

Overview of Qualitative Research Methods Part II

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Welcome to the second module in the Overview of Qualitative Research Methods series. My name is Julie Stoner and I am a Professor at the University of Oklahoma Health Sciences Center.

This introductory series is based on a graduate course that I developed with Dr. Toby Hamilton from the OUHSC College of Allied Health. Much of the content was developed by Dr. Hamilton and is driven by her work as an occupational therapist and qualitative researcher.

Learning Objectives

- Discuss features that distinguish quantitative research methods from qualitative research methods

Quantitative **Qualitative**



2

In this second module, we will focus on features that distinguish quantitative and qualitative research projects.

Research Paradigms



	Quantitative: Positivistic	Qualitative: Naturalistic
Philosophy	Existence of one reality or truth Objectivity valued Subjectivity leads to bias	Acceptance of multiple realities ; understand the relationships between different realities Subjectivity accepted and honored
Models	Health as biological / physiological	Health as humanistic discipline

3

Let's begin to compare features of a quantitative and qualitative research paradigm.

In quantitative research, the paradigm is a positivistic view, focused on finding the truth by making objective measures and controlling extraneous variables. In contrast, a qualitative research paradigm is a naturalistic one, that embraces multiple realities, perspectives and contexts in trying to understand meanings of experiences. These are different paradigms, like comparing apples to oranges. Let's consider some differences.

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The philosophy that we follow is that there is a single truth or reality, for example, there is a true, but unknown, prevalence of smoking among adult males in a particular population, say, 30% of males smoke in the entire population. Our goal is to collect data on a sample of adults from the target population and use that sample to derive an estimate of the true population proportion. We want to use research design and analysis approaches that minimize error or bias to ensure that we generate an estimate that is "right" or as close to the truth as possible. We aim to use objective methods and avoid subjectivity that may lead to bias or measurement error.

As a model, we view health in terms of biological and physiological factors – features that

we can measure, such as blood pressure, age, and amount of moderate physical activity per day, as examples.

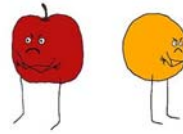
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In contrast, in qualitative research, we recognize multiple truths and multiple realities. There is value in considering multiple perspectives to understand factors that influence health outcomes. We want to understand relations among different realities. There is no “bias” in qualitative research because there is no single “truth”.

In qualitative settings, subjectivity is accepted and honored. We don’t have objective measures using instruments or assays. Instead, typically data collection involves interviews, discussions, drawings, or direct observations.

In terms of models, we view health as a humanistic discipline.

Inference



	Quantitative	Qualitative
Population	Population-based epidemiology Infer generalizations from sample to population	How humans experience health and illness and the meanings they attribute to these experiences
Attribution of health outcomes	Physical, biological, psychological, or environmental causes	Social determinants of health and how social, political, and economic contexts influence human experiences and behaviors

4

The approach to inference differs between the quantitative and qualitative approaches.

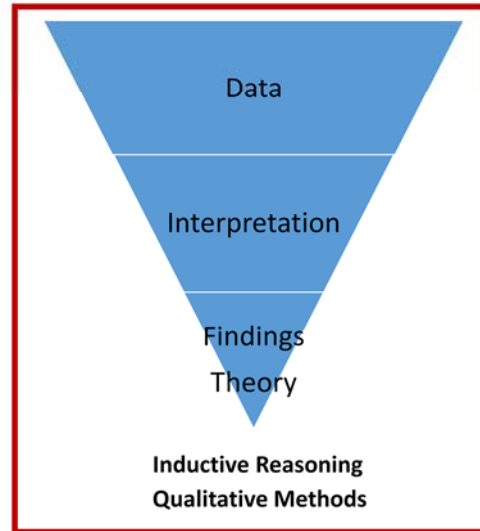
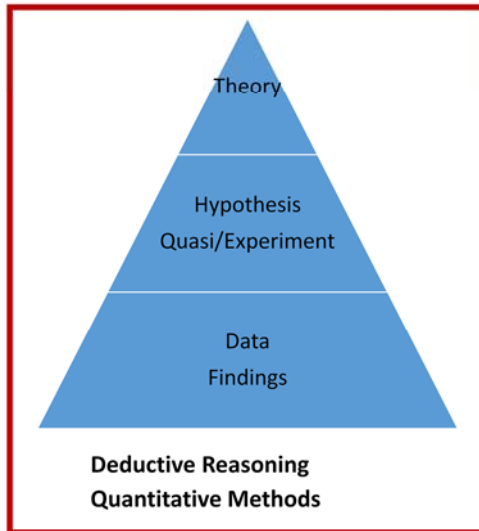
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In a quantitative setting, we collect samples from the target population of interest and use the sample to make inference to the population at large or infer generalizations to future situations, for example, in the setting of predicting health outcomes for a given patient. We consider physical, biologic, psychologic, and environmental causes of disease or health status.

(click)

In contrast in a qualitative setting, we are interested in how humans experience health and illness and the meanings they attribute to these experiences. We have a broader view of factors impacting health status, including social determinates of health and how social, political, and economic contexts influence human experiences and behaviors.

Reasoning 101 (Forman, Creswell, Damschroder, Kowalski, & Krein, 2008)



5

Deductive Reasoning Quantitative Methods	Inductive Reasoning Qualitative Methods
Assumes positivistic paradigm (one reality)	Assumes naturalistic paradigm (multiple realities)
Begins with theory and uses experimental design based on testing one hypothesis of the theory	Begins with collecting lots of data accounting for the top-heavy triangle
Tests the hypothesis by collecting lots of data and findings – the triangle broadens to represent lots of data	Analyzes and interprets the data to come up with findings and theory – note that the data are reduced, not broadened, to its conclusions
Results expressed in numerical statistical quantitative findings that can be generalized to lots of people or contexts and accounts for the breadth of the bottom of the triangle	Used to develop theory, not test it Results expressed in organized word-based findings specific to those studied

We also recognize that quantitative and qualitative methods use different reasoning approaches.

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In quantitative research, we use a deductive reasoning approach. We begin with a theory, for example, based on basic science animal research, we have a theory that exposure to high levels of sugar, or glucose, in the blood leads to cell and vascular damage. Based on this theory, we would develop a hypothesis that an intensive treatment protocol that targets maintenance of low blood sugar levels will result in a lower risk of vascular damage leading to heart disease, eye disease, and kidney damage among patients with Type 2 diabetes. We would then design a randomized controlled clinical trial comparing health outcomes between participants randomized to an intensive treatment approach to a standard of care approach. We would then collect data to test the hypothesis and make inference to the target population of patients with Type 2 Diabetes.

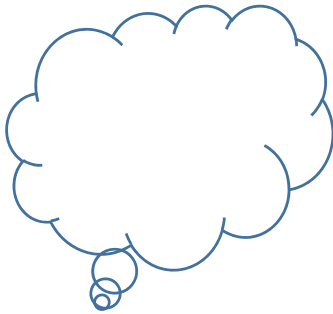
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In contrast, in the qualitative research setting, we do not begin with a

hypothesis or theory. Instead, we begin by collecting a large amount of rich data related to how humans experience health and illness and the meanings they attribute to these experiences. We collect data on factors impacting health status, including social determinates of health and how social, political, and economic contexts influence human experiences and behaviors. Then, from the data, which often takes the form of interview transcripts or focus group transcripts, we identify themes across the participants and then based on these findings, we develop theories regarding factors that influence health outcomes, or barriers and facilitators to recommended treatments or health behaviors.

Citation: Forman, J., Creswell, J., Damschroder, L., Kowalski, C., & Krein, S. (2008). Qualitative research methods: key features and insights gained from use in infection prevention research. *American Journal of Infection Control.* , 36(10), 764-771.

Research Question – Drives the Approach



	Quantitative	Qualitative
Methodological underpinnings	Deductive reasoning	Inductive reasoning
Progression & Direction	Step-wise progression Tests hypotheses from theory Random sample to generalizes to population Top-Down	Iterative (moves between empirical & conceptual) Develops theory & identifies variables Purposive sample of information-rich cases Bottom-Up
Research Question [Determines methodology]	Positivistic Reductionistic Answers <i>Whether?</i> <i>How much?</i>	Naturalistic Holistic Answers <i>What?</i> <i>How? Why?</i>

6

This slide helps explain some differences between deductive and inductive reasoning and how to use them to our best advantage in research.

It is important to keep in mind that the research question determines the methodology that we use in research and program evaluation.

(click)

In a quantitative setting, we use deductive reasoning, using a step-wise progression beginning with theories that lead to hypotheses. We then collect a sample of data to test the hypotheses and make inference to the larger population. We use this approach to answer questions related to “How much?” and “Whether?”.

(click)

In contrast a qualitative study uses inductive reasoning. The approach is iterative in the design and conduct, as well as the process of identifying themes from the interviews and discussions. Based on the themes, we develop theories and identify factors or variables that influence health and behaviors. In our sampling, we don’t aim for a “random” or “representative” sample, but instead target information-rich participants using purposive

sampling. These are individuals who have experiences that we are interested in, for example, patients who stop adhering to physician recommendations. Research questions are holistic in nature and answer questions like “What?”, “How?”, and “Why?”.


(click)

Thinking of the triangles of reasoning in the previous slide, how could you use both quantitative and qualitative methods in a single or successive study? How could you organize the pyramids to explore new questions? How could you organize the pyramids to explain results?

Application – apply concepts to a publication

JGIM

ORIGINAL RESEARCH



Challenges Faced by Patients with Low Socioeconomic Status During the Post-Hospital Transition

Shreya Kangovi, MD^{1,2,3,4,7}, Frances K. Barg, PhD⁵, Tamala Carter^{7,8}, Kathryn Levy, MD⁹, Jeffrey Sellman, BA², Judith A. Long, MD^{3,4,6}, and David Grande, MD, MPA^{3,4}

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BACKGROUND: Patients with low socioeconomic status (low-SES) are at risk for poor outcomes during the post-hospital transition. Few prior studies explore perceived reasons for poor outcomes from the perspectives of these high-risk patients.

OBJECTIVE: We explored low-SES patients' perceptions of hospitalization, discharge and post-hospital transition in order to generate hypotheses and identify common experiences during this transition.

DESIGN: We conducted a qualitative study using in-depth semi-structured interviewing.

PARTICIPANTS: We interviewed 65 patients who were: 1) uninsured, insured by Medicaid or dually eligible for Medicaid and Medicare; 2) residents of the low-income 99010 census tract in Philadelphia, PA.

CONCLUSIONS: Low-SES patients describe discharge goals that are confusing, unrealistic in the face of significant socioeconomic constraints, and in conflict with their own immediate goals. We hypothesize that this goal misalignment leads to a cycle of low achievement and loss of self-efficacy that may underlie poor post-hospital outcomes among low-SES patients.

KEY WORDS: post-hospital transition; discharge; goal setting.

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- How does this study illustrate the naturalistic paradigm?
 - What are the **multiple realities** represented and how is their **subjectivity** honored in the populations?
 - How are the participants' **experiences and meanings** attributed and reported?
 - How did the researchers come up with **findings** represented in Figure 1?
 - How is the study's aim or objective stated and how does the design reflect it?
 - How would the findings lead to subsequent studies and translation?

7

Let's return to the literature example that we introduced in the first module. The investigators were interested in understanding the experience of low-socioeconomic status patients during the post-hospital transition period.

How does this project illustrate the naturalistic paradigm?

How does this study illustrate the naturalistic paradigm?

(click on each)

What are the **multiple realities** represented and how is their **subjectivity** honored in the populations?

How are the participants' **experiences and meanings** attributed and reported?

How did the researchers come up with **findings** represented in Figure 1?

How is the study's aim or objective stated and how does the design reflect it?

How would the findings lead to subsequent studies and translation?

- **Multiple realities** include those of the patients with low SES and the health care providers offering discharge instructions. The participants met inclusion criteria and were not chosen randomly, but purposively – on purpose – as experts on the topic of interest because of their

subjectivity. A random selection of participants would not have met the inclusion criteria. Table 1 outlines their characteristics.

- The participants' **experiences and meanings** in response to interview questions on how they experienced and made sense of the discharge process. They are reported in 6 themes that "emerged" from the data and *a priori* coding. Researchers came up with the themes by repeated readings of the interview data and reported with illustrations of relevant quotes. Note that the data are verbatim quotes that are always paired with the speaker's key inclusion characteristics such as sex, age, and insurance status. The naturalistic paradigm is interested in the social determinants of health and health behavior rather than statistically inferred and generalizable population-based epidemiology that cannot address the research question.
- The **objective** was to study the perceptions of patients of low-SES to identify common experiences during the transition process. The stated methodology is a modified grounded theory (theory that is built on or "grounded in" the data) and usually represented by a model as in **Figure 1**. The text of figure 1 explains the findings as a theory resulting in the generation of new hypotheses that could be tested using quantitative methods in subsequent research.

Reference: Kangovi, S., Barg, F.K., Carter, T., Levy, K., Sellman, J., Long, J.A. and Grande, D., 2014. Challenges faced by patients with low socioeconomic status during the post-hospital transition. *Journal of General Internal Medicine*, 29(2), pp.283-289.

NOTE: qualitative methods don't prove anything!



	Quantitative	Qualitative
Goal	Generalize findings to a population	Identify themes and patterns relevant to specific contexts that <u>may</u> be transferable to other settings
Relationships	Causal relationships of exposure & outcome	Complexity of human interactions and influence of contextual factors (historical, social, political, or cultural factors)

8

Often attributed to Einstein: **Not everything that counts can be counted, and not everything that can be counted counts.**

(click)

In a quantitative setting, we make inference from a sample of data to the population at large and focus on causal relationships between exposures and outcomes.

(click)

In a qualitative setting, we identify themes and **patterns relevant to specific contexts** that may be transferable to other settings. We focus on the **complexity** of human interactions and influence of **contextual** factors (historical, social, political, or cultural factors).

(click)

- Note that cause and effect and generalization are not goals of the naturalistic paradigm. Only experimental designs with randomization and controls can accomplish causal

inference. We will talk more about transferability of results from qualitative studies later.

- Note that the naturalistic paradigm searches for patterns attached to specific contexts about complex human and contextual issues.

Qualitative Settings: Cannot Generalize Findings



- Results are always connected to the population

	Quantitative	Qualitative
Relationships	Causal relationships of exposure & outcome	Complexity of human interactions and influence of contextual factors (historical, social, political, or cultural factors)
Variables & Numbers	Few variables Many cases	Many variables Few cases

9

In a qualitative setting, we cannot generalize findings to populations, but instead, recognize complexity and contextual issues.

(click)

In a quantitative setting, we focus on causal relations linking exposures to outcomes. We have few variables and large sample sizes that inform the generalizations and inference that we draw.

(click)

In a qualitative setting, we recognize the **complexity** of human interactions and influence of **contextual** factors (historical, social, political, or cultural factors). We collect information from a small number of participants, but collect a lot of information, many variables, from each participant.

(click)

- Again note the naturalistic paradigm's emphasis on complexity and contextual issues.
- Especially note the effect on variables and numbers when the study does not infer generalization from a representative sample to a population or require statistical power requiring large numbers.

The relationship is an inverse one

- Studies in the positivistic paradigm using quantitative methods require study of a limited number of well-controlled dependent variables in large numbers to have the statistical power to make inferences.
- Studies in the naturalistic paradigm may be exploring previously unknown variables that cannot be limited by design. Qualitative studies result in massive amounts of data and so are limited by resources to a few cases. The number of participants can be small because results are not quantified and findings are not expected to be generalized. Instead, results are context-specific.

Consider the Limitations of Reductionism

(Hammell & Carpenter, 2002)

Reductionist Assumption

- Research methods that focus on collection of data on groups assume that **people with the same condition have similar needs and rehab outcomes**

Clinical Reality

- Assumption not supported
- *Disease or dx vs. illness*

Clinical Examples

Does everyone have the same _____?

10

But can you really generalize with quantitative methods?

Consider the limitations of the implied reductionism. One factor is that disease, diagnosis, or pathology is not the same as the illness, which is the patient's and family's experience. One person's disease affects many others.

Think of the phrase "Everybody has his own stroke" (etc.) in your field of interest. What does it mean? Can we really assume that everyone with a given diagnosis has similar physiology, needs, goals, functional life challenges as a result of the impairment?

Factors such as sociocultural, economic factors, family roles & expectations, personal priorities & values, meaning of the injury, and weather all are contextual factors that may influence experience and health status (Hammell & Carpenter, 2004, p. 3)

Reference: Hammell, K.W. and Carpenter, C. eds., 2004. *Qualitative research in evidence-based rehabilitation*. Elsevier Health Sciences.

Where do the findings come from?

	Quantitative	Qualitative
Data [Derives label]	Numerical, quantitative database of measurable outcomes	Descriptive, qualitative (word or picture) database
Analysis	Statistical	Interpretive
Rigor	Internal and external validity; reliability; statistical significance; generalizable	Credible, dependable, confirmable, transferable

11

Where do research results from come from in quantitative and qualitative studies?

(click)

In quantitative studies, results are represented by data that are numerical, quantitative, and are collected in a database of measurable outcomes. The data are analyzed using statistical methods. Rigor relates to internal validity (minimizing bias), external validity (maximizing generalizability), and maximizing reliability (minimizing variation or error in measurement) with an eye towards achieving statistical significance.

(click)

In contrast, in qualitative settings, data are more descriptive, including transcripts from interviews or discussions, quotes, direct observation, or pictures and drawings. These pieces of information (e.g., quotes) and transcripts can be stored in a database. The analysis is interpretive, with a goal to identify themes. When we think of rigor, we think of characteristics of credibility, dependability, confirmability

and transferability. This is a new set of terms for those who are more familiar with quantitative research methods.

(click)

Qualitative studies actually provide raw data in the peer-reviewed article as quotes under a theme or in a model so readers can determine where the findings came from. Quantitative studies rarely present raw data.

What advantages do readers have in seeing raw data? We have a better sense of “where the findings come from”.

How to Read Any Research

Quantitative Studies

- Research question
- Study design
- Data collection
- Data analysis
- Data Interpretation; Findings
- Conclusions; Limitations

Qualitative Studies

- Research question
- Study design
- Data collection
- Data analysis
- Data Interpretation; Findings
- Conclusions; Limitations

12

When reading a publication or public health program report, what sections do we look for? What information is important to consider when interpreting results from the study or evaluation?

With quantitative studies, we review the following:

Research question
Study design
Data collection
Data analysis
Data Interpretation; Findings
Conclusions; Limitations

What information would we look for in a qualitative study?

(click)

The same categories as in a quantitative study.

Summary Statement

Qualitative research offers a variety of methods for identifying **what really matters** to patients and their families, community members, providers, and public health program officials, **detecting obstacles and facilitators** to changing performance or behavior, and **explaining why** improvement does or does not occur

(Pope, van Royen, & Baker, 2002, p. 148)

13

To summarize our discussion, we see that qualitative research offers a variety of methods for identifying **what really matters** to patients and their families, community members, providers, and public health program officials, **detecting obstacles and facilitators** to changing performance or behavior, and **explaining why** improvement does or does not occur.

Reference: Pope, C., van Royen, P., & Baker, R. (2002). Qualitative methods in research on healthcare quality. *Quality and Safety in Health Care*, 11(2), 148-152. doi: 10.1136/qhc.11.2.148

Conclusions

Qualitative methods

- Emerge from a naturalistic paradigm
- Investigate complex human issues in specific contexts
- Are determined by the research question and desired research outcomes
- Are integral to evidence-based practice and translational research



14

This module introduced the naturalistic paradigm and philosophy and approach of qualitative research. We discussed differences in scientific paradigms of quantitative and qualitative methods. We recognized the importance of identifying an appropriate approach to address different types of research questions / topics and desired research outcomes or inference. We recognize that both quantitative and qualitative methods are important for program evaluation and research.

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