

SPECIAL ARTICLES

Presenting and Evaluating Qualitative Research

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The purpose of this paper is to help authors to think about ways to present qualitative research papers in the *American Journal of Pharmaceutical Education*. It also discusses methods for reviewers to assess the rigour, quality, and usefulness of qualitative research. Examples of different ways to present data from interviews, observations, and focus groups are included. The paper concludes with guidance for publishing qualitative research and a checklist for authors and reviewers.

Keywords: qualitative research, research papers, *American Journal of Pharmaceutical Education*

INTRODUCTION

Policy and practice decisions, including those in education, increasingly are informed by findings from qualitative as well as quantitative research. Qualitative research is useful to policymakers because it often describes the settings in which policies will be implemented. Qualitative research is also useful to both pharmacy practitioners and pharmacy academics who are involved in researching educational issues in both universities and practice and in developing teaching and learning.

Qualitative research involves the collection, analysis, and interpretation of data that are not easily reduced to numbers. These data relate to the social world and the concepts and behaviors of people within it. Qualitative research can be found in all social sciences and in the applied fields that derive from them, for example, research in health services, nursing, and pharmacy.¹ It looks at X in terms of how X varies in different circumstances rather than how big is X or how many Xs are there?² Textbooks often subdivide research into qualitative and quantitative approaches, furthering the common assumption that there are fundamental differences between the 2 approaches. With pharmacy educators who have been trained in the natural and clinical sciences, there is often a tendency to embrace quantitative research, perhaps due to familiarity. A growing consensus is emerging that sees both qualitative and quantitative approaches as useful to answering research questions and understanding the world. Increasingly mixed methods research is being carried out where the researcher explicitly combines the quantitative and qualitative aspects of the study.^{3,4}

Like healthcare, education involves complex human interactions that can rarely be studied or explained in

simple terms. Complex educational situations demand complex understanding; thus, the scope of educational research can be extended by the use of qualitative methods. Qualitative research can sometimes provide a better understanding of the nature of educational problems and thus add to insights into teaching and learning in a number of contexts. For example, at the University of Nottingham, we conducted in-depth interviews with pharmacists to determine their perceptions of continuing professional development and who had influenced their learning. We also have used a case study approach using observation of practice and in-depth interviews to explore physiotherapists' views of influences on their learning in practice. We have conducted in-depth interviews with a variety of stakeholders in Malawi, Africa, to explore the issues surrounding pharmacy academic capacity building. A colleague has interviewed and conducted focus groups with students to explore cultural issues as part of a joint Nottingham-Malaysia pharmacy degree program. Another colleague has interviewed pharmacists and patients regarding their expectations before and after clinic appointments and then observed pharmacist-patient communication in clinics and assessed it using the Calgary Cambridge model in order to develop recommendations for communication skills training.⁵ We have also performed documentary analysis on curriculum data to compare pharmacist and nurse supplementary prescribing courses in the United Kingdom.

It is important to choose the most appropriate methods for what is being investigated. Qualitative research is not appropriate to answer every research question and researchers need to think carefully about their objectives. Do they wish to study a particular phenomenon in depth (eg, students' perceptions of studying in a different culture)? Or are they more interested in making standardized comparisons and accounting for variance (eg, examining differences in examination grades after changing the way

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the content of a module is taught). Clearly a quantitative approach would be more appropriate in the last example. As with any research project, a clear research objective has to be identified to know which methods should be applied.

Types of qualitative data include:

- Audio recordings and transcripts from in-depth or semi-structured interviews
- Structured interview questionnaires containing substantial open comments including a substantial number of responses to open comment items.
- Audio recordings and transcripts from focus group sessions.
- Field notes (notes taken by the researcher while in the field [setting] being studied)
- Video recordings (eg, lecture delivery, class assignments, laboratory performance)
- Case study notes
- Images
- Documents (reports, meeting minutes, e-mails)
- Diaries, video diaries
- Observation notes
- Press clippings
- Photographs

RIGOUR IN QUALITATIVE RESEARCH

Qualitative research is often criticized as biased, small scale, anecdotal, and/or lacking rigor; however, when it is carried out properly it is unbiased, in depth, valid, reliable, credible and rigorous. In qualitative research, there needs to be a way of assessing the “extent to which claims are supported by convincing evidence.”¹ Although the terms *reliability* and *validity* traditionally have been associated with quantitative research, increasingly they are being seen as important concepts in qualitative research as well. Examining the data for reliability and validity assesses both the objectivity and credibility of the research. Validity relates to the honesty and genuineness of the research data, while reliability relates to the reproducibility and stability of the data.

The validity of research findings refers to the extent to which the findings are an accurate representation of the phenomena they are intended to represent. The reliability of a study refers to the reproducibility of the findings. Validity can be substantiated by a number of techniques including triangulation use of contradictory evidence, respondent validation, and constant comparison. Triangulation is using 2 or more methods to study the same phenomenon. Contradictory evidence, often known as deviant cases, must be sought out, examined, and accounted for in the analysis to ensure that researcher bias does not interfere with or alter their perception of the data and any

insights offered. Respondent validation, which is allowing participants to read through the data and analyses and provide feedback on the researchers’ interpretations of their responses, provides researchers with a method of checking for inconsistencies, challenges the researchers’ assumptions, and provides them with an opportunity to re-analyze their data. The use of constant comparison means that one piece of data (for example, an interview) is compared with previous data and not considered on its own, enabling researchers to treat the data as a whole rather than fragmenting it. Constant comparison also enables the researcher to identify emerging/unanticipated themes within the research project.

STRENGTHS AND LIMITATIONS OF QUALITATIVE RESEARCH

Qualitative researchers have been criticized for over-using interviews and focus groups at the expense of other methods such as ethnography, observation, documentary analysis, case studies, and conversational analysis. Qualitative research has numerous strengths when properly conducted.

Strengths of Qualitative Research

- Issues can be examined in detail and in depth.
- Interviews are not restricted to specific questions and can be guided/redirected by the researcher in real time.
- The research framework and direction can be quickly revised as new information emerges.
- The data based on human experience that is obtained is powerful and sometimes more compelling than quantitative data.
- Subtleties and complexities about the research subjects and/or topic are discovered that are often missed by more positivistic enquiries.
- Data usually are collected from a few cases or individuals so findings cannot be generalized to a larger population. Findings can however be transferable to another setting.

Limitations of Qualitative Research

- Research quality is heavily dependent on the individual skills of the researcher and more easily influenced by the researcher’s personal biases and idiosyncrasies.
- Rigor is more difficult to maintain, assess, and demonstrate.
- The volume of data makes analysis and interpretation time consuming.
- It is sometimes not as well understood and accepted as quantitative research within the scientific community

- The researcher's presence during data gathering, which is often unavoidable in qualitative research, can affect the subjects' responses.
- Issues of anonymity and confidentiality can present problems when presenting findings
- Findings can be more difficult and time consuming to characterize in a visual way.

PRESENTATION OF QUALITATIVE RESEARCH FINDINGS

The following extracts are examples of how qualitative data might be presented:

Data From an Interview. The following is an example of how to present and discuss a quote from an interview.

The researcher should select quotes that are poignant and/or most representative of the research findings. Including large portions of an interview in a research paper is not necessary and often tedious for the reader. The setting and speakers should be established in the text at the end of the quote.

The student describes how he had used deep learning in a dispensing module. He was able to draw on learning from a previous module, "I found that while using the e learning programme I was able to apply the knowledge and skills that I had gained in last year's diseases and goals of treatment module." (interviewee 22, male)

This is an excerpt from an article on curriculum reform that used interviews⁵:

The first question was, "Without the accreditation mandate, how much of this curriculum reform would have been attempted?" According to respondents, accreditation played a significant role in prompting the broad-based curricular change, and their comments revealed a nuanced view. Most indicated that the change would likely have occurred even without the mandate from the accreditation process: "It reflects where the profession wants to be . . . training a professional who wants to take on more responsibility." However, they also commented that "if it were not mandated, it could have been a very difficult road." Or it "would have happened, but much later." The change would more likely have been incremental, "evolutionary," or far more limited in its scope. "Accreditation tipped the balance" was the way one person phrased it. "Nobody got serious until the accrediting body said it would no longer accredit programs that did not change."

Data From Observations

The following example is some data taken from observation of pharmacist patient consultations using the

Calgary Cambridge guide.^{6,7} The data are first presented and a discussion follows:

Pharmacist: *We will soon be starting a stop smoking clinic.*

Patient: *Is the interview over now?*

Pharmacist: *No this is part of it. (Laughs) You can't tell me to bog off(sic).yet. (pause) We will be starting a stop smoking service here,*

Patient: *Yes.*

Pharmacist: *with one-to-one and we will be able to help you or try to help you. If you want it.*

In this example, the pharmacist has picked up from the patient's reaction to the stop smoking clinic that she is not receptive to advice about giving up smoking at this time; in fact she would rather end the consultation. The pharmacist draws on his prior relationship with the patient and makes use of a joke to lighten the tone. He feels his message is important enough to persevere but he presents the information in a succinct and non-pressurised way. His final comment of "If you want it" is important as this makes it clear that he is not putting any pressure on the patient to take up this offer. This extract shows that some patient cues were picked up, and appropriately dealt with, but this was not the case in all examples.

Data From Focus Groups

This excerpt from a study involving 11 focus groups illustrates how findings are presented using representative quotes from focus group participants.⁸

Those pharmacists who were initially familiar with CPD endorsed the model for their peers, and suggested it had made a meaningful difference in the way they viewed their own practice. In virtually all focus groups sessions, pharmacists familiar with and supportive of the CPD paradigm had worked in collaborative practice environments such as hospital pharmacy practice. For these pharmacists, the major advantage of CPD was the linking of workplace learning with continuous education. One pharmacist stated, "It's amazing how much I have to learn every day, when I work as a pharmacist. With [the learning portfolio] it helps to show how much learning we all do, every day. It's kind of satisfying to look it over and see how much you accomplish."

Within many of the learning portfolio-sharing sessions, debates emerged regarding the true value of traditional continuing education and its outcome in changing an individual's practice. While participants appreciated the opportunity for social and professional networking inherent in some forms of traditional CE, most eventually conceded that the academic value of most CE programming was limited by the lack of a systematic process for following-up and implementing new learning in the workplace. "Well it's nice to go to these [continuing education] events, but really, I

don't know how useful they are. You go, you sit, you listen, but then, well I at least forget."

The following is an extract from a focus group (conducted by the author) with first-year pharmacy students about community placements. It illustrates how focus groups provide a chance for participants to discuss issues on which they might disagree.

Interviewer: *So you are saying that you would prefer health related placements?*

Student 1: *Not exactly so long as I could be developing my communication skill.*

Student 2: *Yes but I still think the more health related the placement is the more I'll gain from it.*

Student 3: *I disagree because other people related skills are useful and you may learn those from taking part in a community project like building a garden.*

Interviewer: *So would you prefer a mixture of health and non health related community placements?*

GUIDANCE FOR PUBLISHING QUALITATIVE RESEARCH

Qualitative research is becoming increasingly accepted and published in pharmacy and medical journals. Some journals and publishers have guidelines for presenting qualitative research, for example, the *British Medical Journal*⁹ and *Biomedcentral*.¹⁰ *Medical Education* published a useful series of articles on qualitative research.¹¹ Some of the important issues that should be considered by authors, reviewers and editors when publishing qualitative research are discussed below.

Introduction. A good introduction provides a brief overview of the manuscript, including the research question and a statement justifying the research question and the reasons for using qualitative research methods. This section also should provide background information, including relevant literature from pharmacy, medicine, and other health professions, as well as literature from the field of education that addresses similar issues. Any specific educational or research terminology used in the manuscript should be defined in the introduction.

Methods. The methods section should clearly state and justify why the particular method, for example, face to face semistructured interviews, was chosen. The method should be outlined and illustrated with examples such as the interview questions, focusing exercises, observation criteria, etc. The criteria for selecting the study participants should then be explained and justified. The way in which the participants were recruited and by whom also must be stated. A brief explanation/description should be included of those who were invited to participate but chose not to. It is important to consider "fair dealing," ie, whether the research design explicitly in-

corporates a wide range of different perspectives so that the viewpoint of 1 group is never presented as if it represents the sole truth about any situation. The process by which ethical and or research/institutional governance approval was obtained should be described and cited.

Sampling. The study sample and the research setting should be described. Sampling differs between qualitative and quantitative studies. In quantitative survey studies, it is important to select probability samples so that statistics can be used to provide generalizations to the population from which the sample was drawn. Qualitative research necessitates having a small sample because of the detailed and intensive work required for the study. So sample sizes are not calculated using mathematical rules and probability statistics are not applied. Instead qualitative researchers should describe their sample in terms of characteristics and relevance to the wider population. Purposive sampling is common in qualitative research. Particular individuals are chosen with characteristics relevant to the study who are thought will be most informative. Purposive sampling also may be used to produce maximum variation within a sample. Participants being chosen based for example, on year of study, gender, place of work, etc. Representative samples also may be used, for example, 20 students from each of 6 schools of pharmacy. Convenience samples involve the researcher choosing those who are either most accessible or most willing to take part. This may be fine for exploratory studies; however, this form of sampling may be biased and unrepresentative of the population in question. Theoretical sampling uses insights gained from previous research to inform sample selection for a new study. The method for gaining informed consent from the participants should be described, as well as how anonymity and confidentiality of subjects were guaranteed. The method of recording, eg, audio or video recording, should be noted, along with procedures used for transcribing the data.

Data Analysis. A description of how the data were analyzed also should be included. Was computer-aided qualitative data analysis software such as NVivo (QSR International, Cambridge, MA) used? Arrival at "data saturation" or the end of data collection should then be described and justified. A good rule when considering how much information to include is that readers should have been given enough information to be able to carry out similar research themselves.

One of the strengths of qualitative research is the recognition that data must always be understood in relation to the context of their production.¹ The analytical approach taken should be described in detail and theoretically justified in light of the research question. If the

analysis was repeated by more than 1 researcher to ensure reliability or trustworthiness, this should be stated and methods of resolving any disagreements clearly described. Some researchers ask participants to check the data. If this was done, it should be fully discussed in the paper.

An adequate account of how the findings were produced should be included. A description of how the themes and concepts were derived from the data also should be included. Was an inductive or deductive process used? The analysis should not be limited to just those issues that the researcher thinks are important, anticipated themes, but also consider issues that participants raised, ie, emergent themes. Qualitative researchers must be open regarding the data analysis and provide evidence of their thinking, for example, were alternative explanations for the data considered and dismissed, and if so, why were they dismissed? It also is important to present outlying or negative/deviant cases that did not fit with the central interpretation.

The interpretation should usually be grounded in interviewees or respondents' contributions and may be semi-quantified, if this is possible or appropriate, for example, "Half of the respondents said . . ." "The majority said . . ." "Three said . . ." Readers should be presented with data that enable them to "see what the researcher is talking about."¹ Sufficient data should be presented to allow the reader to clearly see the relationship between the data and the interpretation of the data. Qualitative data conventionally are presented by using illustrative quotes. Quotes are "raw data" and should be compiled and analyzed, not just listed. There should be an explanation of how the quotes were chosen and how they are labeled. For example, have pseudonyms been given to each respondent or are the respondents identified using codes, and if so, how? It is important for the reader to be able to see that a range of participants have contributed to the data and that not all the quotes are drawn from 1 or 2 individuals. There is a tendency for authors to overuse quotes and for papers to be dominated by a series of long quotes with little analysis or discussion. This should be avoided.

Participants do not always state the truth and may say what they think the interviewer wishes to hear. A good qualitative researcher should not only examine what people say but also consider how they structured their responses and how they talked about the subject being discussed, for example, the person's emotions, tone, non-verbal communication, etc. If the research was triangulated with other qualitative or quantitative data, this should be discussed.

Discussion. The findings should be presented in the context of any similar previous research and or theories. A

discussion of the existing literature and how this present research contributes to the area should be included. A consideration must also be made about how transferrable the research would be to other settings. Any particular strengths and limitations of the research also should be discussed. It is common practice to include some discussion within the results section of qualitative research and follow with a concluding discussion.

The author also should reflect on their own influence on the data, including a consideration of how the researcher(s) may have introduced bias to the results. The researcher should critically examine their own influence on the design and development of the research, as well as on data collection and interpretation of the data, eg, were they an experienced teacher who researched teaching methods? If so, they should discuss how this might have influenced their interpretation of the results.

Conclusion. The conclusion should summarize the main findings from the study and emphasize what the study adds to knowledge in the area being studied. Mays and Pope suggest the researcher ask the following 3 questions to determine whether the conclusions of a qualitative study are valid¹²: How well does this analysis explain why people behave in the way they do? How comprehensible would this explanation be to a thoughtful participant in the setting? How well does the explanation cohere with what we already know?

CHECKLIST FOR QUALITATIVE PAPERS

This paper establishes criteria for judging the quality of qualitative research. It provides guidance for authors and reviewers to prepare and review qualitative research papers for the *American Journal of Pharmaceutical Education*. A checklist is provided in Appendix 1 to assist both authors and reviewers of qualitative data.

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Appendix 1. Checklist for authors and reviewers of qualitative research.

Introduction

- Research question is clearly stated.
- Research question is justified and related to the existing knowledge base (empirical research, theory, policy).
- Any specific research or educational terminology used later in manuscript is defined.
- The process by which ethical and or research/institutional governance approval was obtained is described and cited.

Method

- Reason for choosing particular research method is stated.
- Criteria for selecting study participants are explained and justified.
- Recruitment methods are explicitly stated.
- Details of who chose not to participate and why are given.
- Study sample and research setting used are described.
- Method for gaining informed consent from the participants is described.
- Maintenance/Preservation of subject anonymity and confidentiality is described.
- Method of recording data (eg, audio or video recording) and procedures for transcribing data are described.
- Methods are outlined and examples given (eg, interview guide).
- Decision to stop data collection is described and justified.
- Data analysis and verification are described, including by whom they were performed.
- Methods for identifying/extrapolating themes and concepts from the data are discussed.

Results

- Sufficient data are presented to allow a reader to assess whether or not the interpretation is supported by the data.
- Outlying or negative/deviant cases that do not fit with the central interpretation are presented.
- Transferability of research findings to other settings is discussed.
- Findings are presented in the context of any similar previous research and social theories.

Discussion

- Discussion often is incorporated into the results in qualitative papers.
- A discussion of the existing literature and how this present research contributes to the area is included.
- Any particular strengths and limitations of the research are discussed.
- Reflection of the influence of the researcher(s) on the data, including a consideration of how the researcher(s) may have introduced bias to the results is included.

Conclusions

- The conclusion states the main findings of the study and emphasizes what the study adds to knowledge in the subject area.