

CRITICAL APPRAISAL OF A QUALITATIVE REVIEW: A SYSTEMATIC REVIEW

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ABSTRACT

Objective: *This review explores the structure, content, and objectives of most widely used appraisal tools available for qualitative reviews.*

Materials and Methods: *This literature search utilizes the practice as proposed by Haig and Dozier in BEME guide no. 3; finding the literature through databases, hand searching. grey literature and Preferred reporting items for systematic review and meta-analysis checklist 2020 (PRISMA) was used in the process of filtering articles for literature review. After defining key terms, both clinical and educational databases; MEDLINE/PubMed (2014–2024) and ERIC (2014–2024), were searched in the subjects of education and medicine. Grey literature was searched through Google Scholar. Other search strategies included ancestry searching and forward tracing and seeking expert advice. The inclusion criteria for studies was Tools published between 2014 and 2024 in English language, Reports of appraisal tools along with reports about appraisal tools in health-related discipline, published in a peer-review journal, and tools with clear criteria. Comparative analysis for characteristics of six appraisal tools, which were frequently used in the reports for qualitative appraisal, was performed.*

Results: *The characteristics of the study showed that each tool has different strengths and limitations which are mentioned in the form of percentages for each of them.*

Conclusion: *In this study characteristics of six qualitative appraisal tools were reviewed and came up to the conclusion that rationale of the evidence preparation, the researcher's proficiency, and allocated time along with resources which dictate decision to choose an appraisal tool for QES.*

Keywords: *Qualitative reviews, Qualitative evidence synthesis, quality appraisal, critical appraisal tool, Framework synthesis*

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INTRODUCTION

Health research is a systematic study designed to create reliable evidence regarding medical and health care issues. The three main methods of health research

include qualitative, quantitative, and mixed methods. The quantitative research methods use data, which are usually numerical and count measures, often described using statistical methods, to help researchers draw conclusions whereas the qualitative research combines the recording, interpretation, along with analysis of non-numeric data in a way to discover the deeper insight of human experience and associated behavior. Mixed methods research is a third methodology that involves the collection and analysis of qualitative and quantitative information with the goal of solving different but related questions, sometimes the same question¹ Qualitative research is used in a “variety of academic and non-academic disciplines as a method of inquiry to understand human behavior and experience”. According to Munhall, “Qualitative research involves broadly stated questions about human experiences and realities, studied through sustained contact with the individual in their natural environments and producing rich, descriptive data that will help us to understand

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those individual's experiences”²

Qualitative evidence makes the researchers to visualize and analyze human experiences and provide insights into empirical questions and meanings such as explaining the ‘how’ and ‘why’. Qualitative research plays a significant role in evidence-based healthcare and therefore helps in developing policies for patient safety, diagnosing and understanding chronic diseases.³ These studies also aid in understanding the possible outcomes of various interventions, reasons of the accomplishment and disappointment of an intervention owing to the factors associated with it. For these reasons, the Medical Research Council strongly suggests the inclusion of qualitative assessments during the development and evaluation of complex interventions.^{4,5}

The term “Qualitative research” is a broader term, usually suggestive of a variety of research methodologies which includes phenomenology, ethnography, grounded theory, action research and discourse analysis. It uses visual and textual data rather than numerical data in order to comprehend meaning and perspective of phenomena. Even though it helps with developing policies, the idea that one size fits all will fully assess the accuracy and precision of qualitative methods jeopardize its authenticity. There is a dilemma in measuring the excellence of qualitative health research although the significance of such research for improving healthcare has increased many folds. Many studies have been done to focus on evaluation and accuracy, often called as “trustworthiness” in qualitative research, still there is little consensus on how qualitative research is to be critically evaluated, or even whether we should critically evaluate it, there is still debate.⁶

The significance and scope of qualitative research in health care requires its robust and systematic evaluation to assess its credibility, which is highly essential to its implementation in clinical practice as any other type of research. It is important to evaluate variety of qualitative studies in regards to the specific methods used, as methodology is related to the “results” of the study (such as theoretical development, phenomenological understanding, and the credibility of the results). Furthermore, the evaluation should not only describe the specifications of the methods (e.g., data collection method and analysis), but also require additional attention to the overall design of the study and whether it is appropriate in according to the scope of the study.⁷

The reviews of qualitative health care research are emphasized now a days for the great movement towards evidence-based health policy and practice, therefore generating a qualitative evidence synthesis (QES). However, questions still remain about the time and the way to critically evaluate qualitative research. Although there is agreement that simply applying prevailing methods

to evaluate qualitative methods should be avoided, we must better understand and formulate a scrutiny process in order to check trustworthiness of qualitative evidence.⁸ Presently, checklists or frameworks are the available tactics used for appraisal of qualitative health research and the absence of distinction in various appraisal methods is still an unanswered question. When qualitative studies are evaluated, precise checklists and tools for evaluating such studies are utilized, where a total paradigm can be considered as a solitary design (as indicated by tool titles such as “CASP Qualitative Checklist”, “JBI Qualitative Research Checklist”, etc.), and the framework often requires a deep understanding of a given method and it does not provide guidance on how to apply them.⁹

Majid and Vanstone claimed overabundance of the quality appraisal tools, out of which a few are dedicated to qualitative reviews (QRs) in order to assess either their methodological quality (MQ) or the reporting quality (RQ) of these knowledge products (10). It has proven to be a difficult task for the novice to pick the appropriate appraisal tool for the QRs as the abundance of tools with different methods and purposes, proves deficient agreement towards constituents of an appropriate quality criteria for QRs.

The aim of this study is to support researchers, facilitators and novices to utilize an appraisal tool which is rigorous, credible and a “one-size-fits-all” standard for qualitative analysis of QRs in medical education.

METHODOLOGY

Research Question

The search was directed by the research question i.e., “How does various high-utility appraisal tools evaluate the quality of QRs in medical education?”

We have used “high utility” in order to define tools which are “easily available, authoritative, and easy-to-use tools” rather than describing a meticulous list of all available tools to evaluate the quality of qualitative reviews.¹¹ As no identified repositories take methodological protocols, therefore, this study was not registered and study protocol is available upon request.

Definitions and important concepts

We defined “critical appraisal tool” as “a tool, checklist or set of criteria that provides guidance on how to appraise the methodological and reporting strengths and limitations of a qualitative review”.¹² The papers which defined structure, design, and content of an appraisal tool were sorted as “Articles about tools”.¹⁰ MQ refers to the design and conduct quality of QRs (e.g. selection criteria, literature search, pooling of data) whereas, RQ considers how well the method and findings were

described in the QR.¹²

Search Strategy

This literature search utilizes the practice as proposed by Haig and Dozier; finding the literature through databases, hand searching and grey literature.¹³

After defining key terms, both clinical and educational databases; MEDLINE/PubMed (2014–2024) and ERIC (2014–2024), were searched in the subjects of education and medicine. Grey literature was searched by using Google Scholar. Other search strategies included ancestry searching and forward tracing and seeking expert advice.¹³

Key terms:

A systematic literature search strategy using key terms “qualitative health reviews”, “qualitative health research”, “qualitative review paper” “medical education qualitative review”, “medical education”, “critical appraisal”, “quality appraisal” “checklists or checklist”, “appraisal tool”, in addition to the synonyms “qualitative paper”, “qualitative study”, “Quality Assessment”, “rigor” or “rigour”, “appraisal guidelines”, “appraisal criteria”. This yielded too many results, majority of which were irrelevant to the study and therefore Boolean Operators “OR” and “AND” were used to narrow down the search. To summarize we used Boolean operators in concentrations of multiple keywords as in: (Qualitative reviews OR Qualitative health reviews OR Qualitative review paper OR Qualitative papers”) AND (Critical appraisal OR Quality assessment OR Internal validity OR External validity” OR rigor or rigour) AND (Checklist or checklists OR Tools OR Guidelines OR Criteria OR Standards).

Studies selection:

A pre-retrieval process was carried out to improve the search strategy. Preliminary screening excluded studies not in accordance with the inclusion criteria. A third researcher was always consulted when disagreement between first two researchers arose. After preliminary screening, detailed full text reading of literature was utilized, keeping in mind the inclusion criteria. The complete process of literature search from identification, screening, eligibility and included articles is visible in figure 1. For organization and referencing the articles were imported into Mendeley. The eligibility criteria for this study is discussed in Table 1. The items of interest relating to the QRs critical appraisal tools were extracted from each included report on standardized forms for data extraction and articles of sufficient to good quality were included in the literature review.

Data Analysis:

Comparative analysis for characteristics of six appraisal tools, which were frequently used in the reports for qualitative appraisal, was performed. The characteristics are stated as simple percentage and frequency of tools with no strict inferential statistical analyses.

Best fit framework analysis approach was used in order to further explore the criteria present in the appraisal tools.¹⁴ “Preferred reporting items for systematic review and meta-analysis” (PRISMA) statement items, having a very high uptake from the biomedical research community.¹⁵

RESULTS

Comparative characteristics of six appraisal tools for the qualitative appraisal (Table 2), will allow the reviewers to have a quick look at the purpose, origin, content and structure, strengths and critics of the included tools. Tools have been abbreviated as follows: PRISMA (Preferred reporting items for systematic review and meta-analysis protocols), AMSTAR (A measurement tool to assess systematic reviews), JBI (Joanna Briggs Institute) SRQR, CASP (Critical appraisal skills program Checklists) and Walsh.¹⁶⁻²¹ A brief summary of the included 18 studies is available in Table 3 for reference.

Academic discipline along with citation of tool, and the country where it was developed were included to recognize the background in which the tool was advanced and explain their content, purpose, and application in QES (15). Biomedical discipline was identified for five (83.3%) of the analyzed tools (PRISMA, AMSTAR, JBI, SRQR, Walsh), and one (CASP) (16.6%), not identified with a specific discipline. Three (CASP, PRISMA, Walsh) (50%), were framed by authors mostly at work in the United Kingdom, while one (16.6%) was in Australia (JBI), one (16.6%) with Canada (AMSTAR) and one (16.6%) with the United States (SRQR). PRISMA was developed by the PRISMA group, which is working in United States, United Kingdom, Canada, Italy, Netherlands and Ireland.

Most of the quality criteria in tools were found to be interrogative (CASP, JBI, AMSTAR), generating a reflexive dialogue among appraisers while some were structured as declarative (SRQR, Walsh, PRISMA), depicting stricter application of quality criteria (10). An average of six quality criteria ranging from 10 (JBI, CASP) to 27 (PRISMA) were observed in included six appraisal tools. Structured appraisal checklists were observed for four tools (66.6%) (CASP, PRISMA, AMSTAR, JBI). CASP contained supplementary documents for discussion on quality criteria, SRQR contained guidelines and examples to apply quality criteria whereas data on the framing of the tool was found in JBI and AMSTAR. Appraisal item on ethics asking about study’s

TABLE 1: CRITERIA FOR STUDIES SELECTION

	Inclusion Criteria	Exclusion Criteria
Time period	Tools published between 2014 and 2024.	Tools published before 2014
Language	Studies only in English Language	Studies that were not English
Population and Study type	Reports of and about appraisal tools in health-related discipline. A peer-review journal publication or by an educational or health care institution. Instructions for authors Tools with clear criteria or question articles which described content of appraisal tools along with their design and structure	
Evidence of Citation	Being used in the appraisal process for the past 10 years	No such citation evidence
Availability	Complete text available with no payable access	Full text not available or having a payable access.

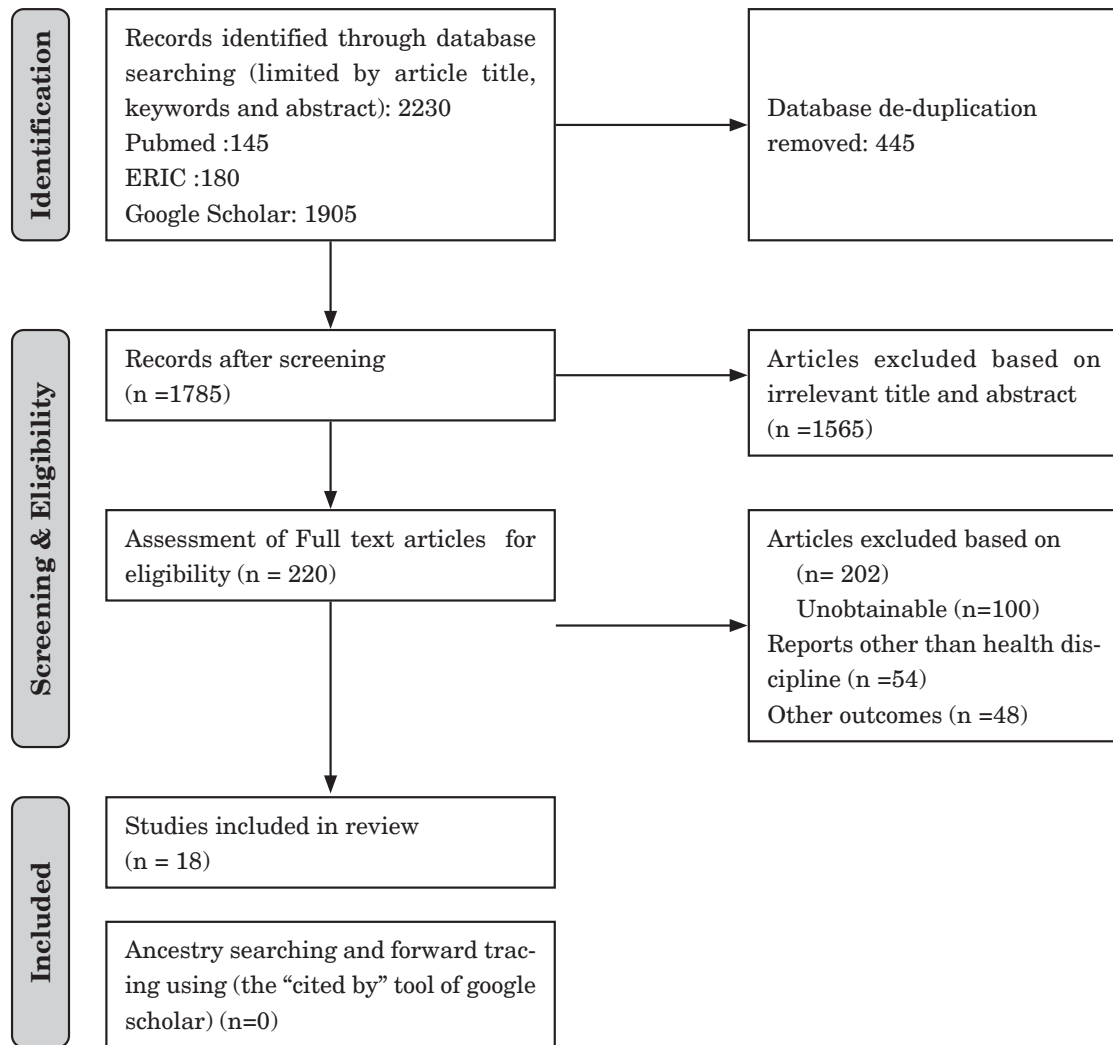


Fig 1: PRISMA flow diagram (According to PRISMA checklist 2020)

TABLE 2: COMPARISON OF APPRAISAL TOOLS

Tool	Country and Discipline	Purpose	Content	Strengths & Criticisms
CASP Qualitative Checklist ,2016 Critical Appraisal Skills Programme (CASP)	United Kingdon	It is an appraisal tool reporting standards for qualitative papers.	Contains 10 checklist questions which can be replied with a yes, no or can't tell.	<p>Strengths:</p> <p>It helps in understanding and administration. For novice researches and learners, it is easy to use as an educational tool. In the process of qualitative evidence synthesis, it is most commonly used appraisal tool</p> <p>Criticisms:</p> <p>The evaluation of methodology is weaker in comparison to other appraisal tools</p> <p>Studies have been reported to use data analysis from other techniques, making the tool time consuming to use</p> <p>Mixed approach to inquiry as it is not clearly reported, leading to use of incompatible paradigms.</p>
PRISMA (Preferred Reporting Items of Systematic reviews and Meta Analyses), 2009. In 2009, the QUOROM Statement (Quality of Reporting of Meta-analyses) was updated and was re-named PRISMA.	The PRISMA Group It has been published in several journals	It is an evidence based minimum set of items for systematic reviews and meta-analyses.	It contains 27 items along with template of a flow diagram to exhibit various phases at which the evidence is left out while working on a systematic review. There is a document designed primarily to assess the title, abstract, methods, results, discussions and funding. Supplementary document is also available.	<p>Strengths:</p> <p>It has been accepted widely and endorsed by five editorial organizations, including Cochrane and the World Association of Medical editors, and 180 bio-medical journals. It is acting as a reporting standard for systematic review conduct.</p> <p>Criticisms:</p> <p>It does not require a protocol and suggested requirements required for review are minimal. It also focuses more on risk of bias rather than limitations of validity.</p>

<p>AMSTAR (A Measurement Tool to Assess systematic Reviews), 2007. The AMSTAR 2 (2017) is updated with the recent developments.</p>	<p>Canada health</p>	<p>It is a practical tool to use critical tool which carries out rapid and reproducible evaluation of conduct of systematic reviews of randomized controlled trials, for use by health-care professionals which don't have advanced training in epidemiology.</p>	<p>Original 10 items of AMSTAR were retained, with a yes or no or partial yes, and four domains were added.</p>	<p>Strengths: A recognized and validated tool for the quality of method used for Systematic reviews. Criticisms: Certain items of AMSTAR 2 checklist are used to judge the quality of reporting rather than quality of method of a systematic review.</p>
<p>JBI</p>	<p>Australia, Medicine</p>	<p>Appraisal in a qualitative evidence synthesis</p>	<p>Consists of total of 10 checklist questions. It is based upon congruity, Research's reflexivity, role of participants in the findings and ethical approval. Supplementary document is also available describing the development and methodology of Critical Appraisal checklist.</p>	<p>Strengths: It is an online software that is short and easy, helps to streamline the process with the help of JBI tool is Qualitative assessment and Review Instrument (QARI). Criticisms: Mostly focus lies on the coherence between philosophy and methods.</p>
<p>SRQR (Standards for Reporting Qualitative Research) 2014</p>	<p>United States, Academic Medicine</p>	<p>Provides clear standards for reporting qualitative research.</p>	<p>It consists of five themes on which 21 structured set of statements is based on; Title and Abstract, Methodology (Approach, context, sampling, context, ethical issues, data collection along with analysis), Results and findings and Discussion. A supplementary document is also available.</p>	<p>Strengths: It is developed by systematic search and review of tools developed previously, hence it is very transparent in purpose. Criticisms: It is not established yet that this tool truly considers all qualitative methodologies equally.</p>

Walsh Walsh and Downe (2006)	United Kingdom, Medicine	Appraisal in qualitative evidence synthesis, primarily used for policy rapid reviews.	It consists of 12 criteria statements, which essentially cover eight stages involved in research process; Scope and Purpose, Sampling Strategy, Analysis, Interpretation, Reflexivity, ethical dimensions and relevance and transferability. These criteria are to be used “imaginatively”.	Strengths: There is “berry-picking” approach to find existing appraisal tool in order to find other online tools. This aids in locating and analyzing the quality of the research. Criticisms: The “Berry picking approach” is not representative of the literature and non-systematic. As the criteria is used “imaginatively”.
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TABLE 3: BRIEF SUMMARY OF STUDIES INCLUDED

	Criteria Evaluated by tool	Tool used	QR Methodology Evaluated (Type/Approach)	Outcomes/Findings on QR quality and of the tool	Medical Eductaion Context	Limitations reported by Authors
1	Methodological quality of qualitative studies	CASP (2016)	Systematic review	No criterion for the clarity and appropriateness of a study’s qualitative paradigm	Undergraduate level, Post graduate level	Anticipated pragmatic amendments to the tool plus the introduction of a novel question and response option. Novice researchers will need assistance to work with it
2	Uptake and impact of PRISMA	PRISMA (2009)	Systematic Review	It helps in reporting data systematically	Post graduate level	Reporting of the reviews are sub-optimal and an update of PRISMA guidelines is required to improve its strategy.
3	Guidelines for reporting qualitative research	SRQR	Qualitative research	Rising need for improved qualitative research reporting guidelines in global health	Post graduate level	It has missed certain important components of qualitative research methods such as conclusion, recommendations, and references

4	Evaluation of AMSTAR to check methodological quality of systematic review	AMSTAR (2007)	Systematic Review	AMSTAR tool can be used successfully in overviews that include Cochrane and non-Cochrane SR	Post graduate level	It uses methodological quality to guide inclusion decisions (e.g., to exclude poorly conducted and reported SRs) may not introduce bias
5	Methodological quality of qualitative studies	AMSTAR (2007)	Qualitative research	Methods for assessing the body of evidence have grown since AMSTAR was advanced and should be added into a revised AMSTAR tool	Post graduate level	It banks on reporting quality relatively than on methodological quality.
6	Assessment of qualitative research	Walsh	Systematic review	Berry-picking approach of the tool is not representative of the literature	Post graduate level	Non-systematic methodology for evaluating literature
7	Assessment of qualitative research	JBIR	Systematic review	Better assessment of study details	Undergraduate level, Novice researchers	Main emphasis lies between agreement and philosophy
8	Assessment of qualitative research	SRQR	Systematic review	It works on a systematic approach	Post graduate level	Its ability to truly assess all qualitative studies is unclear
9	Quality of JBI qualitative research synthesis	JBIR	Systematic Review	Short and easy to use, has clarity to permit less experienced researchers	Undergraduate level, Novice researchers	Main emphasis lies between agreement of methodology and philosophy
10	Assessment of qualitative research	SRQR	Systematic Review	There is a systematic approach to assess qualitative studies	Post graduate level	Methodology is not clear
11	Assessment of qualitative research	PRISMA (2020)	Systematic Review	It has been widely accepted tool for conducting systematic review	Post graduate level	Doesn't strictly require a protocol
12	Evaluation of AMSTAR and Revised AMSTAR	AMSTAR (2007)	Systematic Review	AMSTAR is easy to administer, reliable and valid	Post graduate level	Revised AMSTAR should be additionally investigated
13	Methodological quality of qualitative studies	CASP (2020)	Systematic Review	It is one of the most commonly employed tools as it is user-friendly for qualitative researchers	Post graduate level	Weaker in evaluation of the methodological quality
14	Evaluation of Appraisal tool for qualitative systematic reviews	PRISMA (2020)	Systematic Review	It provides a comprehensive framework for the evaluation of systematic reviews and meta-analyses	Post graduate level	Its main focus is on the quality of reporting of the review

15	Guidelines for JBI reporting systematic review	Systematic Review	It provides an online software called "Qualitative Assessment and Review Instrument"(QARI) that facilitates the online use of the tool	Post graduate level	Rigor and trustworthiness are not fully covered in the checklist
16	Guidelines for reporting systematic review	A M - STAR-II (2017)	Systematic Review	It is well validated and ensures methodological rigor	Post graduate level Criteria for assessing trustworthiness of the reviews is missing
17	Evaluation of Appraisal tool for qualitative systematic reviews	JBI	Systematic review	It includes philosophy of the study and researcher & its congruity with the methodology	Post graduate level Non-systematic approach to assess the quality
18	Evaluation of Appraisal tool for qualitative systematic reviews	A M - STAR-II (2017)	Systematic review	It has clarity and brevity so novice researchers can work with it	Novice researchers, Post graduate level Rigor and trustworthiness are not fully discussed

approval, informed consent, or inquiring about ethical concerns on ethics were found in three tools (CASP, JBI, SRQR), however, none of the tools conferred how or to what level ethical issues were thought of. Some tools consider the methodological quality of a study i.e., ethical use of resources as a replacement to not include ethical questions as a quality criterion. However, the authors are of this opinion that whereabouts of ethical conduct is a must in an appraisal tools.

DISCUSSION

The available plethora of widely differing checklists and frameworks reflected a lack of consensus among the educational researchers. Owing to the confusion and chaos, the novice user is especially faced with a dilemma regarding the choice of most suitable instrument for undertaking critical appraisal of reviews. It has been argued that whether assessment tools just appraise the quality of methodological reporting or really judges the design and methodology of the study (22). It is because of this reason that argument is on the rise that whether such tools should be the sole criteria in order to exclude studies from a QES. For instance, CASP emphasizes more on the quality of methodological reporting instead of indication of analytic precision, authenticity and intellectual input to the relevant field.¹² Additionally, CASP, JBI tool have no clear question regarding the worth along with pertinency of the qualitative study keeping in view the purpose of the QES. The appraisal tools should not be the final criteria to exclude an article from a QES as their structured format may overlook the interpretive context of each study and ignore the various factors that might have an influence on the

research study.²³

The debate to use such appraisal checklists to comment on rigor of qualitative research is on the rise. Triangulation has been exemplified as a method that may be used to pose false representation of rigor.²⁴ Checklist items on ethics have also been criticized for lack of deeper reflection and insight into the ethical conduct of research rather than only critical appraisal of institutional ethical approval statement. Reflexivity, which is increasingly assessed using checklist, is also considered a well-established part in qualitative research.²⁵ Still checklist items may not be sufficient to judge the usefulness of reflexivity in a study and therefore an open, collaborative discussion among researchers should be the best option to judge reflexivity.

A few appraisal checklists, for e.g. JBI, are more inclined towards the philosophical orientation of a study whereas CASP overlooks over it. Although, philosophical orientation may ensure meaningful research but too much emphasis on it may bypass the applied health research and therefore a balance would be preferable when informing health policy or valuable addition to the field rather than mere theoretical sophistication.²⁶

LIMITATIONS:

This research provides a summary of the qualitative appraisal tools that have been generally taken up for QRs and in this we may have ignored to take account of other valued tools which have not yet been generally taken up.

CONCLUSION

This study analyzed the attributes of qualitative appraisal tools that have been generally taken up for QRs. CASP tool provide structure and clarity but lacks the interpretation of results, PRISMA provides a thorough guideline and structure, being widely used for systematic reviews and meta-analysis. In a similar manner, AMSTAR JBI SRQR and Walsh and Walsh provide check list but lacks flexibility for new study types. We discussed six appraisal tools and came up to the conclusion that aim of the evidence synthesis, the researcher's skills set, allocated time and resources dictate the decision to choose an appraisal tool for QES.

REFERENCES

- 1 Butler A, Hall H, Copnell B. A guide to writing a qualitative systematic review protocol to enhance evidence-based practice in nursing and health care. *Worldviews on Evidence-Based Nursing*. 2016;13(3):241-9.
- 2 Yesodharan R, Renjith V, Jose TT. Improving nursing research reporting: A guide to reporting guidelines. *Indian J Public Health Res Dev*. 2018;9:301-6.
- 3 Williams V, Boylan A-M, Nunan D. Qualitative research as evidence: expanding the paradigm for evidence-based healthcare. *BMJ evidence-based medicine*. 2019;24(5):168-9.
- 4 Baillie L. Promoting and evaluating scientific rigour in qualitative research. *Nursing standard (Royal College of Nursing (Great Britain))*. 2015;29(46):36-42.
- 5 Skivington K, Matthews L. A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. 2021;374:n2061.
- 6 Smith B, McGannon KR. Developing rigor in qualitative research: Problems and opportunities within sport and exercise psychology. *International review of sport and exercise psychology*. 2018;11(1):101-21.
- 7 Thorne S, Stephens J, Truant T. Building qualitative study design using nursing's disciplinary epistemology. *Journal of advanced nursing*. 2016;72(2):451-60.
- 8 Korstjens I, Moser A. Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice*. 2018;24(1):120-4.
- 9 Forero R, Nahidi S, De Costa J, Mohsin M, Fitzgerald G, Gibson N, et al. Application of four-dimension criteria to assess rigour of qualitative research in emergency medicine. *BMC health services research*. 2018;18:1-11.
- 10 Majid U, Vanstone M. Appraising Qualitative Research for Evidence Syntheses: A Compendium of Quality Appraisal Tools. *Qualitative health research*. 2018;28(13):2115-31.
- 11 Lockwood C, Oh EG. Systematic reviews: Guidelines, tools and checklists for authors. *Nursing & Health Sciences*. 2017;19(3):273-7.
- 12 Munthe-Kaas H, Bohren MA, Glenton C, Lewin S, Noyes J, Tunçalp Ö, et al. Applying GRADE-CERQual to qualitative evidence synthesis findings—paper 3: how to assess methodological limitations. *Implementation Science*. 2018;13:25-32.
- 13 Haig A, Dozier M. BEME guide no. 3: systematic searching for evidence in medical education—part 2: constructing searches. *Medical teacher*. 2003;25(5):463-84.
- 14 Carroll C, Booth A, Leaviss J, Rick J. "Best fit" framework synthesis: refining the method. *BMC medical research methodology*. 2013;13:1-16.
- 15 Ndze VN, Jaca A, Wiysonge CS. Reporting quality of systematic reviews of interventions aimed at improving vaccination coverage: compliance with PRISMA guidelines. *Human Vaccines & Immunotherapeutics*. 2019.
- 16 Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *bmj*. 2021;372.
- 17 Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *bmj*. 2017;358.
- 18 Munn Z, Barker TH, Moola S, Tufanaru C, Stern C, McArthur A, et al. Methodological quality of case series studies: an introduction to the JBI critical appraisal tool. *JBI evidence synthesis*. 2020;18(10):2127-33.
- 19 Dossett LA, Kaji AH, Cochran A. SRQR and COREQ reporting guidelines for qualitative studies. *JAMA surgery*. 2021;156(9):875-6.
- 20 Long HA, French DP, Brooks JM. Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods in Medicine & Health Sciences*. 2020;1(1):31-42.
- 21 Walsh D, Downe S. Appraising the quality of qualitative research. *Midwifery*. 2006;22(2):108-19.
- 22 Maeda Y, Caskurlu S, Kozan K, Kenney RH. Development of a critical appraisal tool for assessing the reporting quality of qualitative studies: a worked example. *Quality & Quantity*. 2023;57(2):1011-31.
- 23 Williams V, Boylan A-M, Nunan D. Critical appraisal of qualitative research: necessity, partialities and the issue of bias. *BMJ Evidence-Based Medicine*. 2020;25(1):9-11.
- 24 Ahmed SK. The pillars of trustworthiness in qualitative research. *Journal of Medicine, Surgery, and Public Health*. 2024;2:100051.
- 25 Karcher K, McCuaig J, King-Hill S. (Self-) Reflection/ Reflexivity in Sensitive, Qualitative Research: A Scoping Review. *International Journal of Qualitative Methods*. 2024;23:16094069241261860.
- 26 Pyo J, Lee W, Choi EY, Jang SG, Ock M. Qualitative research in healthcare: necessity and characteristics. *Journal of preventive medicine and public health*. 2023;56(1):12.

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