Learning Guide: Non-Probability Sampling

Malterud, K., Siersma, V.D. & Guassora, A.D. (2016) Sample size in qualitative interview studies: Guided by information power. *Qualitative Health Research* 26(13), 1753-1760.

- Study Aim. The authors argue that: "A study aiming to explore how patients with their first diabetic foot ulcer manage shift of bandages would need notably fewer participants than a study about how patients with foot ulcer generally manage self-care in everyday life." What is the basis of this argument? How is this similar to the arguments I have made about the need to clearly define the theoretical population for *any* study?
- 2. Sample Specificity. The authors comment that: "To offer sufficient information power, a less extensive sample is needed with participants holding characteristics that are highly specific for the study aim compared with a sample containing participants of sparse specificity." How is this argument with regard to sample size for qualitative data analysis related to the general comments I have made about the need to define a theoretical population as "narrowly as reasonable" rather than more broadly and about the use of screening criteria?
- 3. Established Theory. The authors point out that: "A study supported by limited theoretical perspectives would usually require a larger sample to offer sufficient information power than a study that applies specific theories for planning and analysis." Why does a well-developed theoretical framework for a study reduce the needed sample size?
- 4. Is this true statement about the role of theory for studies that use qualitative analysis *and* studies that use statistical analysis? Why or why not?
- 5. Quality of Dialogue. Malterud et al argue that clear communication between researcher and participants can reduce the needed sample size. They go on to comment that: "In a qualitative study, empirical data are co-constructed by complex interaction between researcher and participant, and a number of issues determine the quality of the communication from which the information power is established." Look at my "cheat sheet" on Epistemology, Theory & Research (Week 1 of class). Does this comment reflect a scientific realist epistemological approach to research? Why or why not?
- 6. Analysis Strategy. Why does cross-case analysis require a larger sample than single case analysis? How does this relate to my discussion of qualitative data analysis in the cheat sheet "Comments about Qualitative Data Analysis"?
- 7. These authors also recommend that: "Appraisal of information power ... be repeated along the process, supported by preliminary analysis. After the first three interviews, a first review of the data can be done and first suggestions of relevant theory can be made." Examine my comments about Theory Building and Theory Testing (starts on page 8 of the cheat sheet). What commonalities among ideas about the relationship between analysis and information power do you think Malterud et a and I share?
- 8. Why do Malterud et al reject the idea of "saturation" as a way of determining that a sample is adequate for reaching meaningful conclusions?
- 9. Why do Malterud et al think that we need to be very explicit in determining sample size for qualitative data analysis *and* in explaining what we did clearly and in detail to the reader? Do you agree? Why or why not?

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Topp, L., Barker, B. & Degenhardt, L. (2004) The external validity of results derived from ecstasy users recruited using purposive sampling strategies. *Drug & Alcohol Dependence 73(1), 33-40.*

- 1. Why is it difficult, or sometimes impossible, to obtain a probability sample of a hidden population?
- 2. Why is it difficult, no matter what sampling approach is used, to ensure that the sample is sufficiently representative of the hidden population to permit generalization of conclusions to the theoretical population as a whole?
- 3. The authors compare their results from a non-probability sample described on p. 35 to those of a probability sample described on p. 34. What kind of probability sample was used?
- 4. The authors specifically chose two subsets from the probability sample. What were these subsets and why did they select them?
- 5. Note that these authors use the term "purposive" sample rather freely. It is **not** a purposive sample as most methodologists would define the term "purposive sample". Which of the non-probability sample types did they take?
- 6. What screening criteria did they use to select participants? Note they may be confusing using screening criteria with purposive sampling, a common practice that does *not* make a sample a purposive sample. In fact, screening criteria are used with many if not most samples.
- 7. The authors give descriptive statistics (should be familiar term to you from Frey) about the three samples, the two subgroups extracted from the total data base for the probability sample and the non-probability sample. They point out that these descriptive statistics are similar among all three samples. Why would the similarity in descriptive characteristics like age, income, and sex provide evidence that the non-probability sample may well be adequate for generalizing conclusions to the theoretical population?
- 8. The authors also compare the results about ecstasy use among three samples. They point to differences in the data about drug use collected as potential reasons for the observed differences. However, they also point to the similarities in the data about frequency and type of drug use. Why would the similarity in the data about drug use provide evidence that the non-probability sample may well be adequate for generalizing conclusions to the theoretical population?
- 9. The authors conclude with these statements. Explain the key points about sampling they are making in your own words.

"The results presented in this paper should provide some reassurance that inferences drawn from such research can reasonably be generalized to the entire population of users. Future related work could usefully examine the degree of external validity of population parameters estimated from ecstasy users sampled using purposive methods different to those described in this paper, or recruited in different cultural contexts. It will also be valuable to determine whether the extent of generalizability demonstrated in the

present results would be observed in comparisons of users of other illicit drugs recruited using distinct probability and non-probability sampling methods."

Summary Questions Base your answers on what you have learned about internal validity, external validity, and explanatory power and what you have learned about sampling.

- 1. This article deals with the problems of sampling "hidden" populations. Give another example of a population of interest to you that would be a hidden population. My example might be food insecure single mothers.
- 2. How can you use what these authors learned and concluded to help you evaluate the degree to which you can depend on the research results reported in journals when a non-probability sample was used, such as some study about the hidden population of interest to you?
- 3. What ideas did you get from the article that would help you conduct a good needs assessment for a hidden population?

Auerswald, C., Greene, K., Minnis, A., Doherty, I. et al. (2004) Qualitative assessment of venues for purposive sampling of hard-to-reach youth: An illustration in a Latino community. *Sexually Transmitted Diseases 31(2), 133-138.*

- 1. Why is it difficult, no matter what sampling approach is used, to ensure that the sample is sufficiently representative of a marginalized population to permit generalization of conclusions to the theoretical population as a whole?
- 2. What are some of the sampling barriers or limitations faced by researchers whose work involves marginalized population?
- 3. The authors of this article use the term venue-based sampling. This is like the intercept sampling that I discuss my cheat sheet on sampling in class sampling based on going where the participants you want to recruit will be, like going to a NASCAR race to interview NASCAR fans. This article reports on a pilot study, which was followed by the "official" or final study, reported elsewhere. What were the authors' three objectives for this pilot study related to sampling?
- 4. Look at the first paragraph in the methods section (p. 134). Explain how this first stage in their procedures is relevant to understanding the context in which your research will be conducted.
- 5. Three different non-probability sampling techniques were used to identify the youth participants in the interviews. What were they?
- 6. On p. 133, the authors say that: "The success of venue-based sampling depends heavily on the choice of initial venues. However, the methods for the choice of initial venues for recruitment have not been well established." How many venues were identified in this pilot study? Why would the procedures used in this pilot study be superior to a researcher simply relying on venues used in other study or asking people like clinic workers to identify venues?

- 7. The authors also wanted to identify the specific venues that are used by different "crowds." They report that there are several different crowds in this population and that the crowds do congregate at different venues. From a sampling perspective, why would the procedures used in this pilot study to associate "crowds" and "venues" improve the researcher's ability to develop robust procedures for taking a probability sample later?
- 8. How can you apply the authors' general conclusion to sampling in general? The authors conclude that:

"Identifying high-risk youth for interventions through individual level screening can be labor-intensive and ineffective, particularly if such screening takes place in clinic settings that high-risk youth might not access. The identification of high-risk venues could prove a more effective way of accessing youth for sampling, testing, implementing interventions, and delivering services."

Summary questions Base your answers on what you have learned about internal validity, external validity, and explanatory power and what you have learned about sampling.

- 1. This article deals with the problems of sampling marginalized populations. Give another example of a population of interest to you that would be a marginalized population. My example might the homeless.
- 2. How can you use what these authors learned and concluded to help you evaluate the degree to which you can depend on the research results reported in journals when a non-probability sample was used, such as some study about a marginalized population of interest to you?
- 3. What ideas did you get from the article that would help you conduct a good needs assessment or implement a program to serve a marginalized population?