

**Probyn J, Howarth M, Maz J (2016). Understanding the ‘Middle Bit’: How to Appraise Qualitative Research. *British Journal of Cardiac Nursing* (in press).**

### **Abstract**

The Nursing & Midwifery Council (2015) states that all registered nurses must ‘practice in-line with best available evidence’. Whilst there are clinical guidelines that are used to inform clinical practice, these often apply to medical rather than nursing interventions. Accordingly nurses must develop their critical appraisal skills to enable them to evaluate the available published research and consider to what extent findings might inform their clinical practice. A starting point for this process is an understanding of the characteristics of qualitative research and the key concepts that can guide the appraisal of a qualitative study. This paper provides an overview of the key points and frameworks for consideration in appraising qualitative evidence.

### **Key words**

Quality appraisal

Qualitative research

Qualitative methods

Qualitative methodologies

Evidence based practice

### **Box 1: Learning objectives**

- Define evidence based practice.
- Consider the potential contribution of qualitative research evidence to evidence based practice.
- Explain why appraisal of qualitative research is necessary.
- Define key concepts that guide the appraisal of qualitative research and apply these to a qualitative research study of your choice.

### **Introduction**

The world of a newly qualified nurse can, at first, be a daunting experience and you are likely to focus all your energies on ‘getting things right’ to deliver evidence based care. This invariably means reflecting on your practice and ensuring that your actions

are underpinned, as far as possible, by evidence that is reliable, contemporary and robust. Clinical effectiveness is an essential attribute of clinical governance in the NHS and focuses upon the delivery of the best possible healthcare based upon robust evidence (Nursing and Midwifery Council, 2015; Degeling et al, 2004). This requires competency in accessing, reading and appraising research evidence. Often, a range of evidence is used in conjunction with clinical experience to make an informed decision about the care of a patient. In many cases there is a lack of robust evidence meaning that decision must be made based on expert opinion alone. Acquiring the knowledge and skills to appraise research to inform clinical decision making supports the delivery of evidence-based practice (EBP) (Pipe et al 2005). A starting point for this process is an understanding of the characteristics of qualitative research and the key concepts that are considered when appraising the quality of evidence presented in a qualitative study.

### **The value of qualitative evidence**

There are accepted 'levels' of evidence on which to base clinical decisions. High quality systematic reviews with meta-analyses pool together data from randomised controlled trials (RCTs) and provide evidence on which to base clinical decisions about the effectiveness of a treatment or intervention e.g. the use of digoxin in patients with heart failure (Hood et al 2014). Whilst this study by Hood and colleagues shows that digoxin is an effective treatment, research also shows that only 50% of people prescribed a medication take it in a way that will lead to clinical improvement (Brown and Bussell 2011). Qualitative research can add valuable information in this scenario as a way of understanding how and why people take medications. Qualitative evidence cannot tell us about the efficacy of an intervention, but it can shed light upon how an intervention or treatment might be used in a real life setting, for example, peoples' experiences of making lifestyle changes after myocardial infarction (Astin et al, 2014). The NHS Constitution states that health professionals must view the services that they provide from the standpoint of patients and their families (DH, 2013). Qualitative research provides an excellent insight into peoples' experiences of health care services and thus how they can be improved.

### **Essential characteristics of qualitative research**

Qualitative research is any research study that does not involve ordinal values (Nwike et al, 2001). It aims to understand how people make sense of the world around them and the experiences they have of events, or phenomena, in their natural environment. Qualitative research places importance upon how a social experience may be created and the way in which it gives meaning to social life (Denzin & Lincoln, 1994). This type of research uses approaches that focus on the participant's viewpoint. The researcher is seen as 'the data collection instrument' and as such is an integral part of the research process (Corbin & Strauss, 2008). In practice this means that if you wanted to find out what it is like to have been cared for in the coronary care unit you may ask about patients' views of their experiences.

There are broadly three common ways to collect qualitative data: face-face or focus group interviews, observing participants and documentary analysis. Semi-structured, face-to-face interviews with patients could be one approach to understanding about the nature of the care patients received and what it meant to them. The researcher in this context has two functions; they are both the data collection instrument and the analyst. People differ in their views about researcher involvement in interviews. Some believe that there is an accepted level of research involvement that can lead to bias; for others (Robson 1993; Birks & Mills, 2014) this bias is understood to be part of the data collection and analysis activity and is an important element of the research process. One way to address potential bias is to record a reflective log in which the researcher describes the research process and how they have developed their ideas. Focus group interviews (with up to 8 participants at a time) require different skills to individual interviews. The researcher's role is to facilitate interactions and discussion between participants around a defined topic (Flick, 2006). Whilst the questions asked may be similar to those asked in individual interviews, the data collected will differ as group dynamics can influence responses (Frey and Fontana, 1993). Interviews and focus groups are usually transcribed allowing the written data to be analysed using themes and codes. In an observational study, the researcher could observe the coronary care unit over a period of time to try and understand patients' experiences of it. Observation is characteristic of ethnographic studies and tells us about the culture of an environment. Data collected using this approach could be in the form of audio/video recordings or field notes made by the researcher. Documentary analysis is a systematic procedure for reviewing or evaluating documents. These could be

diaries kept by patients about their medication use, patient notes or institutional documents (Bowen, 2009).

The findings from qualitative research tend to be reported in a literary style characterised by quotes, categories and themes derived from participant interviews as opposed to descriptive or inferential statistics presented in tables or graphs. The general goals of qualitative research are to explore and describe a phenomenon and explain how it may differ across settings and individuals.

### **The importance of critical appraisal**

The ability to critically appraise research papers and in particular, the way in which the research has been designed and conducted is a fundamental part of EBP. Despite this, many nurses, when faced with a research paper, often focus on the introduction and discussion but miss out 'the middle bit' which details how the research was undertaken. You may feel that you have little interest in the research design; but the study type, research questions and data collection and analytical methods are important quality indicators. It is here that the researchers describe how they undertook the study and what quality control mechanisms were put into place to support the robustness of the study and the rigour of the findings. Research that is used to influence policy and practice must be of good quality, and qualitative research in particular, must demonstrate that it is robust and relevant and that the information provided has value for practice contexts and is potentially transferable to other clinical situations.

### **Appraising qualitative evidence**

There is no agreement about a single approach to appraise the quality of qualitative research evidence and this represents a long-standing debate within nursing (Rolfe, 2006). Where quantitative research is concerned it seems to be more straightforward to form an opinion about study quality. Before we look at the criteria for appraising qualitative research it is important to understand how quantitative research is appraised to appreciate differences dictated by the different methodological approaches.

Quantitative research is concerned with discovering 'one truth'. The aim is to minimise any other possible influences on the outcome aside from the variables being tested (bias) and there are particular standardised procedures that researchers use to support this. There are several different types of bias, defined in the Cochrane handbook for Systematic Reviews and Interventions (Higgins & Green, 2011). For example, if a researcher identifies trial participants using a table of random numbers, then in theory, each member of the population should have an equal chance of being selected thereby minimising selection bias. Another approach to reduce bias might be to repeat the experiment on more than one occasion. Terms linked to the appraisal of quantitative research such as validity (level of confidence that no other variables have caused the relationship identified between two variables), reliability (the extent to which the methods can be repeated) and generalisability (the extent to which the findings can be generalised beyond the population tested) are not considered especially helpful when applied to qualitative research.

Qualitative research cannot be judged by the same criteria (Green and Thorogood 2014). This is because qualitative researchers are not searching for one truth but are, by the nature of their research endeavors, collecting experiences and constructing meaning that represent these experiences within the participants' own conception of reality. This does not mean that qualitative research is any less rigorous in its methodology or methods. There are equivalent terms that are applied to qualitative research, but what makes it especially challenging for students is that there is no consensus about which set of 'terms' are the most useful. Accordingly different authors have developed different terms making it a rather complicated landscape for the novice. In this article we focus on the terms described by Lincoln and Guba as criteria for judging the quality of qualitative research (1985). These are **credibility**, **transferability**, **dependability**, and **confirmability**.

### ***1. Credibility.***

As an alternative to internal validity, credibility refers to the extent to which the findings represent reality and the participants' viewpoints rather than the researchers'. Credibility can be achieved by adopting well established research methods that are appropriate to answer the research questions being asked. Attention to credibility is essential to the design of qualitative research, from the development of the research

questions through to the analysis of the data. A researcher's world view influences both the type of questions that a researcher may ask and the techniques they employ to answer them (Astin & Long 2014).

A credible qualitative research study illustrates a logical and coherent flow between the researcher's ontological position, epistemological approach/methodology, and the methods of data collection and analysis (see Box 2). The ontological assumptions of the researcher relate to how they perceive their reality. To some extent, this influences their epistemological values, or in other words, how they make sense of reality. Understanding ontological and epistemological viewpoints enables researchers to develop a methodology most suited to their research question and ontological beliefs about how knowledge is created. The 'story' within a research study research must 'make sense' in terms of a logical connection between the researcher's theoretical orientation and the way that the research is conducted. In the study we mentioned earlier, in which we wanted to understand how and patients took medications, our ontological position is constructivist/interpretivist because we are interested in using qualitative methods to explore actions, beliefs and perceptions. This will enable us to understand the process underpinning why and how these medications are used by patients. It is then time to choose which qualitative epistemology and methodology best suits our research question.

### **Box 2: Ontology, epistemology and methodology**

**Ontology:** What is the nature of reality?

- Single reality 'vs' multiple realities
- E.g. Positivist, post-positivist or constructivist/interpretive

**Epistemology:** What is the nature of knowledge? (How is it created?)

- Insider 'vs' outsider perspective
- E.g. grounded theory, phenomenology or ethnography?

**Methodology:** How do we understand the world – what methods do we use?

- Qualitative 'vs' quantitative or both
- E.g. interviews/focus groups, observation or documentary analysis?

Table 1 illustrates four common qualitative epistemologies, their focus, and typical methods of data collection and analysis. If the researcher is interested in exploring the

influence of patients' cultural environments on their medication taking, an ethnographic approach would be most appropriate. The researcher might observe patients' behaviour in different environments such as the home and clinic, and interview key people in those environments to build up a picture of how the cultural setting works in relation to medication taking. If the researcher is interested in developing a theory that could improve medication taking, a grounded theory approach would be most appropriate. Semi-structured interviews would be used and the sample would be recruited alongside data collection and analysis, depending on initial themes that arise from the data. This constant back and forth relationship between data collection, analysis and sampling enables a theory to be developed that is grounded in the patients' experiences (Charmaz, 2004).

**Table 1: Qualitative epistemologies: Focus, methods and examples**

<b>Epistemological approach</b>	<b>Focus</b>	<b>Methods of data collection</b>	<b>Methods of data analysis</b>	<b>Practice Example</b>
Grounded theory	The creation of new theory to explain a particular phenomenon	Semi-structured interviews influenced by ongoing data collection and analysis	Constant comparative method	Asking people about their experience of care following CABG
Phenomenology	The study of individual lived experiences of a particular phenomenon	In-depth interviews	Hermeneutic analysis: a product of the own researchers life experience	Asking what it's like to have had an MI at an early age

Ethnography	The study of cultural processes	Observation In-depth interviews	Thematic analysis focusing on cultural theory	Observing cultural influences on health lifestyle to identify how heart disease could be prevented
Narrative	The study of how reality is described through story	In-depth interviews	Thematic analysis focusing on the structure of narratives	Listening to an individual's account of the experience of having a CABG and explicate the meaning in the text

There are a variety of ways in which the credibility of the research can be enhanced. One approach is to incorporate 'triangulation' within the research design. There are four basic aspects of triangulation (Denzin, 1978), outlined in Box 3. In our example the researcher might include both patients and health professionals as participants, conduct interviews as well as some observations in the clinical environment and/or the patient's homes and recruit patients from two different hospitals. Triangulation may also refer to the use of published literature – which is known as 'literature sensitivity' (Corbin & Strauss 2008). The researcher may analyse the data and then compare the emergent findings with existing findings published in the literature. It is also important to involve other researchers in the data analysis process so as to minimise the risk of interpretation bias.

**Box 3: Four basic methods of triangulation (Denzin, 1978)**



- **Data triangulation:** Collecting and comparing data from a range of different sources, collected at different times and by different means, eg. Comparing observational and interview data, comparing what people say about the same thing over a period of time, comparing what different stakeholders think about the same topic i.e. doctors and patients.
- **Investigator triangulation:** Involving several different researchers in the data analysis process or at a minimum in checking the data analysis of a single researcher.
- **Theory triangulation:** Drawing on multiple perspectives and theories to interpret the data, to explore how your findings compare.
- **Methodological triangulation:** Drawing on multiple methodological perspectives and exploring the consistency of findings relating to different methodologies, for example what have quantitative and qualitative studies on this topic shown and how does this relate to your findings?

## ***2. Transferability***

Qualitative research seeks to explore and understand multiple realities, hence, generalisability (the quantitative idea that by recruiting a random sample the findings can be truly representative of the general population) is considered to be an alien concept (Robson 1993). Transferability is the qualitative equivalent and refers to the extent that the findings of a particular qualitative study can be applied to other situations. The aim of sampling in qualitative work is to gather a wide range of opinions or experiences about a particular phenomenon or occurrence evident in the research question. Employing a properly planned purposive sampling technique can ensure that a range of factors relating to the phenomenon of study are explored. For example, maximum variation sampling enables researchers to select participants with a wide range of characteristics and experiences. In this way, findings from one sample might be transferable to another setting if the participants and environment share similar characteristics. In our example study, potential participants could be divided into categories, based on for example, age, gender, length of time on medication and medication dose. Care would be taken to recruit a variety of participants within each variable. For example both younger and older participants would be recruited with an equal spread by gender. This avoids a situation where the researcher may recruit all

retired, white, male participants who represent the majority in this patient population, thus only obtaining a narrow view of the overall experience.

When using a grounded theory approach, data collection and analysis occur sequentially leading to theory development. An initial cohort of participants might be recruited, and interviewed about the topic at hand. Initial open coding (line-by-line analysis of the interview transcript, identifying initial concepts and aspects of meaning in the data) highlights factors of interest and these can then be pinpointed in the ongoing sample selection and explored in more depth. The key aspect of this type of analysis is that a point is reached in the data collection process when no more new ideas or concepts are emerging. This is called data saturation (Glaser & Strauss, 1967) or data sufficiency; the point at which no new data is forthcoming that can contribute to the development of categories that will explain the meaning of the data.

### ***3. Dependability***

The term reliability, used in quantitative research, refers to the idea that if a study was repeated the same results should be observed. In qualitative research this is less relevant although the methodology and methods should be explained in sufficient detail to allow another authors to replicate the study, known as dependability. This information could include the number of organisations taking part in the study and where they are based, any restrictions in the type of people who participated, the number of participants involved in the fieldwork, the data collection methods that were employed, the number and length of the data collection sessions and the time period over which the data was collected. The methodology should be described in such a way as to enable another researcher to repeat the study in another setting, including what was planned and how this was accomplished, how data was gathered in sufficient detail and how effective the methodology was (Shenton, 2004). For example, in a study in which focus groups are conducted to explore the ways in which families and carers of patients in hospital felt supported by staff, it would be useful to know how many researchers were involved in conducting the focus group interviews. As Vaughn and colleagues (1996) suggest, two researchers should be involved in conducting focus group interviews, to enable one researcher to focus on the line of questioning and probing participants' responses whilst the other researcher manages the recording equipment, identifies who is speaking when and takes field notes about

the process. The reader may also ask other practically orientated questions about the data collection process, for example, were the focus groups interviews tape-recorded and fully transcribed prior to data analysis?

A qualitative research approach recognises that the context within which a phenomenon occurs heavily influences that phenomenon. With this in mind the reader should consider where data collection was conducted and external factors that may have influenced findings. For example, if we consider exploring anxiety in a group of participants diagnosed with angina, the setting in which the data collection takes place is important. For example, a participant interviewed in a hospital setting may be more anxious than the same participant interviewed in the security of their own home. It is also important to illustrate how qualitative analysis generated the findings. In particular how the initial coding evolved towards more sophisticated categories, themes and theory. Sufficient raw data (usually quotations) must be provided to allow the reader to judge whether the interpretation provided is supported by the data collected (Mays and Pope, 2000).

There are many different labels for qualitative data analysis processes but essentially all share common characteristics. In general, a type of content analysis is undertaken which is part of a cyclical process in which data is read and reread and categories developed from the data (Mays and Pope, 1995). To critique this part of the research study the reader needs a clear explanation about how the data analysis process took place. In simple terms the researcher should provide a road map of the data analysis journey that takes the reader from the raw data to the conclusions. The procedures for data analysis should be clearly described and theoretically justified. A reader should be able to get a sense of how the coding was conducted; whether data management software such as NVivo, Atlas ti and MAXQDA have been used to manage data; how categories have evolved to themes and how concepts were identified and developed from the data.

#### **4. Confirmability**

Objectivity is impossible to achieve in qualitative research, as the key research instrument is the human mind and the ability to interpret data to create meaning. As an alternative, confirmability refers to the steps a researcher implements to ensure as

far as possible that the findings represent the thoughts and ideas of the informants rather than the researcher's own preferences and ideas. One approach to ensuring confirmability is to provide an opportunity for participants to comment on the researcher's analysis. Commonly referred to as, 'member checking', this technique can be employed to establish the level of correspondence between the researcher's and the research participants' account of the research findings.

For example, in our study, once the preliminary analysis of the in-depth interview data has been completed, the researcher may invite participants to attend focus groups where the findings are presented and the participants discuss these. Alternatively, participants could be sent a written account of their experience as interpreted by the researcher and asked to comment. The data can then be analysed and incorporated into the study findings (Mays and Pope, 2000). Other ways in which confirmability can be gauged is through ascertaining the extent to which the findings fits within the setting (Corbin & Strauss, 2008).

The researcher must be explicit in stating their reasons for choosing their methodology, and acknowledging strengths and weaknesses in the study. Personal and intellectual biases must be made clear to the reader, as well as a discussion of the 'distance' between the participants and the researcher (Mays and Pope, 2000). For example, in an interpretive phenomenological study, the researcher's own background, culture, beliefs and experiences are seen as the means by which they are able to interpret the experiences described to them by research participants (LoBiondo-Wood & Haber, 2010). Reflexivity is the ability to draw on one's own influences within the analytic process to enable the researcher to clarify meaning and/or understand how their experience may have influenced the findings. The reflective process is governed by the researchers ontological and epistemological values and will therefore determine whether these experiences are 'bracketed out', or included as part of the analysis. This is a complex and fundamental part of the analytic process in qualitative research which needs to be transparent and auditable. Reflexivity can be achieved by keeping a reflective diary throughout the conduct of the research in which the researcher constantly reflects on the decisions and choices they make and what this means for the generation of the findings in terms of their credibility, transferability and dependability. Reflexivity can be demonstrated to the reader

through the inclusion of field notes, memos or a discussion within the analysis about how this approach was used to support the analytic process. It is also paramount to keep an audit trail of the research process so that the course of the research can be traced step-by-step – this can be well represented in a diagram or flow chart illustrating how the process led to the generation of findings (Shenton, 2004).

**Frameworks for assessing quality in qualitative research**

There are several appraisal tools available to help you to appraise qualitative research (see Box 4). There is no consensus as to the best tool but most address the key principles that we have described. You might use these tools if you are conducting a review or synthesis of qualitative research studies on a particular topic area to get a sense of the quality of published evidence. Alternatively you may wish to judge the quality of a particular study that you feel is relevant to your practice, or to help you understand where there are gaps in current knowledge to inform the development of research proposals. The appraisal tools vary in their focus and the criteria they use to guide the quality appraisal process. For example, if you are interested in the theoretical underpinning of the study for an academic literature review (i.e. the quality of the methodological approach used), academically developed tools such as Popay and colleagues (1998), Attree and Milton (2006) and Mays and Pope (2000) may be the most appropriate. The Critical Appraisal Skills Programme Tool (CASP, 2013) clearly defines questions to ask when reading a qualitative paper and is particularly useful for reviewers with limited experience of qualitative research (Hannes, 2011). Table 2 summarises the key questions from these frameworks in relation to the four criteria described above.

**Box 4: Examples of critical appraisal tools for qualitative research**

Popay and colleagues (1998)

Attree and Milton (2006)

Mays and Pope (2000)

Critical Appraisal Skills Programme tool for qualitative research (CASP, 2013)

**Table 2: Questions to ask when appraising qualitative research**

Key concept	Questions to ask
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Credibility	<p>What is the research about?</p> <p>Is the research question clear and does it match the methodology and method?</p> <p>Are the methods for data collection and analysis clear?</p> <p>Have the authors triangulated the data?</p> <p>Is there a thick and rich description of the phenomena?</p> <p>Is there evidence of the researchers role?</p>
Transferability	<p>What sampling techniques were used and why?</p> <p>Has the context been adequately described?</p> <p>Can the findings be applied to similar settings or groups or participants?</p>
Dependability	<p>How, when and where was the data collected?</p> <p>How was the data analysed?</p> <p>Is there sufficient contextual information that would enable you to repeat the study?</p> <p>How did the data shape the results and conclusion?</p>
Confirmability	<p>Has the researcher addressed how they may have influenced the data collection and analysis?</p> <p>Has the author enabled an audit of the analysis?</p> <p>What measures have the researcher taken to demonstrate whether the findings have relevance to the setting? and those involved?</p>

## Conclusion

If qualitative findings are to be included in an 'evidence base', we need some way of appraising the quality of evidence to synthesise empirical findings. This paper has illustrated the value of using qualitative research evidence to support your clinical decision making and influence clinical effectiveness. Through applying the criteria for judging qualitative research we hope you will be able to read and understand 'the middle bit' of qualitative research papers. Being able to make a sound judgment about the quality of qualitative papers will enable you to integrate sound evidence about the process of how patients experience health care and illness within your practice.

**Learning activity:** Think about a clinical decision you have made recently and try to reflect on what type of evidence informed this. What type of evidence did you use? Please list 5 key types of evidence.

**Answer/prompt to LA:** You may have thought about the patient voice, consensus from the multi-professional team, research evidence from qualitative or quantitative approaches, evidence-based guidelines and carer/professional opinion.

### **Key points**

- Good nursing practice must be underpinned by reliable research evidence.
- Qualitative evidence is valuable as it provides an insight into people's experiences of health of health care services and how they can be improved.
- The appraisal of qualitative evidence is important to ensure that evidence used in practice is rigorous and transferable to other clinical situations.
- Qualitative evidence cannot be judged by the same criteria as quantitative evidence
- There are four key criteria for judging qualitative evidence: credibility, transferability, dependability and confirmability
- A number of frameworks are available for the appraisal of qualitative research
- The ability to make sound judgments about qualitative research enables integration of findings into practice and improved clinical effectiveness.

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