

Sampling for qualitative research

Martin N Marshall

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The probability sampling techniques used for quantitative studies are rarely appropriate when conducting qualitative research. This article considers and explains the differences between the two approaches and describes three broad categories of naturalistic sampling: convenience, judgement and theoretical models. The principles are illustrated with practical examples from the author's own research.

Keyword. Qualitative sampling.

Introduction

The benefits of a qualitative approach to health care research are becoming increasingly recognized by both academics and clinicians, but misunderstandings about the philosophical basis and the methodological approach remain. The impression is sometimes given that qualitative research differs from the hypothetico-deductive model simply in terms of the way that data is collected. The process of sampling is one of the principal areas of confusion, a problem not helped by the inadequate way that it is covered in the literature, where there is little agreement on definitions and authors frequently invent new and complex terms which cloud simple fundamental issues. In this article I will describe both quantitative and qualitative methods of sampling and consider the basic differences between the two approaches in order to explain why the sampling techniques used are not transferable. I will consider issues relating to sample size and selection in qualitative research and illustrate the principles with practical examples.

Quantitative sampling

Choosing a study sample is an important step in any research project since it is rarely practical, efficient or ethical to study whole populations. The aim of all quantitative sampling approaches is to draw a representative sample from the population, so that the results of studying the sample can then be generalized back to the population. The selection of an appropriate method depends upon the aim of the study. Sometimes less rigorous methods may be acceptable, such as incidental or quota samples, but these methods do not guarantee

a representative sample. The most common approach is to use random, or probability samples. In a random sample the nature of the population is defined and all members have an equal chance of selection. Stratified random sampling and area sampling are variants of random sampling, which allow subgroups to be studied in greater detail.

The size of the sample is determined by the optimum number necessary to enable valid inferences to be made about the population. The larger the sample size, the smaller the chance of a random sampling error, but since the sampling error is inversely proportional to the square root of the sample size, there is usually little to be gained from studying very large samples. The optimum sample size depends upon the parameters of the phenomenon under study, for example the rarity of the event or the expected size of differences in outcome between the intervention and control groups.

Comparing the quantitative and qualitative approaches

The choice between quantitative and qualitative research methods should be determined by the research question, not by the preference of the researcher. It would be just as inappropriate to use a clinical trial to examine behavioural differences in the implementation of clinical guidelines as it would be to use participant observation to determine the efficacy of antibiotics for upper respiratory tract infections. The aim of the quantitative approach is to test pre-determined hypotheses and produce generalizable results. Such studies are useful for answering more mechanistic 'what?' questions. Qualitative studies aim to provide illumination and understanding of complex psychosocial issues and are most useful for answering humanistic 'why?' and 'how?' questions. The principal fundamental differences in both the philosophical foundation of and the methodological approach to the two disciplines are summarized in Table 1.

Why is random sampling inappropriate for qualitative studies?

The process of selecting a random sample is well defined and rigorous, so why can the same technique not be used for naturalistic studies? The answer lies in the aim of the study; studying a random sample provides the best opportunity to generalize the results to the population but is not the most effective way of developing an understanding of complex issues relating to human behaviour. There are both theoretical and practical reasons for this.

First, samples for qualitative investigations tend to be small, for reasons explained later in this article. Even if a representative sample was desirable, the sampling error of such a small sample is likely to be so large that biases are inevitable. Secondly, for a true random sample to be selected, the characteristics under study of the whole population should be known; this is rarely possible in a complex qualitative study. Thirdly, random sampling of a population is likely to produce a representative sample only if the research characteristics are normally distributed within the population. There is no evidence that the values, beliefs and attitudes that form the core of qualitative investigation are normally distributed, making the probability approach inappropriate. Fourthly, it is well recognized by sociologists¹ that people are not equally good at observing, understanding and interpreting their own and other people's behaviour. Qualitative researchers recognize that some informants are 'richer' than others and that these people are more likely to provide insight and understanding for the researcher. Choosing someone at random to answer a qualitative question would be analogous to randomly asking a passer-by how to repair a broken down car, rather than asking a garage mechanic—the former might have a good stab, but asking the latter is likely to be more productive.

Sample size

Quantitative researchers often fail to understand the usefulness of studying small samples. This is related to the misapprehension that generalizability is the ultimate goal of all good research and is the principal reason for some otherwise sound published qualitative studies containing inappropriate sampling techniques.² An appropriate sample size for a qualitative study is one that adequately answers the research question. For simple questions or very detailed studies, this might be in single figures; for complex questions large samples and a variety of sampling techniques might be necessary. In practice, the number of required subjects usually becomes obvious as the study progresses, as new categories, themes or explanations stop emerging from the data (data saturation). Clearly this requires a flexible research design and an iterative, cyclical

approach to sampling, data collection, analysis and interpretation. This contrasts with the stepwise design of quantitative studies and makes accurate prediction of sample size difficult when submitting protocols to funding bodies.

Sample strategies

There are three broad approaches to selecting a sample for a qualitative study.

Convenience sample

This is the least rigorous technique, involving the selection of the most accessible subjects. It is the least costly to the researcher, in terms of time, effort and money, but may result in poor quality data and lacks intellectual credibility. There is an element of convenience sampling in many qualitative studies, but a more thoughtful approach to selection of a sample is usually justified.

Judgement sample

Also known as purposeful sample, this is the most common sampling technique. The researcher actively selects the most productive sample to answer the research question. This can involve developing a framework of the variables that might influence an individual's contribution and will be based on the researcher's practical knowledge of the research area, the available literature and evidence from the study itself. This is a more intellectual strategy than the simple demographic stratification of epidemiological studies, though age, gender and social class might be important variables. If the subjects are known to the researcher, they may be stratified according to known public attitudes or beliefs. It may be advantageous to study a broad range of subjects (maximum variation sample), outliers (deviant sample), subjects who have specific experiences (critical case sample⁶) or subjects with special expertise (key informant sample). Subjects may be able to recommend useful potential candidates for study (snowball sample). During interpretation of the data it is important to consider subjects who support emerging explanations and, perhaps more importantly, subjects who disagree (confirming and disconfirming samples).

Theoretical sample

The iterative process of qualitative study design means that samples are usually theory driven to a greater or lesser extent. Theoretical sampling necessitates building interpretative theories from the emerging data and selecting a new sample to examine and elaborate on this theory. It is the principal strategy for the grounded theoretical approach³ but will be used in some form in most qualitative investigations necessitating interpretation.

TABLE 1 *Comparison of quantitative and qualitative methods*

	Quantitative	Qualitative
Philosophical foundation	Deductive, reductionalist	Inductive, holistic
Aim	To test pre-set hypothesis	To explore complex human issues
Study plan	Step-wise, predetermined	Iterative, flexible
Position of researcher	Aims to be detached and objective	Integral part of research process
Assessing quality of outcomes	Direct tests of validity and reliability using statistics	Indirect quality assurance methods of trustworthiness
Measures of utility of results	Generalizability	Transferability

It is apparent from the above description that there is considerable overlap even between these three broad categories. The relative balance will depend upon the research question and the chosen style of data analysis and interpretation. It is important to recognize that the essence of the qualitative approach is that it is naturalistic—studying real people in natural settings rather than in artificial isolation. Sampling therefore has to take account not only of the individual's characteristics but also temporal, spatial and situational influences, that is, the context of the study. The researcher should consider the broader picture: would this individual express a different opinion if they were interviewed next week or next month? Would they feel differently if they were interviewed at home or at work? Should I study them when they are under stress or relaxed? There is no correct answer to these questions, just as there is no perfect way to sample, but the influence that these factors might have on the trustworthiness of the results should be acknowledged.

A practical example of sampling strategy

In practice, qualitative sampling usually requires a flexible, pragmatic approach. This may be illustrated by my own study of the professional relationship between GPs and specialists (in progress).

The way that the two branches of the medical profession work together is a key component of the primary-secondary care interface, which, in terms of sociological interaction, is largely unresearched. The study aims to describe the current relationship, compare this with the historical literature, and elucidate the principal factors causing a change in the interaction between the two main branches of the medical profession. Four methods of data collection have been used, each of which view the interaction from differing perspectives and each of which have required different sampling strategies.

The first stage involved the use of key informant

interviews,⁴ an anthropological technique utilizing rich information sources, which has defined sample selection criteria.⁵ A sample of 10 national figures in positions of leadership and responsibility within the profession were chosen. Since the total population of possible key informants is small, this was necessarily a convenience sample, though there was an element of a judgement approach, since efforts were made to ensure that participants came from a range of clinical, academic, managerial and political backgrounds. The advantage of this approach lies in its simplicity but it was difficult to determine at the sampling stage whether the informants fulfilled the published selection criteria.

The second stage involved in-depth interviews with practising clinicians throughout the South and West Region. The aim was to develop an understanding and an interpretative framework of the process of interaction between specialists and GPs. I started with a judgement sample framework including variables such as time since qualification, gender, geographical location, rurality, fundholding status and teaching hospital status. As the data was collected and analysed, an interpretative framework was constructed, so the sampling strategy changed from largely judgement to largely theoretical, in order to build on the developing theory. New themes stopped emerging after about 15 interviews and an acceptable interpretative framework was constructed after 24 interviews—the stage of thematic and theoretical saturation.

The third stage of the study brought GPs and specialists together in focus groups to collect the different level of data produced by personal interaction. For pragmatic reasons, this had to be conducted in my own locality, and it was important for the study that the participants were able to interact in a productive, rather than dysfunctional way. I was able to use my local knowledge to satisfy these sampling requirements using a combination of convenience and purposive techniques.

The three qualitative stages of the study will form the basis of a Likert survey to test out emergent themes and which will be distributed to a stratified random sample of the whole population of clinicians working in the Region. This will represent a different, not necessarily a stronger, perspective of the professional relationship.

Conclusion

Sampling for qualitative research is an area of considerable confusion for researchers experienced in the hypothetico-deductive model. This largely relates to misunderstanding about the aims of the qualitative approach, where improved understanding of complex human issues is more important than generalizability of results. This basic issue explains why probabilistic sampling is neither productive nor efficient for

qualitative studies and why alternative strategies are used. Three broad categories of naturalistic sampling techniques have been described—convenience, judgement and theoretical sampling—though in practice there is often considerable overlap between these approaches.

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