

An Introduction to Qualitative Inquiry

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Many aspects of care for people with kidney disease cannot be meaningfully understood in numerical terms, and benefit from a qualitative approach to inquiry. Qualitative methodologies were originally developed in the social sciences, but are increasingly used in medical research to address questions related to people's lived experiences of illness and care, the meanings they attribute to these experiences, and how health care processes and systems function.¹ In the nephrology literature, qualitative work has helped to identify those health outcomes that matter most to people with kidney disease and their families,² which has informed the design and testing of clinical interventions. Other studies have shed light on complex health care processes, such as kidney transplant donation³ and medical decision making,⁴ helping to identify targets for process improvement. Qualitative work may also offer a view into the lives of people with kidney disease,⁵ which supports clinicians in better understanding, communicating with, and caring for this group.

Qualitative methods can be quite distinct from the quantitative methodologic approaches that are more familiar to many clinicians and members of the kidney research community. To help readers better understand and critically appraise qualitative work, we describe the key features of this approach and compare these with methodologic techniques and concepts in quantitative research (Table 1).

What Is Qualitative Research?

Qualitative research uses non-numeric naturalistic data (*e.g.*, interviews, field notes, images, and documents) to construct rich description and/or explanatory frameworks that can deepen our understanding of complex phenomena.¹ To support this in-depth inquiry, subject recruitment, data collection, and interpretation typically occur simultaneously. Study subjects are selected according to the likelihood they will provide useful information on the phenomenon of interest (known as purposive sampling).⁶ As data are collected, analysis begins with a process of coding in which the researcher identifies and names the concepts that appear in the data.⁷ Preliminary analysis of data gathered from early subjects informs recruitment and data collection for later subjects with whom emerging concepts are probed more fully. Concepts are examined for inter-relationships and assembled into a theoretical framework that advances understanding of the phenomenon.

Where Is the Hypothesis?

Under a deductive approach to scientific inquiry, researchers begin with a theoretical understanding of a phenomenon, then design a hypothesis-based experiment that can support or oppose this theory. However, what can be learned from these kinds of studies is inherently constrained by this predetermined theory. This feature can be a major limitation

when investigating complex or poorly described phenomena. In these situations, framing the study around a narrow question of uncertain relevance to the phenomenon of interest can result in a superficial, incomplete, or distorted understanding of the data.

Qualitative inquiry supports discovery or new perspectives on phenomena when existing theory describing these phenomena is inadequate or absent. To this end, qualitative work tends to be inductive, that is, research questions are intentionally open ended to allow the researcher to collect information even when its relevance to understanding the phenomenon of interest may have been unforeseen.⁸ Rather than investigate a predetermined theory through hypothesis testing, inductive inquiry aims to build a conceptual understanding of the phenomenon as this emerges directly from review of the data. A range of qualitative approaches are available to address research questions that are more or less open ended versus narrowly targeted.

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Table 1. Key concepts and terms in quantitative and qualitative methods

Domain	Quantitative Methods	Qualitative Methods
Types of questions	How much? How often?	What is it like? How does it work? What does it mean?
Data type	Numeric.	Non-numeric or naturalistic (e.g., interview audio and transcripts, images, objects, observation notes, documents).
Analytical approach	Commonly deductive ^a , designed to test an existing theory about a phenomenon through hypothesis-based research questions.	Commonly inductive ^a , designed to develop an explanatory theory or conceptual framework directly from the data by posing open-ended research questions.
Sampling	Targeted to the number of participants needed to support statistical analyses. Eligibility criteria, sample size, and analytic plan are often prespecified.	Targeted to the number of participants needed to support sufficient elucidation of emergent concepts from the data. Participants are purposively selected on the basis of the likelihood that they will be able to offer relevant perspectives on a phenomenon and/or to fill conceptual gaps as an understanding of the phenomenon begins to emerge. Recruitment continues until reaching thematic saturation, or the point at which additional sampling yields little new information.
Applicability beyond research participants	Large and representative samples support statistical inferences about applicability to the source population independent of the specific details of the study sample. Findings may be externally generalizable if the study population is sufficiently representative of other persons or groups with the condition of interest.	The theory or conceptual framework that results from a study may be transferrable to an external context when the study and external settings share core features on which the theory is based.
Limiting biases of the researchers	Objectivity is supported by limiting and prespecifying the ways in which the researcher interacts with the data. Results should be reproducible in future studies.	A theory or conceptual framework is constructed through the researcher's (or research team's) interpretation of the data, so results are inherently subjective. Researchers reflect on their own background and experiences that shape results (reflexivity) and report these to help readers contextualize the findings. During analysis, emerging themes are repeatedly compared with original data to ensure that they are grounded in these data. Trustworthiness is enhanced by methodologic features such as member checking, co-coding by researchers with different backgrounds, and triangulation of findings using different methods and in different settings.

^aThe degree of open-endedness of any research activity exists along a spectrum. Some quantitative methods employ inductive approaches and qualitative methods can involve more deductive components.

Why Is A Recruitment Target Not Prespecified?

In quantitative research, key elements of study design, such as the recruitment and analytic plan, are typically specified in advance. This approach is needed to avoid *ad hoc* changes to these parameters that may violate statistical assumptions.

Researchers conducting inductive qualitative work assume that at the beginning of the study, they do not know enough about the phenomenon of interest to be able to specify what data may be salient. Qualitative methodology is thus designed to support an iterative

approach to recruitment and analysis in which formative steps inform later steps.^{7,8} Subjects are intentionally chosen on the basis of characteristics (e.g., age, race, diagnosis, relationships, and roles) that make it likely that their experiences and perspectives will enhance the researchers' understanding of the phenomenon of interest. As this understanding grows, subsequent purposive sampling and analysis is tailored to fill conceptual gaps or clarify aspects of an emerging conceptual framework.

The amount of information represented in a qualitative study tends to be

driven by the density of concepts in the data, rather than by the number of subjects *per se*. Data collection is considered complete when the analysis reaches thematic saturation, that is, the point at which further sampling yields little new information about the phenomenon.⁸ A relatively small number of subjects may be sufficient to construct a detailed and coherent description or explanatory framework. Although the number and types of subjects needed to reach saturation cannot be known in advance, for study planning purposes (e.g., institutional review board proposals, grant

applications), researchers may estimate these parameters on the basis of experience with similar studies.

How Can We Apply Findings from A Small Sample and Narrowly Defined Context to Other Groups and Settings?

In many quantitative studies, inferential tests are used to judge the likelihood that study findings apply to the source population from which the sample was selected and inclusion of large numbers of participants generally support this possibility. Study findings may be considered more broadly generalizable if the study population is sufficiently representative of other groups or persons experiencing the condition under investigation.

It is not uncommon for qualitative studies to be conducted among a small group of subjects in a narrowly defined context. However, these features, which could limit the generalizability of quantitative study results, are not typically what determines the external relevance or value of qualitative study findings. A conceptual framework may be useful for understanding related phenomena among a different or broader group (a property known as transferability⁶) if the studied and external settings share core features that contribute to this conceptual framework.

For example, in her ethnographic work to understand decision making among 27 terminally ill patients in San Francisco, the anthropologist Sharon Kaufman describes how the hospital system itself “organizes and constrains choice making.”⁴ This conceptual framework has broad relevance beyond the specific population, context, and even phenomenon studied, not because the study sample is representative of these, but because the concept of hospital processes and culture shaping patients’ decision making may be relevant to understanding other instances of decision making in clinical contexts.

However, it is also important to recognize that the primary purpose of most qualitative work is to generate theory and/or provide rich contextual

description, not to test the validity of study findings in other populations or contexts.⁸ Rather, it is expected that the theoretical understanding of a phenomenon resulting from qualitative study will be expanded, deepened, and/or modified when applied to other contexts. Well-developed theoretical models can also provide a strong foundation for hypothesis formulation and quantitative testing.

How Can We Trust the Results?

Regardless of the methodology, researchers must strive to employ strategies in study design, data collection, and analysis to guard against their own biases. Approaches to support objectivity in quantitative research focus on limiting the ways in which the researcher is allowed to interact with the data (*e.g.*, prespecified analytic plan), segregating the researcher from the data (*e.g.*, double blinding), and ensuring study results are replicable.

Constructing theory and identifying meaning in qualitative analyses necessitate close interaction with the data, and it is understood that results will be a product of the researcher’s own interpretation. Instead of attempting to extract themselves from the analytic process, researchers engaged in qualitative work are trained to explicitly recognize, consider, and acknowledge their own perspectives and how these might shape their interpretation of the data. The backgrounds and relevant experiences of the researchers are typically reported in the methods sections of qualitative studies so that readers can take these factors into consideration as they review the study.⁹ Results of different qualitative analyses of the same data may vary depending on who is conducting the research, and are thus not expected to be replicable. This subjectivity reflects the reality that complex phenomena can be understood in different ways, all of which may be conceptually valuable.

Multiple methodologic approaches have been developed to ensure that the

findings of qualitative analyses reflect the authentic perspectives of study subjects or features of the source data.⁶ Researchers introspectively monitor for how their perspectives may shape emerging themes and intentionally challenge assumptions that may have arisen from their own experience. During analysis, emerging themes are repeatedly checked against the original data to ensure findings are grounded in these data.¹⁰ Multiple members of the research team may participate in data collection and coding to support the likelihood that results are not the product of any one researcher’s expectations, biases, or perspectives. Techniques such as member checking, in which preliminary results are returned to study participants to confirm that the findings resonate with their experiences, may provide further reassurance that study findings accurately capture their perspectives. The trustworthiness of these findings is also increased when similar or related conclusions arise from work conducted in other populations or settings, by different researchers, and/or using alternative methodologies (known as triangulation).¹

Although quantitative and qualitative approaches to scientific inquiry evolved to support the analysis of different kinds of data, these approaches can be highly complementary and mutually reinforcing. The diversity and complexity of scientific questions in health care calls for a range of methodologic tools, and learning how to integrate the results of qualitative research into our evidence base will help to advance knowledge and improve the care of people with kidney disease.

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