

## Reviewer Recommendations

### How to plan and report a qualitative study

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Qualitative research describes a suite of techniques that deal with unstructured data that cannot be summarised numerically. It typically approaches problems from a constructivist approach (i.e. there are multiple ‘truths’ which are socially constructed and dependent on context), whilst quantitative research adopts a positivist standpoint (i.e. there is a definitive ‘truth’ that can be observed) [1]. The research methods involved in qualitative research, often based on discussion or observation, can generate vast quantities of data, and these can be challenging to summarise in a way that fits with journal author guidelines and is accessible for the reader. Furthermore, the processes involved in qualitative research are heavily reliant on the researchers themselves [2]; researchers must therefore strike a balance between a rigorous application of methods and an acknowledgement of their own influence on the work [3]. This open acceptance that the researcher is a fundamental part of the research is known as ‘reflexivity’ [4].

As part of the ‘Reviewer Recommendations’ series, we draw on our experience of qualitative research in patient safety and peri-operative practice to suggest effective ways to conduct and report qualitative work [5–10]. We begin by briefly outlining the types of questions that are commonly answered in qualitative research, and the methods that are used to investigate them. We then focus on describing the key components of a qualitative report, consider the hallmarks of high-quality qualitative research, suggest methods for demonstrating rigour and emphasise the importance of maintaining a reflexive approach throughout.

### **How to plan a qualitative study**

As in all clinical studies, qualitative research questions should be feasible, interesting, novel, ethical and relevant [11]. The methodological approach should align with the question and will depend on the types of outcomes that are of interest. Qualitative methods are particularly useful when the objective of a study is to develop an understanding of a problem, and qualitative research questions often seek to understand ‘how’ or ‘why’ something occurs. For example, in their observational study of distractions in the operating theatre, van Harten et al. sought to “*understand when and why distractions happen, how they are experienced and how members of the peri-operative team handle them*” [12]. This required a combination of methods. Initially, a quantitative approach was used to record ‘when’ distractions occurred and this was followed with a qualitative phase based on participant observation to better understand the problem [12, 13]. The ‘population, intervention, control, outcome’ (PICO) structure is used frequently in quantitative research, and a modified version based on population, interest and context (PICO) can be used to formulate qualitative research questions (Table 1) [14].

A wide variety of methods are used in qualitative research (Table 2), all of which generate data in the form of words and are often recorded as transcripts or field notes. Methods should be chosen to align with the research question. For example, interviews may be the optimal method in a study which aims to elicit what people think about a subject [5], whereas observation would be more appropriate in a study which aims to understand how people act in the workplace [5,6,12,13].

The sample size for qualitative research can be difficult to define in advance, particularly when the research is exploratory in nature. There is also the need to remember that the 'sample' may not necessarily be about the number of participants but locations, practices, documents and so forth. The sample is often therefore selected 'purposively' based on the richness of the data it is likely to yield. Whilst an estimate of sample size is useful for planning purposes, the final sample will be determined by continuous evaluation of the adequacy of data produced during the study. The concept of 'theoretical saturation' describes when additional data yields no new information; however, many researchers argue that there will always be new information and a more pragmatic approach relating to whether the data are sufficient to develop a theoretical understanding of a topic is preferable [15]. Malterud et al. propose 'information power' as an alternative to 'saturation' [16]. This is based on: the aim of the study; sample specificity; use of established theory; quality of dialogue; and analysis strategy [16]. These considerations may be helpful both to estimate sample size in the planning stages and to determine when to cease collecting data as the study progresses.

The analysis of qualitative data typically involves the researcher(s) reading and re-reading notes and transcripts and identifying elements that relate different sources of data to one another, known as 'themes' [2]. Depending on the research design, themes may be specified in advance (based on an existing theory) and the data analysed to determine whether they are present (deductive thematic analysis) or themes may be developed from the data and then related to theory (inductive thematic analysis) [2]. This may be done at various points in the project and may feed into directing subsequent data collection, as in grounded theory [17].

Because the researcher is personally involved in the design, collection and analysis of data, it is inevitable they will influence the research [2,4], consistent with a constructivist standpoint [1]. Researchers should adopt a reflexive approach in order to assess their impacts on the study. Reflexivity is a technique to enhance researchers' recognition of their own influence on their research, such as how their gender, occupational background and theoretical perspective influences

the choices they make about methods, data production, analysis and interaction with participants. It is helpful, therefore, for researchers to maintain a reflexive diary in which they reflect on these factors, which can be considered as the study progresses.

### **How to structure a qualitative research report**

The components of a qualitative report reflect those of any other primary study, usually comprising a title, summary, introduction, methods, results and discussion. However, this structure may be used more flexibly in qualitative research. This is because the developing research findings commonly influence the way in which subsequent data are collected and how the wider literature influences the data analysis. Thus the methods section may include mention of results and the results section may include elements of discussion to explain the interpretation of findings. An example of this may be the description of 'snowball sampling', a technique where one participant directs the researcher to further potential participants who have knowledge or experience of a topic. Whilst the basis of this approach is straightforward to explain, the reasons why potential participants were suggested and whether and why they chose to take part in the study in question may require explanation using data. In the following excerpt from a 'study of 'good' hip fracture anaesthesia by Shelton [5], he describes a challenge he faced with snowball sampling at one institution (initials are pseudonyms):

*"... at Mellbreak Hospital, key informant interviews proved somewhat more challenging because of on-going organisational changes in the orthopaedic department. The principal challenge at this institution was that there appeared to be some debate over who the surgeon with responsibility for hip fractures actually was; the key informants gave me different names from one another, which were also different from those given by the orthopaedic department secretaries. I therefore contacted all of the potential candidates: one ([EA], who it eventually transpired is the clinical lead for trauma overall, not just hip fractures) did not respond and after several attempts to contact him I decided that his non-responsiveness probably represented a wish not to participate. [BP] turned out to be the orthopaedic clinical lead for hip fracture surgery, and the final potential candidate, [FA], the lead for elective hip surgery."*

### **How to talk about researcher involvement**

Qualitative research often makes a methodological assumption, consistent with the constructivist approach that reality is multiple and knowledge of it is always mediated. Researcher involvement is, therefore, central to knowledge production, and qualitative research should be reported accordingly. Examples of this include: writing from the first-person perspective (a reminder that the researcher cannot be separated from the research); avoiding a passive voice such as 'the data

suggest', instead acknowledging the researchers' role in interpreting the data; and including a statement at an early point to help the reader to understand how the study came about, what informed it and how the questions may stem from a particular background or theoretical perspective. The below excerpt is from the methodology section of a study by Goodwin of the sociology of knowledge of failures in healthcare, based on the Morecambe Bay investigation (the Kirkup report) [8,9]. In it, she indicates her connection with the organisation in question, and outlines her interest in what happened there: *"The analysis I present below stems from an interest in sociological approaches to safety in healthcare and from a familiarity with the location. Being a social scientist working at the local medical school, and one who teaches and researches patient safety, provided good reason for reading The Report of the Morecambe Bay Investigation... On reading the report, it became clear to me that certain events documented within the Report had the potential to shed light on the question I pose above – how failure or substandard care is recognised when elevated levels of risk have become acceptable and the practices that produce these levels of risk have become normalised."*

As described above, reflexivity is a fundamental aspect of high-quality qualitative research, and this should be integrated into the report. This involves thinking through all the dimensions of the researcher's relationship with the subject being studied, and how these elements have shaped the research and resulting knowledge. Examples include: access to the field; relationships (sympathetic or otherwise) with participants; and understanding and theorising of what is going on. These factors should be described at appropriate points in the research report, so it is clear why any decision has been made, how interpretations have been reached and why the researcher is making those arguments.

### **How to talk about generalisability in qualitative research**

Connection of the research findings to a larger body of knowledge allows the author to convey the extent to which the findings and arguments are local or may be applied more widely [10]. Although qualitative research findings are not fully generalisable because they are bound up with the experiences of the participants and the researcher, the theoretical developments arising from them have 'life beyond the data', and should inform practice and future research [18]. A qualitative research report should, therefore, develop a theoretical understanding of the concept of interest; for example by building on an existing theory or arguing in favour of a new one. To underpin these arguments, excerpts of the data should be presented, allowing the reader to review and understand

the researchers' analytical decisions. However, it can be challenging to decide how much data to include and how to integrate it into a manuscript.

We would suggest that each key component of the results of a study (often described as a theme) should be accompanied by at least one data excerpt. It is helpful to the reader if these are accompanied by the researchers' interpretation, either in the text or as commentary in the excerpt itself. This is particularly useful in research involving observation of practice. Geertz (an anthropologist) describes this as 'thick description' [19]. The central concept is that context changes the meaning of actions, for example, sustained eye contact might indicate attention, understanding, attraction, a challenge, anger or defiance. Whilst a 'thin' description would record the gesture itself, a 'thick' description would explain the context, such that practices become meaningful to the reader. In the below excerpt, Shelton adds his own interpretation to explain a partially unspoken interaction between a consultant anaesthetist (CA) and an operating department practitioner (ODP) as they observe the patient's monitor during an anaesthetic for hip fracture surgery [5]:

*[CA]: 'So, we've got blood pressure, which is good. We've got oxygen, which is good. We've got squiggly lines, which is good... they're not nice squiggly lines, but ok.' The ECG, which is on lead II, shows ST depression.*

*[ODP]: Connects 1 l of [balanced crystalloid] to the cannula. She looks at CA as he makes his comment about the ECG – I think she's implying he should intervene.*

*[CA]: Quietly, to [ODP]: 'Why? It's not like he's going to run a bloody marathon.'*

### **How to enhance credibility in qualitative research**

It may be appropriate to include further data when it enhances the richness or underscores the transparency of the research process. 'Negative cases' are instances where data do not conform to the developing argument. Discussion of negative cases can help refine and advance understanding of why a general principle would not apply in this particular instance, and enhance credibility by reassuring the reader that data are not being selected on the basis of convenience. Below is an excerpt from research by Goodwin on failures in healthcare, which investigated how serious deficiencies can go unacknowledged and uncorrected [8]. Here, a consultant obstetrician attempted to demonstrate systematic connections between serious untoward incidents, contrary to the prevailing views in his organisation. Although these data are not easily explained in terms of the sociology of knowledge – the theoretical framework Goodwin was working with – it can be explained by combining the sociology of knowledge with the central tenets of narrative analysis. Noting the

initial difficulty in explaining the lack of response to the consultant's letter, Goodwin offers an explanation, based on the theory of Hirshauer [20], of how this case fits into the overall picture: "*... It is puzzling why this account had so little effect; it carried the hallmarks of authoritative knowledge being informed by local and professional knowledge. The lack of response shifts attention from the author to its audience. As Hirshauer... points out, the fate of a description is settled by the reader. Perhaps the lack of effect was because the letter was circulated to a limited, and crucially, internal audience.*"

Evidence of reflexivity and transparency are key elements of a qualitative research report that indicate rigour. Other ways of assessing quality in qualitative research include triangulation and respondent validation. However, thinking on these topics has evolved in recent years, casting doubt on their significance. Again, a reflexive approach can help the reader to understand the way in which these techniques are used.

Triangulation is a practice in which a researcher compares data obtained by different methods (e.g. focus groups, documentary analysis), with coherence of findings seen as an indicator of validity [2]. However, this is most aligned to a positivist approach (holding up a single 'truth'), and therefore somewhat at odds with most qualitative research. Rather than indicating a deficiency in the research, divergent findings may reveal important aspects of a phenomena (e.g. interviews are good at eliciting what people think, but observation is better at elucidating what people do) [21]. So, triangulation has come to mean attempts to develop a deeper understanding through looking at phenomena from different angles and exploring the contradictions this can produce.

Respondent validation is a technique in which the researcher feeds back the findings and interpretations of a study to participants to provide them with an opportunity to provide feedback [2]. This can be very valuable if the aim of a study is to explore participants' experiences, but it may undermine the study results if the aim was to understand a broader issue [21]. For example, in a study about medication errors, an interviewee might believe that they simply weren't careful enough, whereas the researcher might take a systems approach in view of the other data they have obtained. Authors who use respondent validation should explain how the method fits with the theoretical position of a study, how it was undertaken and for what purpose [22].

Qualitative research can be challenging to report in a succinct format, but this can be achieved by focusing on the core aspects of the work and including an appropriate blend of data and

interpretation (Table 3). Checklists such as the consolidated criteria for reporting qualitative research offer a helpful aide-memoire about what should be included in a qualitative research report [23]. In this paper we have aimed to supplement these resources by describing how the elements of a research report should most effectively be used. Although qualitative and quantitative research use different methods and originate in different philosophical positions, the fundamental responsibility of the author is the same. In the words of Silverman [24]: *“If there is a gold standard for qualitative research, it should only be the standard for any good research, qualitative or quantitative, social or natural science. Namely, have the researchers demonstrated successfully why we should believe them? And does the research problem tackled have theoretical and/or practical significance?”*

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**Table 1:** Population, interest and context breakdown of the hypothetical qualitative research question “*How do consultant anaesthetists understand the concept of ‘frailty’ in the setting of cancer surgery*” [14].

<b>Component</b>	<b>Explanation</b>	<b>Example</b>
Population	The characteristics of the patients or population	Consultant anaesthetists
Phenomenon of interest	An activity, event, process or experience.	Understanding of the concept of frailty
Context	The setting or distinct characteristics	Patients undergoing cancer surgery

**Table 2:** Descriptions of some common qualitative research methods.

<b>Method</b>	<b>Description</b>	<b>Utility</b>
Interviews	A discussion between the researcher and a participant. Can be structured (based on a script), semi-structured (based on a broad topic guide) or unstructured (a freeform discussion).	Allows participants to talk at length. Helpful for orientation to a research setting, and for rapidly obtaining large amounts of information.
Focus groups	A discussion between a group, typically of 4-10 participants, guided by a facilitator who sets the topics of 'focus'.	Allows interactions between participants to be observed. Helps researchers to understand areas of consensus and controversy.
Observations	The researcher observes people and practices. Variations include overt observation (the researcher is clearly identified), covert observation (the researcher is present in the guise of another role – less frequently used now due to ethical difficulties) and participant observation (the researcher acts as part of the team to some degree).	Allows the researcher to see what is done in practice (which is often different to what is said or thought to be done). Permits insights into 'real world' situations, and 'routine' circumstances. Often associated with ethnography (the systematic study of culture).
Documentary analysis	The researcher uses previously produced documents (e.g. public records, emails, patient leaflets) as the basis for their analysis.	Allows the researcher to interpret the written artefacts made available at a particular time. Often done in combination with other methods, to provide context.

**Table 3:** Key elements of a qualitative research report.

<b>Element</b>	<b>Comments</b>
Structure	<ul style="list-style-type: none"><li>• Should follow the same broad structure as any research report</li><li>• May need to be flexible with content in each section</li></ul>
Researcher Involvement	<ul style="list-style-type: none"><li>• Reflexivity is a key aspect of qualitative research</li><li>• Try to avoid the passive voice</li><li>• Explain 'how' the research was done (not just 'what' was done)</li></ul>
Generalisability	<ul style="list-style-type: none"><li>• Build, or link to, theory that helps to explain your work.</li><li>• Include excerpts to illustrate how you have arrived at your findings.</li></ul>
Credibility	<ul style="list-style-type: none"><li>• Include 'thick description' of context</li><li>• Discuss 'negative cases'</li><li>• Consider the role of triangulation and respondent validation</li></ul>