

Considerations for Designing [Rural] Research

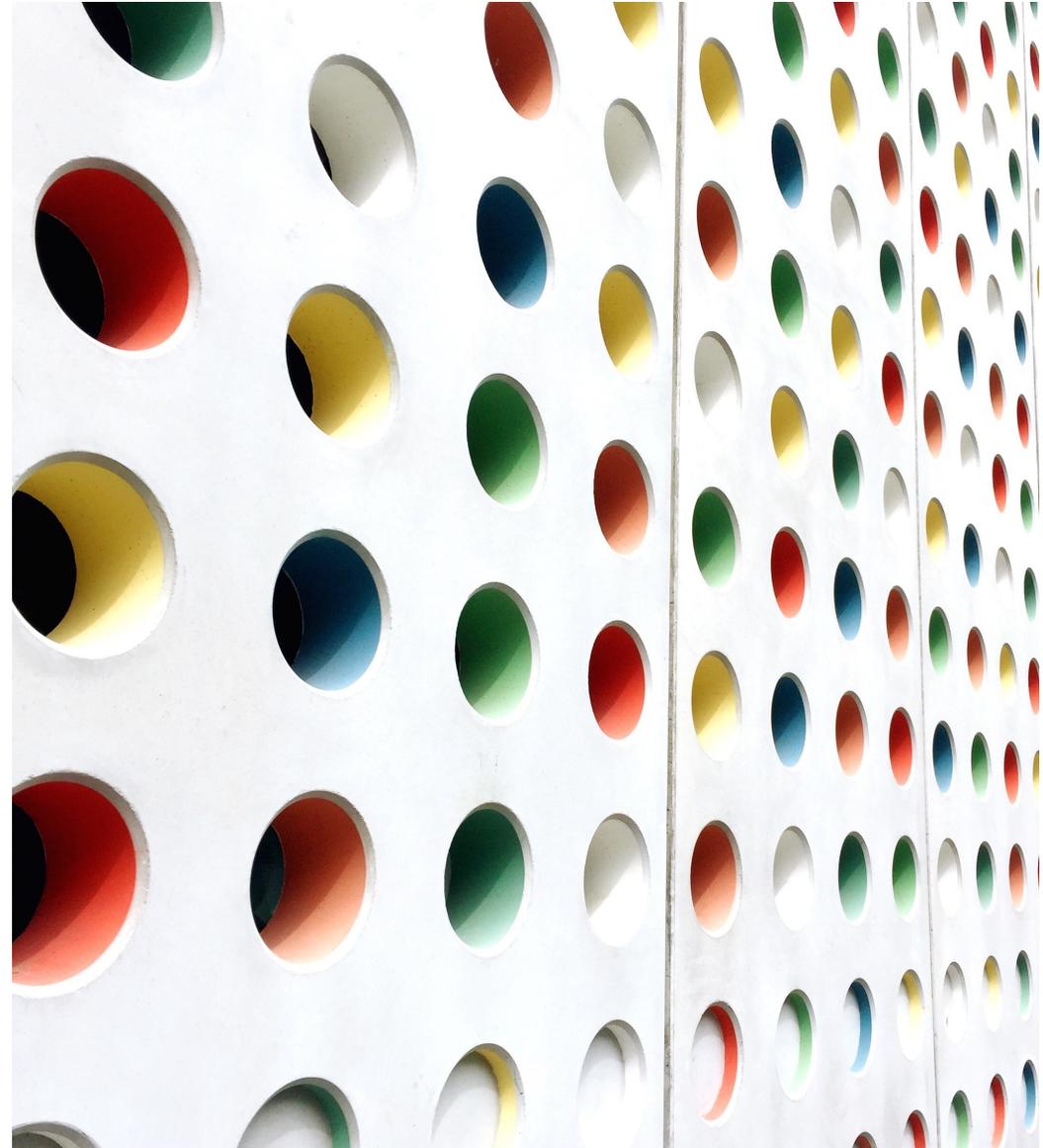
SHARON CASAPULLA, EDD, MPH

OFFICE OF RURAL AND
UNDERSERVED PROGRAMS

DEPARTMENT OF PRIMARY CARE

HERITAGE COLLEGE OF
OSTEOPATHIC MEDICINE

OHIO UNIVERSITY



Considerations for Designing [Rural] Research

Description: In this brief session, we will discuss the considerations for research at each step of the research process from choosing a topic, articulating a research question, choosing a method, analyzing data and disseminating results. Participants will leave with a helpful checklist of reminders and questions to provoke thinking and improve the overall quality of their research study.

Objectives:

- Describe steps in the research design process
- Discuss how the research question drives methods and give examples
- Describe various qualitative and quantitative research techniques
- Choose an appropriate approach to research based on study goals and research question

Research Design

TOPIC



PURPOSE



QUESTION



DESIGN

Research Design

OSTEOARTHRITIS IN APPALACHIAN SENIORS



IDENTIFY BARRIERS TO CARE



WHAT BARRIERS TO CARE DO SENIORS WITH
OSTEOARTHRITIS LIVING IN APPALACHIA EXPERIENCE?



SURVEY

Research Design

OSTEOARTHRITIS IN APPALACHIAN SENIORS

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graph TD; A[OSTEOARTHRITIS IN APPALACHIAN SENIORS] --> B[UNDERSTAND BARRIERS TO CARE]; B --> C[WHAT BARRIERS TO CARE DO SENIORS WITH OSTEOARTHRITIS LIVING IN APPALACHIA EXPERIENCE?]; C --> D[FOCUS GROUPS];
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UNDERSTAND BARRIERS TO CARE

WHAT BARRIERS TO CARE DO SENIORS WITH OSTEOARTHRITIS LIVING IN APPALACHIA EXPERIENCE?

FOCUS GROUPS

Research Design

OSTEOARTHRITIS IN APPALACHIAN SENIORS



REDUCE BARRIERS TO CARE



WHAT BARRIERS TO CARE DO SENIORS WITH OSTEOARTHRITIS LIVING IN APPALACHIA EXPERIENCE?



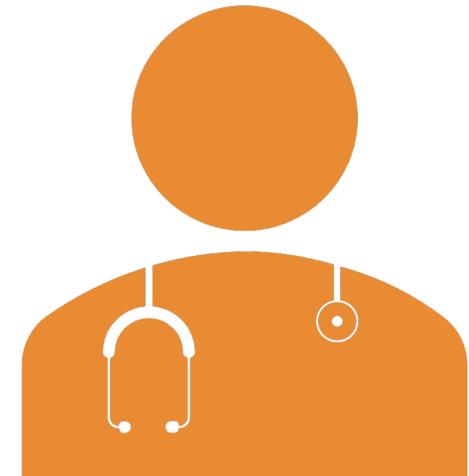
PHENOMENOLOGY – QUALITATIVE – INTERVIEWS OR CASE STUDIES

Choosing a Topic

How do I choose a research topic?

1. Consider these questions:
 - What are you passionate about in health or medicine? What fields?
 - What issues do you want to learn more about?
 - What groups are you interested in understanding better?
 - Ask your partnering organization what they want to know more about. What questions are particularly relevant to your community?
2. Start a literature review (most students do not know how to do this). What do we NOT know about this topic? What gap could your study fill?

* Use a bibliographic/reference management software program *from the start*. Create group libraries and organize articles. I like Zotero.



Writing a [Rural] Research Question

A Good Research Question



Original

Does it add to the knowledge base?



Informed

Does it build on previous research? How will knowledge of the local rural community inform your question and study design?



Clear

Is it specific? What variables will you measure? (How? Why?) How do you define rurality? What is your rationale for choosing that definition?



Manageable

Can you accomplish it with the time and resources you have available?

Rural Challenges

Rural Research Challenges to Consider

Confidentiality - Small communities/Small hospitals. How can you design your study to reduce breaches to confidentiality? Or concerns about this?

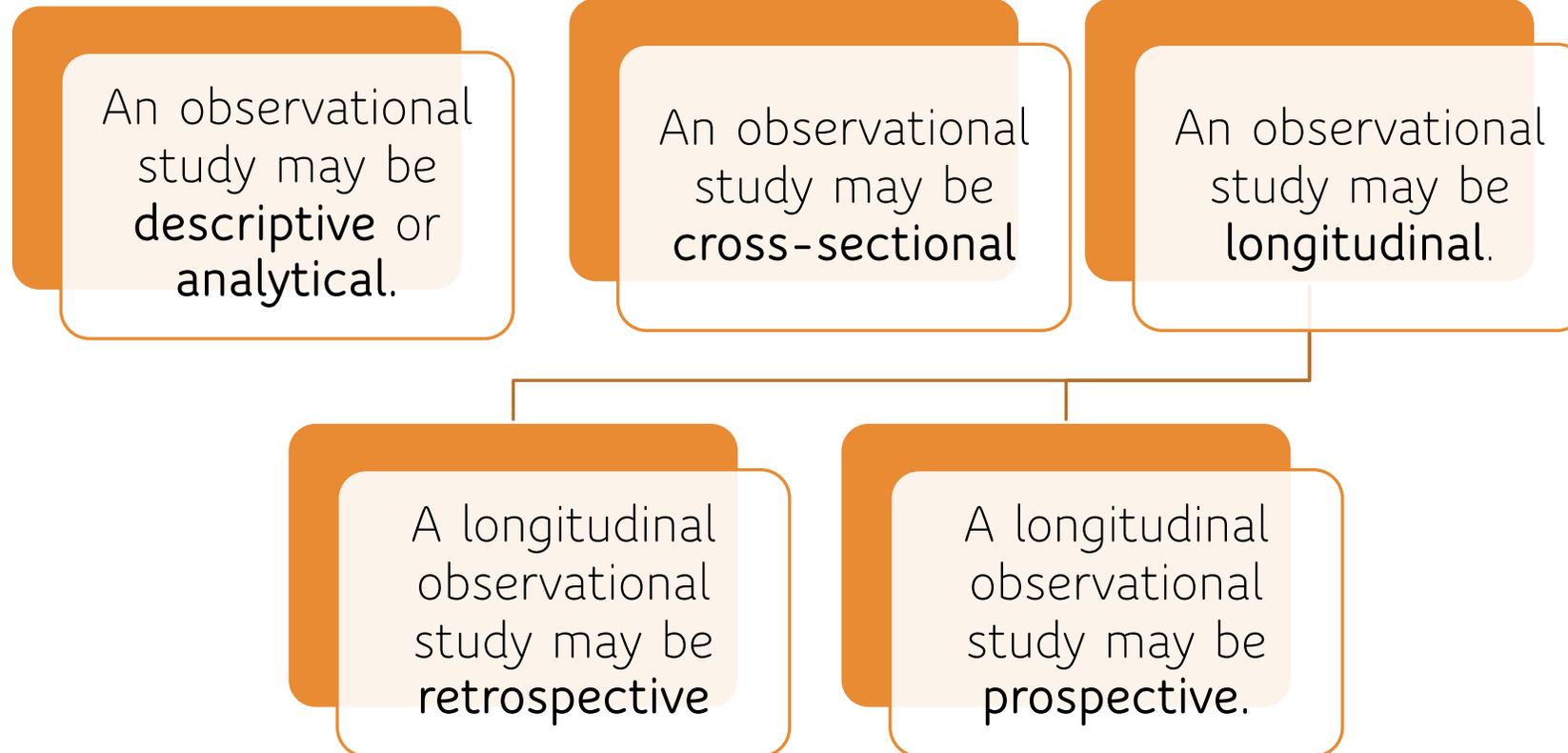
Sample Size - How will you address the issues low population in rural places?

Recruitment - Can you partner with a known or trusted entity in the community to promote the study? Have you considered asking for feedback on your recruitment materials from a local partner?

Technology - How can you make your online survey/Zoom interview more accessible? Are paper surveys a feasible backup?

Study Designs

Observational Studies



Case Control and Cohort Studies

Cohort studies

- an outcome or disease-free study population is first identified by the exposure or event of interest and followed in time until the disease or outcome of interest

Case-control

- subjects are identified by outcome status at the outset of the investigation, then controls are selected

Well-designed observational studies have been shown to provide results similar to RCTs.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2998589/>

Experimental or Intervention Studies

An experimental or intervention study may be **controlled**.

An experimental or intervention study may be **non-controlled**.

A controlled experimental study may be **randomized** or **non-randomized**.

Factors Jeopardizing Internal and External Validity



Internal validity is **the degree of confidence** that the causal relationship you are testing is not influenced by other factors or variables.



External validity is the extent to which your results can be generalized to other contexts.



The validity of your experiment depends on your experimental design

Campbell and Stanley, 1963. *Experimental And Quasi-experimental Designs For Research*

<https://www.sfu.ca/~palys/Campbell&Stanley-1959-Exptl&QuasiExptlDesignsForResearch.pdf>

Study Designs – Non-Experimental

The One Shot Case Study



This is a single group studied only once. A group is introduced to a treatment or condition and then observed for changes which are attributed to the treatment

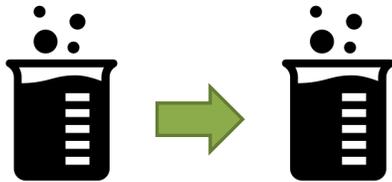
The problems with this design are:

A total lack of control.

History, maturation, selection, mortality and interaction of selection and the experimental variable are all threats to the internal validity of this design

Study Designs – Non-experimental

One Group Pre-Posttest Design



This is a presentation of a pretest, followed by a treatment, and then a posttest where the difference between is explained by treatment.

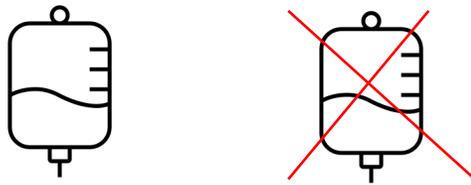
threats to the validity

History--many events may have occurred to produce the differences in outcomes. The longer the time lapse, the more likely history becomes a threat.

Maturation--students may have grown older or internal states may have changed and therefore the differences obtained would be attributable to these changes as opposed to treatment.

Study Designs – Quasi-Experimental

The Static Group Comparison



This is a two-group design, where one group is exposed to a treatment and the results are tested while a control group is not exposed to the treatment and similarly tested in order to compare the effects of treatment.

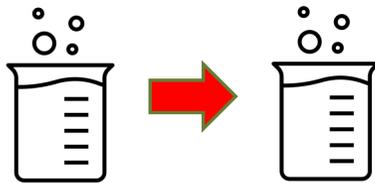
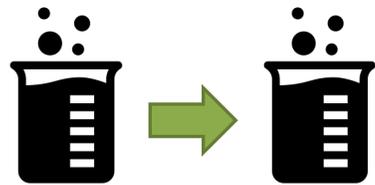
Participants not randomly assigned

Threats to validity include:

- **Selection**--groups selected may actually be disparate prior to any treatment.
- **Mortality**--the differences may be because of the drop-out rate of subjects from a specific experimental group, which would cause the groups to be unequal.

Study Designs – Experimental

The Pretest-Posttest Control Group Design

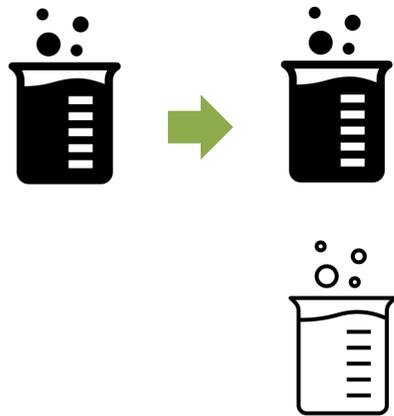


Participants randomly assigned.

This design controls for all of the seven threats to validity described in detail so far.

Study Designs

The Posttest-Only Control Group Design



And can be seen as controlling for testing as main effect and interaction, but unlike this design, it doesn't measure them. But the measurement of these effects isn't necessary to the central question of whether or not X did have an effect. This design is appropriate for times when pretests are not acceptable.



Rigor in Design

Sampling Considerations

What is your sampling strategy?

- Convenience
- Purposive

Have you met with your biostatistician to do power analysis and to determine sample size needed?

<https://pubmed.ncbi.nlm.nih.gov/34349313/>

Qualitative Study Considerations

Qualitative Approaches

- What approach is best-suited for your research question (and capacity):
 - Grounded Theory, Phenomenology, Ethnography, Narrative
- What qualitative techniques will you use and why?
 - In depth interviews
 - Focus groups
 - Observations
 - Document analysis

Rigor in Qualitative Research

Theoretical connection - What theory supports your research? Or will a theory be constructed from your study?

Reflexivity - What is your relationship to the topic being studied?

What credibility techniques will you employ?

- Data Triangulation
- Multiple coders
- Member checking
- Audit trail/Memoing

Qualitative Data Analysis Software

What software will your research team have access to?

Does it allow for easy sharing across team members? Operating systems?

Have you considered free QDAS packages like Max QDA?

- Atlas Ti = \$500 per year
- NiVivo = \$1200

Survey Research

Survey Questions

Are you applying the most updated guidelines for reporting Race, Ethnicity, Sex and Gender, SES, Persons with disabilities?

Are you using a validated instrument (if one exists)?

Did you pilot your survey first? Have you considered a validation study?

Do your survey questions ask one only question?

Kelley, K., Clark, B., Brown, V., Sitzia, J. Good practice in the conduct and reporting of survey research, *International Journal for Quality in Health Care*, Volume 15, Issue 3, May 2003, Pages 261-266,
<https://doi.org/10.1093/intqhc/mzg031>



How will you ensure that the responses to your survey are not fraudulent?



What kind of security measures have you put in place in your online survey?



Are there alternatives to using social media to advertise your study?



If you use social media how are you protecting the link to your survey from bots?



Are you checking the responses to the survey often to look for large numbers of fraudulent responses? Are you checking location (IP Address) of respondents?

Data Integrity

Resources / Guides

A Practical Guide For Health Researchers



World Health Organization
Regional Office for the Eastern Mediterranean

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Methodology Guidelines and Standards

- PCORI

<https://www.pcori.org/research/about-our-research/research-methodology/pcori-methodology-standards#QualitativeMethods>

What is Good Qualitative Research?

Meyrick J. What is Good Qualitative Research? A First Step towards a Comprehensive Approach to Judging Rigour/Quality. *J Health Psychol.* 2006;11(5):799-808. doi:10.1177/1359105306066643

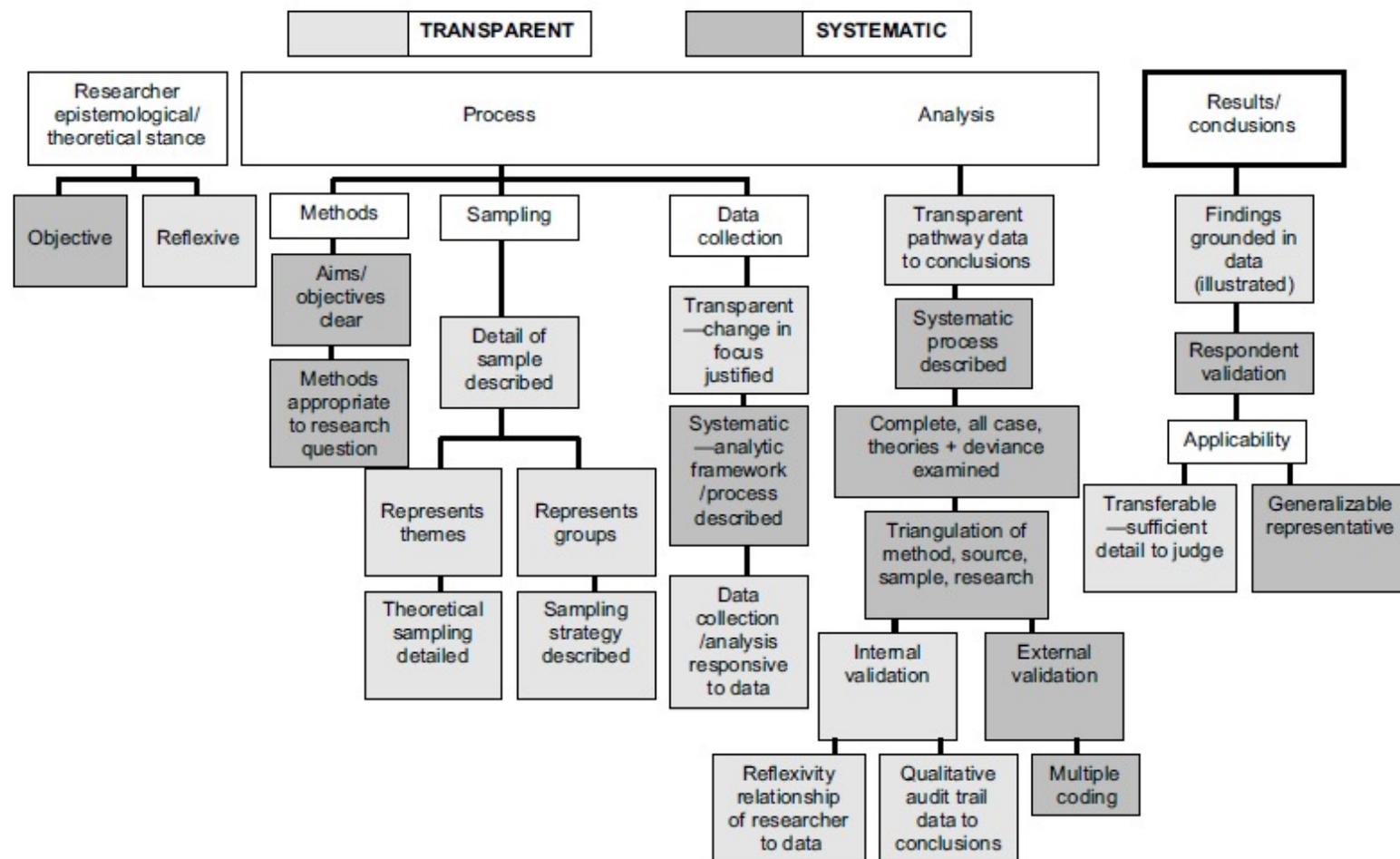


Figure 1. Quality framework for qualitative research.

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