to antenatal care would particularly benefit from such an equity, diversity and inclusion perspective.

Taking an equality, diversity and inclusion perspective is also important when selecting peer reviewers to ensure that perspectives are sought from a variety of viewpoints. For example, reviews focusing on specific populations should ideally include peer reviewers who are drawn from that population .

21.4.9 Rewarding peer reviewers

Most peer review is undertaken on a voluntary basis and without financial reward. Cochrane and Campbell operate a system with no financial reward for peer reviewers. Peer review for Cochrane contributes towards the membership scheme. Some publishers offer open access charge discounts for peer reviewers and recognition for peer reviewing can be obtained by registering with initiatives such as PUBLONS (https://publons.com), which can be used as evidence of academic activity. Names of peer reviewers are also commonly acknowledged (with consent) on the Cochrane website.

21.4.7 Typical steps in the peer review process

Peer review generally follows a twelve-step process:

1. Review authors prepare and submit a manuscript that meets the remit of the journal, online platform and publisher and follows their templates and guidelines.
2. The Editor or Editorial Assistant undertakes initial checks to see if basic publication criteria are met and whether the manuscript is suitable to send for peer review. If not, the manuscript is sent back to the authors.
3. If meeting the criteria for peer review, peer reviewers are identified and invited (such as methodological, subject specialist and patient/public reviewers). Typically, multiple reviewers are invited recognising both high demand for peer reviewers and high rates of declined invitations to review.
4. It is usual to obtain between 2-4 reviews of a manuscript from different perspectives (methodologist, subject specialist, information scientist, patient/public).
5. Peer reviewers should follow the journal and publisher guidelines and templates and provide an independent review of the manuscript. The peer reviewer usually selects from a limited number of options such as: no revision required, minor revision, major revision, or reject. They also provide detailed feedback to the Editor and authors on the strengths and limitations as well as issues that need addressing in the manuscript.
6. The Editor reads and weighs up all of the reviews and decides on next steps (accept, revise or reject).
7. If the review authors are invited to revise, the Editor usually provides clear direction on what needs to be revised and shares the peer reviewer feedback. Feedback may be verbatim from each reviewer, summarised in composite form by the Editor or a combination of the two. The review authors need to submit a point-by-point response to the comments and to indicate how they have been addressed (or to explain why any points have not been addressed).
8. The peer reviewers are commonly asked to review the revised manuscript and are required to comment on whether the review author responses and revisions satisfactorily address all of the issues identified by peer review.
9. If further revision is considered appropriate, the authors are given an opportunity to further revise the manuscript and the Editor may ask the peer reviewers to look once again at the revisions.
10. Editors do not generally want to engage in multiple rounds of revisions. It is important that the review authors address all issues before returning the manuscript. Most publishers have a minimum threshold for publication and a reject policy. Cochrane, for example, has recently introduced a rejection policy (see Cochrane website for the latest version). Authors will then need to consider what to do next with their manuscript.
11. If all requested peer review and editorial issues are addressed satisfactorily, the Editor will accept the manuscript for publication and the manuscript will be sent for processing by the publisher.

12. The Editor in Chief makes the final decision to publish or not.

21.4.8 Presenting peer reviewer feedback

Peer reviewers are usually asked to use a structured form with free text sections populated with additional comments and explanations. Peer reviewers should follow best practice etiquette for writing feedback (Harding 2010), and be respectful, constructive and considerate (Taylor 2003). Reviewers typically start with praise if a manuscript is well-written and then seek to maintain a respectful, affirmative and informative narrative when providing feedback (Herber et al. 2020).

Specifically, feedback includes highlighting strengths and weaknesses, not targeting feedback at the individual and maintaining an appropriate and constructive tone. Explicit praise for particularly innovative and/or well-constructed features of a protocol or review are welcomed (Herber et al. 2020). Review authors need clear, specific feedback on how to revise their protocol or review report and how to address each issue raised. Feedback presented as numbered points, organised in a specific order going through the different sections of the review (e.g. abstract, plain language summary, introduction, methods etc), is particularly helpful. Each point should raise a specific issue and, where possible, present options for revision to address the issue (see also Table 1). The peer reviewer feedback templates provided can help with organising feedback in a structured and systematic way. Feedback needs to be sufficiently detailed to make the point clearly, but not too detailed to lose authors in the minutiae of what is being asked. A common flaw, which peer reviewers should seek to avoid, is for reviewers to be inclined to comment on the quality of the writing rather than on the methodological rigour of a manuscript (Herber et al. 2020).

21.4.9 Addressing peer reviewer comments

Feedback is typically shared, word for word, from each reviewer or summarised in composite form by the Editor. Review authors are given a timeframe within which to address the feedback. The authors need to share and discuss the feedback and agree how to respond and revise the manuscript within the timeframe. If feedback is unclear, the lead or corresponding review author is encouraged to contact the Editor handling the manuscript. All review authors are responsible for addressing the feedback and all must again agree that the revised manuscript is ready for submission. Review authors may feel it appropriate to acknowledge and address some issues in full and to defend their stance on others.

Feedback on methodology most frequently requests greater detail or greater clarity rather than requiring changes to the methods themselves (Rombey et al. 2019). The situation for protocols is different – peer reviewers of protocols have a specific role in strengthening the methods and suggested conduct of the review.

If review authors choose their own appropriate response to specific feedback they need to justify this approach in the point by point response to the Editor. The key principle is to determine which feedback will further strengthen the manuscript and why. Good peer

review generally helps transform manuscripts in a positive way. When submitting a revised manuscript, review authors should follow the instructions precisely. Authors may be required to submit a version with track changes and a clean version of the manuscript, and a point by point response to each element of feedback.

21.4.10 Conflict resolution and post publication peer review

Peer review should be viewed as a positive process to further strengthen the product. Differences of opinion between the review authors and peer reviewers are not unusual and can normally be resolved by working with the Editor to reach a compromise. Occasionally a difference of opinion can develop into a conflict and Cochrane has developed a policy for handling these issues (see the Cochrane website for up to date policy).

Increasingly, peer review reports are published alongside the published manuscript. Permission of the peer reviewer is required to do this and review reports can be published anonymously if requested. This development may well extend to Cochrane and Campbell in the future.The Cochrane Library offers a facility for any other individual to provide feedback on any published Cochrane review. Authors can review their feedback and learn from it.

21.5 How to peer review

General peer review principles transfer readily to peer review of QES protocols and reviews (Spigt and Arts 2010). A peer reviewer faced with peer reviewing a QES or mixed-methods review protocol or review report should consider three main questions. First, is the protocol or review reported to a high standard? Second, are the rationale and proposed/selected methods appropriate and adequately specified (protocol and review), and appropriately applied (for a review)? Third, do any methodological limitations raise specific concerns (risk to rigour)? These three question are considered in turn in this section.

. Additionally, specific issues relating to the peer review of the search strategy and peer reviewing the qualitative component of a mixed-methods review are then outlined. Two tables are also presented at the end of this section which summarise what to particularly look out for when undertaking a peer review of a QES. Table 21.1 contains a checklist of issues to consider when peer reviewing a QES protocol or review. Table 21.2 outlines common methodological issues picked up in published QES and mixed-methods review reports, that could have been addressed if identified at the peer review stage.

21.5.1 Assessing how well a protocol or a review is reported

Chapter 20 provides author guidance on how to report a protocol and a review. General guidance for reporting systematic review protocols and completed reviews such as he PRISMA-P guidance on reporting protocols (Moher et al. 2015; Moher, Stewart, and Shekelle 2016; Shamseer et al. 2015) and PRISMA 2020 guidance on reporting systematic reviews (Page et al. 2021) will be useful for peer reviewer to assess the reporting quality of qualitative evidence syntheses and mixed-methods protocols and reviews. There are also

QES specific reporting tools such as ENTREQ (Tong et al. 2012) which is applicable to any type of QES and eMERGe (France et al. 2019) which is specific to reviews using meta-ethnography. A PRISMA QES extension is also planned. See Chapter 20 for other method-specific reporting guidelines.

Peer reviewers should also acquaint themselves with any author guidance provided by the journal to which they have been submitted for publication. Both Cochrane and Campbell reviews are published in multiple versions (e.g. plain language summary, short report, long report). Peer reviewers need to assess each version for suitability for the specific audience. The suitability of the plain language summary for a lay audience is best undertaken by a patient or public peer reviewer.

Glenton et al (2021) with support from the Cochrane Qualitative and Implementation Methods Group have developed a *Protocol and Review Template for qualitative evidence syntheses* with accompanying guidance on what to report in each section (available on the accompanying handbook website). Comparing the protocol or review report to be peer reviewed with this template and the relevant method-specific reporting guideline will provide a comprehensive way to ensure that all elements of the QES are appropriately reported with sufficient detail and clarity.

Note any reporting deficits for feedback to the authors. If authors have reported insufficient information for robust peer review in their manuscript, then the peer reviewer should state this for communication via the Editor to the authors.

21.5.2 Assessing the appropriateness of the choice of methods in a protocol

As noted in Chapter 2 and elsewhere in this handbook, a protocol for a QES serves as a guide rather than a rigid route-map, particularly in those QESs that ask exploratory and open ended questions (Gough et al. 2017; Harris et al. 2018). Protocols for QES tend to be more iterative in their development as it may not always be possible to finalise the precise methods until the review completes specific stages. Peer reviewers should bear this in mind when reviewing a QES protocol (Coemans et al. 2015; Coemans, Wang, and Hannes 2015). The key principle is that authors should be transparent in their reporting and make clear the potential choices made regarding selection of methods and when they will make these decisions during the conduct of the review. The protocol should aim for transparency and should be set out in a logical easy to follow format (Harris et al. 2018). This transparency can be maintained by including a statement that deviations from the original specification will be documented and justified (Wong et al. 2014). Make a note of any peer review concerns or queries to feedback to the authors.

Peer reviewers reviewing a protocol or a completed review should also be aware of any relevant Cochrane or Campbell standards for the conduct of reviews (Cochrane for example has a set of 'Methodological Expectations for Cochrane Intervention Reviews' – see the Cochrane website for latest updates). Standards are yet to be developed for conducting QESs and mixed-methods reviews with a qualitative component. Peer reviewers should

therefore follow the general methodological guidance within the relevant chapters of this handbook

21.5.3 Assessing the appropriateness of the application of methods

Peer reviewers need experience of the methods and how to apply them if they are to assess whether methods have been selected and specified appropriately. Guides exist to help in reading published/publishable QESs (Sumpton et al. 2020; Tong et al. 2014). Chapters 9, 10 and 11 provide detailed guidance on the application of Framework and Best Fit Framework synthesis, thematic synthesis and meta-ethnography.

QES methods and processes continue to evolve at a rapid pace, so it is important that peer reviewers remain up-to-date with the latest developments. It is important to compare the review report with the published protocol and review registration entry noting any discrepancies or explanations of changes from the protocol to the review. The key principle is whether the review authors have applied the methods as originally intended and justified any necessary deviations. Tables 21.1 and 21.2 provide a checklist of issues to systematically work through when peer reviewing together with guidance on common methodological issues identified at peer review. For example, the checklist in Table 21.1 flags that peer reviewers should determine if sufficient information is reported on the options for selecting, or the method selected, for data extraction and synthesis and the rationale and approach for selecting each option. Table 21.2 lists common issues regarding selection and application of data extraction and synthesis methods identified in protocols and reviews presented for peer review. For example, authors often fail to justify selection of their method of data extraction and synthesis, do not apply the named method as intended and do not provide any justifications for deviation from the methods. Note down any concerns or queries identified during the peer review process for feedback to the authors.

21.5.5 Assessing methodological limitations

Peer reviewers should look to see that the assessment of methodological limitations in primary studies and subsequent application of GRADE CERQual was rigorously undertaken and reported, and follows the guidance in Chapters 7 and 13.

At present no fully evaluated and tested tool exists to assess the rigour of a QES or a mixed-methods review with a qualitative component. The four available tools at the time of writing serve different purposes although each can be used to identify methodological limitations.

a) A tool has been developed by the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) to assess the quality of a QES ('Checklist for assessing a QES') and this can be found on the SBU website. The tool contains 11 core questions to assess and peer reviewers respond with yes, no, or no information. Peer reviewers then

generate an overall assessment of minor, moderate or serious concerns regarding methodological limitations, which aligns with the GRADE CERQual approach (see Chapter 13). This tool is helpful when beginning to think about methodological limitations in QES. It is based on the ENTREQ reporting guideline and does not cover all potential instances where methodological limitations may impact on the interpretation of findings. It has not been developed using a standard evidence-based approach (e.g. consensus building methods such as a Delphi study). Further work is required to establish its rigour and fitness for purpose as a tool to assess methodological limitations.

b) MACACQUES isa prototype tool for appraising QESs. It was developed for use in the Evidence Synthesis of Qualitative Research in Europe (ESQUIRE) Methods Workshop https://tinyurl.com/macaquesQA. This tool contains 20 questions and is more comprehensive than the Swedish tool. It is based on the AMSTAR 2 tool for appraising systematic reviews (Shea et al. 2017) as well as a synthesis of the evidence and expert opinion and is primarily designed to assess methodological limitations. Like the Swedish tool described above it has not yet undergone either consensus development on the questions or user testing (Whiting et al. 2017).

c) For those peer reviewing a mixed-methods synthesis, the *six principles of good reporting practice* (Jimenez et al. 2018) offers an initial framework to identify methodological limitations concerning the conduct of the review. See Chapter 20 for the reporting elements of this framework.

d) The *Good reporting of mixed-method studies (GRAMMS)* guideline (O'Cathain, Murphy, and Nicholl 2008) contains 6 elements within an additional framework for identifying methodological issues in mixed-methods reviews. See Chapter 20 for further details of this framework.

Although c) and d) are reporting tools, they could be integrated and adapted integrated for the purpose of considering methodological limitations in a mixed-methods synthesis as they cover similar issues. Each offers a unique perspective. Peer reviewers need to acquaint themselves with these tools and use their experience of the methods and their application to identify any methodological limitations.

Table 21.2 outlines common methodological limitations picked up in mixed-methods review reports that could have been anticipated had the authors been better prepared and/or received higher quality peer review and feedback. Topic-specific peer reviewers can also pick up issues that may pose a threat to rigour. Make a note of any peer reviewer concerns or queries for feedback to the authors.

21.5.6 Assessing a qualitative component within a mixed-methods review

Mixed-methods reviews with a qualitative component require method-specific peer reviewers who can assess quantitative and qualitative syntheses and integration of the quantitative results with the qualitative findings. Peer reviewers are unlikely to possess the

requisite skills to assess all three elements (quantitative, qualitative and integration methods). Mixed-methods review methods are the least developed of all review types. Chapters 14-18 provide guidance on the conduct of different types of mixed methods reviews and Chapter 20 provides guidance on good reporting principles for mixed-methods reviews to help fill this gap.

If different peer reviewers have been allocated to assess different components of a mixed-methods review, it may be helpful for them to share and discuss their assessments before submission to the Editor to ensure concordance between the reviews, and that authors do not receive contradictory feedback.

21.5.7 Assessing a search strategy

The search strategy generally needs peer reviewing by an information specialist. The search strategy is critical for identifying relevant studies for inclusion in a systematic review. Although search strategies are often viewed as definitive scientific documents, and therefore an easy focus for peer review, each strategy is shaped by the review type, the database and search platform, any chosen filters used, the resource constraints of the review team and the idiosyncratic search 'signature' of the information specialist who executes it (Rethlefsen et al. 2015). For this reason the peer review of search strategies (PRESS) checklist (McGowan et al. 2016) seeks to distinguish between minor stylistic preferences and critical flaws. This peer review checklist is specifically targeted for use by a similarly qualified information specialist/librarian. An information specialist or information literate topic specialist may also advise on whether the choice of databases, sources and search methods is appropriate for retrieval of relevant items for inclusion (Grossetta Nardini et al. 2019).

However, concern with the search strategy should not be viewed as the sole domain of an information professional. Issues that <u>any</u> peer reviewer can easily check are (i) does the search strategy include all core terms that myself and colleagues would suggest for uniquely isolating relevant topic materials (including national and regional variations in spelling and terminology)? (Salvador-Oliván, Marco-Cuenca, and Arquero-Avilés 2019) (ii) does the strategy combine free text terms, as used by researchers, and index terms, as assigned by indexers? (Salvador-Oliván, Marco-Cuenca, and Arquero-Avilés 2019); (iii) is the search logic logical and transparent (e.g. using the OR operator for synonyms and AND for intersects across question components; and extending beyond a simple list of terms)? (iv) are any limits (date, language, publication type) specified appropriately?, and (v) has an appropriate study design filter been selected (e.g. sensitive for bounded topics and specific for extensive topics)?

Usually, a worked example of a search strategy for a single database will suffice for peer review of a protocol – provided the author team acknowledges that it will be modified across databases and platforms. Search strategies are reportedly the most commonly critiqued element of review protocols (approaching 50%) and timely feedback can be very

helpful (Rombey et al. 2019). For a review, the Cochrane requirement involves reporting of each strategy although other target journals implement different policies on whether they require a single strategy (usually published as "Appendix 1"), multiple strategies or a comprehensive set of strategies as a supplementary online appendix. Alleged deficiencies in search strategies are commonly observed in completed reviews submitted for publication and this poses a dilemma for all concerned. Clearly, it is often prohibitive to retrospectively re-run revised search strategies and initiate the review over again. Where an update search is required (e.g. to cover literature that has become available within twelve months of publication), simple but essential modifications can be incorporated at the same time that the update search and rapid screen is conducted. However, if the omission and its consequences are considered minor it may be sufficient to flag these in the Limitations section of a Discussion and note these for future versions. See also chapter 5 (Searching) and 6 (Selecting studies).

Table 1 - Role of the peer reviewer of a protocol for a qualitative evidence synthesis or mixed-methods synthesis with a qualitative component, or a review report. Adapted from (Chauvin et al. 2015).

Etiquette objectives	To read the guidance for peer reviewers and be familiar with the relevant reporting guidelines and templates
	To evaluate the manuscript and all appendices
	To provide recommendations on publication (e.g., reject/revise/publish)
	To provide detailed and objective feedback for the Editor and review authors
General standard of reporting	To check if the domains covered by the Cochrane template for reporting a protocol and or review are adequately reported by authors To check if the domains covered by the relevant reporting guideline (ENTREQ, eMERGe etc.) are adequately reported by authors
Rationale	To evaluate the novelty and need for the review (i.e., does the proposed review add enough to what is already in the published literature?)
	To evaluate the importance of the review (i.e., usefulness for service delivery or professional practice)
Methods	To determine if the question, aims and objectives and review context are clearly stated
	To determine if the search strategies are appropriate and sufficient for the review question.* Search strategies may need additional peer review from an information scientist. For published reviews, has the search been updated prior to submission of the manuscript, or is it sufficiently contemporary to proceed to publication?
	To determine if the inclusion and exclusion criteria are clearly stated

	To determine if a compelling justification is offered for the choice of comprehensive or purposive sampling and a rationale and approach is advanced for selecting the chosen option.
	If appropriate, to check if the intervention is described in sufficient detail to allow replication
	If appropriate, to consider if the theoretical or conceptual framework(s) and logic model are sufficiently justified and described
	To determine if the proposed method or the selected method of assessing methodological limitations is appropriately described and justified. For reviews, to determine if the assessments of methodological limitations are reported in full and the assessments are used to interpret the findings.
	To determine if sufficient information is reported on the options for selecting, or the method selected, for data extraction and synthesis and the rationale and approach for selecting each option.
	To determine if the application of GRADE-CERQual is adequately described and for reviews the assessments are adequately reported.
	If appropriate, to determine if sufficient information is reported on the options for selecting or the method selected for synthesising/integrating quantitative results with qualitative findings and the rationale and approach for selecting each option.
	To determine if the authors have considered and reported issues concerning reflexivity and potential personal biases.
	To determine if the authors have reported how they are going to/have incorporated patient and public/consumer and stakeholder engagement in the review processes in sufficient detail.
Findings	To determine if the findings are reported in sufficient detail and supported with evidence from the review.
Discussion	To establish whether any lines of argument proposed are grounded in the findings and whether alternative interpretations or explanations have been considered.
Implications	To ensure that implications for research or practice are founded on the findings of the review and not formulated simply to endorse the views of the review team.
Review integrity	To determine whether the review differs from the protocol and whether any changes made are transparent and justified. To determine what steps the authors took to ensure the integrity of their review and the included studies in their review. To ensure that the review authors accurately represent the strengths and limitations of their chosen methods (protocol and review) and included evidence (review).
Review registration	If appropriate, to determine if the review has been registered in a review registry.
Funding sources and conflicts of interest	To determine if funding sources been reported together with all conflicts of interest for each author?

Table 2. **Common methodological issues in qualitative evidence synthesis and mixed-methods review protocols and reports.** *Adapted from (Flemming and Noyes 2021)*

Section of the review	Problem
Question	Not clear – or no question
Methods	Not a good 'fit' for the question or the type/number of included studies
	No method articulated or a reporting guideline is inappropriately cited as the method
	Named method not used or applied as originally intended without sufficient justification or sometimes without any justification
	No or little evidence that the selected method was actually used in reality
	The review design and method-specific data processing procedures are unclear or the data processing approach is inappropriate for the method specific evidence or to address the question
	Inappropriate choice of theory/ conceptual framework or not applied
Search strategy	Insufficiently specified or inadequate – seminal papers missing
Selection and sampling of papers	Unclear or inappropriate
Quality appraisal	Inappropriate application of tools and judgements
Data processing and synthesis	Does not align with the stated method
	Not reported how data were processed and synthesised and by whom or how internal validity was maintained
Findings	Do not appear to be underpinned by data from primary studies For mixed-methods reviews with a qualitative component – findings from the integration of quantitative and qualitative findings are unclear
Theory development	Does not seem to be supported by the review findings
Reporting	The relevant reporting guideline has not been followed
Reflexivity	Concerns about threats to rigour and conflicts of interest not made transparent

Chapter information

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Conflicts of Interest

Jane Noyes and Andrew Booth are convenors of the Qualitative and Implementation Methods Group. Noyes is a member of the Cochrane Methods Executive and Editorial Board, and contributed to the refinement of MACACQUES. Booth is a convenor of the Information Retrieval Methods Group and lead author of MACACQUES. Elizabeth Paulsen was formerly Managing Editor of the Effective Practice and Organisation of Care Group.

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