Choosing the Size of the Sample

In: Sampling Essentials: Practical Guidelines for Making Sampling Choices

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Pub. Date: 2012
Access Date: September 17, 2018
Publishing Company: SAGE Publications, Inc.
City: Thousand Oaks
Print ISBN: 9781412952217
Online ISBN: 9781452272047
DOI: http://dx.doi.org/10.4135/9781452272047
Print pages: 236-253

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What you will learn in this chapter:

- How to determine sample size
- Guidelines for choosing an appropriate sample size for nonprobability sample designs
- Guidelines for choosing an appropriate sample size for probability sample designs

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Introduction

The choice of sample size is a very important decision. One should carefully assess all of the relevant factors, but should not waste time and money by selecting a sample size too large, nor fail to satisfy the objectives on one's study because the sample size is too small. This chapter includes a description of guidelines for determining sample size.

Guidelines for Choosing Sample Size

Determination of sample size should begin with a review of the factors covered in Chapter 1. One should have a clear understanding of the following:

- Objectives of the study:
  - Exploratory versus nonexploratory objectives
  - Importance to have credible results
  - Need to describe or compare subpopulations
  - Need to include rare or very small categories of the population in the study
- Ethical and legal considerations
- Nature of the population
- Availability of resources
- Nature of the research design including:
  - Type of research design
  - Type of data analysis design
  - Type of sample design

Moreover, one should determine whether one will use a fixed approach or a sequential approach. When using a fixed approach, one would set a specific sample size target before commencing data collection. On the other hand, using a sequential approach, instead of preselecting a specific sample size target, one would preselect a set of decision rules or stopping rules to govern when sampling will stop. Sample size determination involves a number

of critical choices. A flow chart of considerations in determining sample size is displayed in Figure 7.1.

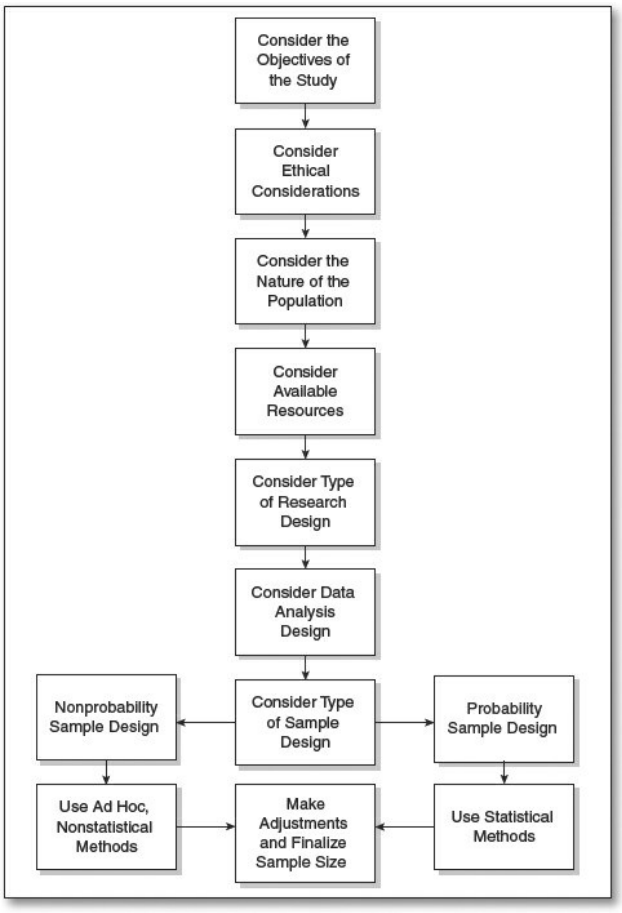
Objectives of the Study

> **Guideline 7.1.** *Objectives of the study.* If a research study has an exploratory objective, and/or has a low level of importance, consider using a small sample size rather than a large sample size. On the other hand, if the objective of a research study is to provide a description of a population, a prediction, an evaluation, or an explanation, a relatively large sample size may be required. Moreover, generally, the greater the importance of a study, the need to conduct detailed analyses of subpopulations, and the need to include rare or very small segments of a population, the larger the sample size is required.

In conducting an exploratory study, the researcher is not attempting to make conclusive analyses, and a small sample size may suffice. On the other hand, if a study concerns critical business decisions or scientific issues, and requires great precision, its research design should be more rigorous. For such circumstances, a large sample size may be justified. For explorative research, a small sample size may suffice.

Moreover, generally, the more important a study is, the larger the sample size required in order to satisfy the objectives. A large sample size would minimize random sampling error and make for a more rigorous analysis of the data collected.

Figure 7.1 Factors Consider in Determining Sample Size



A study that requires one to describe or compare detailed subpopulations generally requires a larger sample size than a study that requires one only to describe population parameters. Research frequently has multiple target populations, each critically important to the objectives of the study. A health survey may target all persons who have chronic and acute conditions, women within their reproductive years, families with infants, families with children aged 13 to 17, or families with persons 65 years or older. In order to have equally reliable results for each of these subpopulations, the sample size of the study may have to be much larger than the sample size for a health survey that does not have such concerns.

If the objectives require the inclusion of rare or hidden populations in one's study, or if a sampling procedure such as respondent-assisted sampling is not used, a large sample size may be required to obtain a sufficient sample size. Generally, the more rare and hidden the target population, the larger the required sample size.

Ethical Considerations

> **Guideline 7.2.***Ethical considerations.* Taking the burden on study participants into consideration, one should choose the smallest sample necessary to satisfy the

objectives of a study.

Participation in research imposes a burden on participants. Although this burden is greater in some research than in others, it is unethical to subject participants to any unnecessary burden. From an ethical point of view, a sample is too large if it has more participants than necessary and too small if it is not large enough to detect a significant effect that has practical relevance. An extremely large sample may indicate that a very small difference is statistically significant even though the difference may be meaningless from a practical or clinical perspective. One should choose the smallest sample that satisfies the study's objectives.

Nature of the Population

Several characteristics of a target population are relevant in determining the sample size. These include:

- Size of the population
- Homogeneity/heterogeneity of the population
- Spatial distribution of the population

> **Guideline 7.3.** *Size of the population.* For large populations, size of the population is not a critical factor in determining sample size; on the other hand, for small populations, the size of the population should be considered in determining sample size.

Population size is usually not a factor in determining sample size. However, if the sample is more than 5% of the population size, the size of the population should be taken into consideration.

> **Guideline 7.4.** *Homogeneity/heterogeneity of the population.* The more homogeneous the population in terms of the variables of interest, the more consideration should be given to choosing a smaller sample rather than a larger sample; the more heterogeneous the population in terms of the variables of interest, the more consideration should be given to choosing a larger sample rather than a smaller sample.

The rule of homogeneity holds that the more homogeneous the population, the fewer elements are necessary to represent the population. If a population is perfectly homogeneous in terms of the study variables, only one element would be necessary to have a representative sample. Inferences based on homogeneous samples have smaller margins of error than inferences based on heterogeneous samples. It is not unusual for a research project to have multiple key

variables with differing variances. In such a situation, one should choose the sample size based on the variable for which the greatest precision is required.

> **Guideline 7.5.***Spatial distribution of the population.* Due to the relationship between the spatial distribution of the population and data collection costs, the more scattered a population, the more consideration should be given to choosing a smaller sample rather than a larger sample.

The spatial distribution of a population significantly affects the data collection costs of a study; as a result, the spatial distribution of the population is a critical factor in determining sample size. Given availability of funds, a larger sample may not be an option in studying a widely dispersed population. Using cluster sampling may reduce such costs. However, as noted earlier, cluster sampling would yield higher sampling errors, necessitating the sampling of a larger number of clusters and a larger overall sample size.

Availability of Resources

> **Guideline 7.6.***Availability of resources.* The more limited one's resources (i.e., money, time, facilities, personnel, etc.), the more consideration should be given to choosing a smaller sample rather than a larger sample.

The number of elements selected for a research project will primarily be determined by the availability of resources. There is a direct relationship between amount of money, time, facilities, and personnel available to conduct a study and sample size. It will be a waste of effort to identify a large number of elements for participation in the study if one does not have the facilities, personnel, and other resources to involve them in the study. If immediate results are required, a large sample size may be out of the question. There must be a balance between resources and sample size. Using only budget considerations, the sample size may be determined by dividing the available funds for data collection by the average data collection cost per element.

Research Design Considerations

Several factors relating to the research design of a study should be considered in determining sample size. These include considerations relating to:

- Type of research design
- Data analysis design
- Type of sample design

Type of Research Design

> **Guideline 7.7.** *Type of research design.* Quantitative research designs tend to require larger sample sizes than qualitative research designs; nonexperimental designs tend to require larger sample sizes than experimental research designs; and longitudinal research designs tend to have larger sample sizes than cross-sectional research designs.

Sampling in qualitative research tends to differ from sampling in quantitative research in that quantitative research designs tend to require larger sample sizes. Although a specific sample size may be prescribed in employing availability sampling and quota sampling, often specific sample sizes are not targeted in purposive sampling and respondent-assisted sampling.

Experimental research designs also tend to have smaller sample sizes than survey research designs. Experimental research designs focus on variable and relationships external validity, and the internal validity of the study. More attention is given to controlling for measurement error and controlling for extraneous variables than factors affecting population generalizability. When different types of experimental designs are compared, quasi-experimental designs should have larger sample sizes than true experimental designs because, since randomization is not used, a larger sample size is needed to control for extraneous variables via statistical analyses.

Longitudinal research designs, or more specifically, panel longitudinal research designs, tend to have larger sample sizes than cross-sectional research designs. In panel longitudinal designs, data are collected from the same population elements at different points in time. In order to compensate for problems in recruiting population elements for long-term studies and the problem of mortality, elements leaving the study, often a larger sample size is used than what would have been used with a different research design.

Data Analysis Design

> **Guideline 7.8.** *Data analysis design.* The sample size should be set taking into consideration:
>
> - The assumptions of the statistical procedures that are to be used in the study.
> - The complexity and amount of details the data analysis design required. For example, one should take into account the required sample size per cell of cross-tabulations that may be part of one's analysis design.
> - The strength of the expected relationship of relationships studies, and the size of the differences between categories for comparative studies. The stronger the

expected relationship the data analysis is expected to reveal, the smaller the sample size necessary to reveal the result; while the fainter the relationship the data analysis is expected to reveal, the larger the sample size necessary to reveal the result. Moreover, the smaller the differences between categories that are expected, the larger the sample size that is necessary.

Statistical procedures vary in terms of their sample size requirements. Violation of the sample size assumptions of the statistical procedures that are used will affect the internal validity of a study.

Analyses that are complex, include a large number of variables, and include detailed subgroup analyses require larger sample sizes than other analyses. The strength of the relationship analyzed will also affect the sample size requirements of a study. Generally, the stronger the expected relationships, the smaller the sample size necessary to detect it.

Type of Sample Design

The sample size required differs from one sample design to the other. The type of sample design affects the relevance of different factors in determining sample size. The calculations of the margin of error of estimates and the significance of differences between estimates assume the use of probability sampling. Such calculations are irrelevant if nonprobability sampling is used. Considerations relating to the type of sample design are described below.

Guideline 7.9. *Nonprobability sample designs.* If nonprobability sampling is used, consider using adhoc, nonstatistical methods in determining sample size.

If a researcher uses nonprobability sampling, although statistical theories are not applicable in determining sample size, one may consider using various conventions, “rules of thumb,” and adhoc, nonstatistical methods. Typical sample sizes for various types of research designs include:

- Case study research: 3 to 5 participants
- Phenomenological research: 6 to 10 participants
- Grounded theory research: 15 to 30 participants
- Ethnographic research: 35 to 50 participants
- Focus group research: 3 to 12 focus groups depending upon type of participants, 6 to 12 participants per group
- Experimental research: 15 to 30 participants per group
- Survey research, single topic community or national study: 400 to 2,500 participants

- Survey research: multipletopic, national study: 10,000 to 15,000 participants
- Exploratory research, pilot study, pretest: 20 to 150 participants
- Correlation research: 30 participants
- Analysis of major subgroup: 100 participants
- Analysis of minor subgroup: 30 participants
- Marketing research, product testing: 200 to 2,500 participants
- Population size over 400: 200 to 1,500 participants

Guideline 7.10.*Probability sample designs.* If probability sampling is used, consider using statistical formulas in determining sample size.

If probability sampling is used, it is not necessary to rely on conventions and rules of thumb in determining sample size. One may use statistical formulas based on probability theories. The formulas for calculating sample size vary from problem to problem. If one is conducting a descriptive study with the purpose of estimating population parameters, one should use formulas for calculating the confidence of intervals for these estimates. The confidence level describes the level of confidence that the population figure is within the confidence interval around the estimate. If one is conducting an analytical study or experimental research with the purpose of estimating the significance of the difference between subgroups, one would use formulas for testing the significance of such differences.

If an objective of the research is to estimate population parameters, one may determine the sample size necessary for such a study by using formulas for calculating the confidence intervals for the statistic used in the study (the confidence interval approach of determining sample size). Steps that may be used for a simple random sample design include:

Identify the major study variable(s) and determine whether they are categorical or continuous. It is not unusual for a study to have more than one variable of interest. The sample size should be sufficient for all the important analyses that must be done. One may calculate the sample size for all of the important variables, and then use the one that requires the largest sample size.

Determine the statistic to estimate. Typically, if the variables are categorical, percentages (or proportions) are used; if the variables are continuous, means are used.

Identify the formula (equation) for computing confidence intervals for the statistic selected in Step 2, and solve the equation for the sample size. Depending upon the formulas used, the equations below may result:

- Proportions: $n = z^2pq/e^2$
- Means: $n = z^2s^2/e^2$

Where:

n = the sample size

z = the *z* score corresponding with the desired level of confidence or probability of error. The level of confidence is equal to 1 minus the significance level (α). Typically, a level of confidence of 95% (i.e., one can be 95% certain that the true figure is within the margin of error) is set. A *z* score of 1.96 is used for the .95 level of confidence, and a *z* score of 2.58 is used for the .99 level of confidence.

p = the estimated proportion in the population. This estimate might be based on prior research, pilot study, estimates from experienced researcher(s) who studied similar populations and research questions, and/or industry conventions. The most conservative estimate is .50. It is used if there is little basis for making an estimate.

q = 1 - *p*

e = the tolerable margin of error or precision of the estimate. It should be driven by the purposes of the study. The more important the study, the higher the level of precision desired, and the smaller the tolerable margin of error that should be targeted.

s = estimated variability of the statistic in the target population. The estimate may be based on prior research, pilot study, estimates from experienced researcher(s) who studied similar populations and research questions, and/or industry conventions. If information on the range is available, the range method for estimating the standard deviation may be used by dividing the range by a value of 4 to 6.

Example 1: What sample size is necessary to estimate the proportion of voters likely to vote for a political candidate if prior research indicates that it is likely that the candidate will receive 54% of the vote, and it is desired that the margin of error is .04 and the level of confidence is .95?

Answer:

$$n = z^2\, pq/e^2$$
$$= (1.96^2)(.54)(.46)/\ .04^2$$
$$= 596$$

Example 2: What sample size is necessary to estimate mean number of hours per week students at a local high school study if prior research suggests a standard deviation of 2 hours; it is desired that the margin of error is .5 hours; and the level of confidence is .95?

Answer:

$n = z^2s^2/e^2$
$= ((1.96^2)(2^2)/.5)^2$
$= 62$

Using the above formula for calculating the sample size for a study whose variables of interest are measured in terms of proportions, the sample size for various values of a proportion and margin of error were calculated and presented in Table 7.1. The 95% level of confidence was used for these calculations. The formula used assumes simple random sampling is used, and study is descriptive study with a purpose to estimate population parameters. Different formulas would be appropriate for studies with different purposes, data analytic requirements, and more complex sample designs. The discussion of these formulas is beyond the scope of this text. (For more information, see Kish, 1965; Levy & Lemeshow, 2008; Lohr, 2009; Scheaffer, Mendenhall, & Ott, 2006; Thompson, 2002.)

Table 7.1 Sample Size for Various Values of a Proportion and Margin of Error

Value of Proportion	Margin of Error (+/–)									
	.01	.02	.03	.04	.05	.06	.07	.08	.09	.10
.01	380	95	42	24	15	11	8	6	5	4
.02	753	188	84	47	30	21	15	12	9	8
.03	1118	279	124	70	45	31	23	17	14	11
.04	1475	369	164	92	59	41	30	23	18	15
.05	1825	456	203	114	73	51	37	29	23	18
.06	2167	542	241	135	87	60	44	34	27	22
.07	2501	625	278	156	100	69	51	39	31	25
.08	2827	707	314	177	113	79	58	44	35	28
.09	3146	787	350	197	126	87	64	49	39	31
.10	3457	864	384	216	138	96	71	54	43	35
.15	4898	1225	544	306	196	136	100	77	60	49
.20	6147	1537	683	384	246	171	125	96	76	61
.25	7203	1801	800	450	288	200	147	113	89	72
.30	8067	2017	896	504	323	224	165	126	100	81
.35	8740	2185	971	546	350	243	178	137	108	87
.40	9220	2305	1024	576	369	256	188	144	114	92
.45	9508	2377	1056	594	380	264	194	149	117	95
.50	9604	2401	1067	600	384	267	196	150	119	96

Note: The 95% level of confidence was used for these calculations.

Guideline 7.11. *Sequential sampling approaches.* One may apply the above formulas prior to data collection, fixing the sample size at that time, or a sequential sampling or adaptive sampling approach may be used. In using a sequential approach, the number of sampling units to be included in the study is not fixed in advance of data collection. Instead of setting a fixed sample size, a researcher would set a "stopping rule," such as a targeted margin of error or "data saturation," and continue to sample until the rule is satisfied. If probability sampling is used, the researcher may continue to add cases until a targeted margin of error is satisfied. If nonprobability sampling is used, the researcher may continue to sample until additional elements do not provide new information; that is, one has "data saturation," "theoretical saturation," or "informational redundancy," or exhausted the social network being studied. Sequential

> sampling has been found to result in smaller samples than the sample size generated via a fixed approach, and as a result is completed in a shorter period of time (Anscombe, 1963; Armitage, 1975; Birt & Brogren, 1964; Howe, 1982).

The following research notes provide examples of sample size determination in qualitative research. The task is such that research is often not to make inferences to population parameters but to bring about an understanding of the subject matter of the study. Theoretical saturation is one of the criteria used to determine whether a sample is too small or too large. Research Notes 7.1 and 7.2 provide illustrations of theoretical saturation. Research Note 7.1 concerns a study of nursing support for family members of critically ill adults, and Research Note 7.2 concerns a study of the effect of spirituality on the self-management of diabetes among African Americans.

Research Note 7.1: Example of Theoretical Saturation: Study of Nursing Support for Family Members of Critically Ill Adults

Vandall-Walker, Jensen, and Oberle (2007) used theoretical sampling in their grounded theory study of nursing support for family members of critically ill adults. They used theoretical saturation in determining sample size of the study. They described their sampling procedures as follows:

> To be included, participants had to be adult family members who (a) visited an adult patient admitted to a critical care unit, (b) were able to speak and understand English, and (c) were cognitively able to reflect on and verbalize their experiences and their perceptions of nursing support. At the time of the initial face-to-face meeting, a written consent was obtained after an explanation of the study both verbally and in written form.
>
> Sampling was engaged in until theoretical saturation was reached; that is, until what was being revealed in the data was not new information but confirmatory of the categories already developed. This approach resulted in a convenience sample of 20 family members from 14 families who were involved in one or two interviews held in a quiet room in the ICU, the social worker's office, or the first author's office.
>
> Ideally in grounded theory, after the first few interviews, data collection is guided by theoretical sampling, in which the interviewer purposively samples “people,

places, or events, that will maximize opportunities to discover variations among concepts and to densify categories in terms of their properties and dimensions" (Strauss & Corbin, 1998, p. 201). In this study, theoretical sampling was constrained somewhat by the nature of the ethically approved recruitment process, wherein participants self-selected. However, this self-selection did result in participants being recruited from most of the critical care units, so there was breadth of appropriate "places" represented. As well, from within this pool of participants, theoretical sampling for incidents and experiences was addressed. Partway through the study, some family members who had heard of the study by word of mouth were recruited. These individuals added information that significantly influenced the evolving theory and constituted a serendipitous theoretical sample: individuals the first author would have approached had the ethically approved recruitment protocol included this option.

Research Note 7.2: Example of Theoretical Saturation: Study of the Effect of Spirituality on the Self-Management of Diabetes Among African Americans

Polzer and Miles (2007) used theoretical sampling in their development of a theoretical model about how the spirituality of African Americans affects their self-management of diabetes. Their sample size was determined by theoretical saturation. They described their sampling procedures as follows:

> Participants were men and women with diabetes, as well as 5 Protestant ministers. The inclusion criteria for participants with diabetes were (a) African American men and women, (b) diagnosed with type 2 diabetes for at least a year, (c) under the care of a health care provider for type 2 diabetes, (d) ages 40 to 75 years, (e) of low socioeconomic status, (f) able to perform most of the activities of self-management themselves, (g) cognitively intact, and (h) able to speak English. In addition, participants had (a) no other health problems that required considerable self-management and (b) no other health problems for which the person was undergoing current major medical treatment (e.g., chemotherapy). The only eligibility criterion for the ministers was that they be ministers of churches with primarily African American congregations.
>
> Sampling began with purposeful sampling, whereby individuals who were

deemed information rich were chosen for the study (Patton, 2001). As typologies began to emerge in data analysis, we used theoretical sampling to refine the differences and similarities between these groups. Data collection and analysis stopped once informational redundancy had been achieved.

The sample of persons with diabetes consisted of 10 African American men and 19 African American women. All had been diagnosed with type 2 diabetes for a mean of 13 years (range 1 to 35).

Final Adjustments

Once a targeted sample size has been determined either by "rules of thumb" or statistical formulas, further adjustments should be made. Where relevant, adjustments should be made for:

- Ineligibility/incidence rate
- Nonresponse
- Finite population correction factor
- Design effect
- Attrition/mortality rate

Guideline 7.12.*Ineligibility/incidence rate.* The targeted sample size should be adjusted to take into account the ineligibility or incidence rate.

It should be anticipated that when contact is made with the sampled elements, some will not be members of the target population. They should be excluded from the study. The targeted sample size should be adjusted to account for ineligibles.

- Gross incidence rate: the percentage of the general population that are members of the finite population, for example, the percentage of the general population who are 18 years of age or older.
- Reachable rate: Reflects how good the sampling frame is.
- Net incidence rate: The percentage of contacts who qualify for inclusion in the study. Gross incidence x qualification percentage.
- Completion rate: Percentage of elements in the target population from whom a completed data collection instrument is obtained.
- Contacts = n / R × I × C

Guideline 7.13.*Nonresponse.* The targeted sample size should be adjusted to take

into account the unit nonresponse rate and the item nonresponse rate for key variables.

One should anticipate unit nonresponse and item nonresponse for key variables. Previous similar research and/or a pilot study might assist in estimating the nonresponse one is likely to encounter. The targeted sample size should be adjusted for anticipated nonresponse.

Guideline 7.14.*Finite population correction factor.* If the probability sampling is used and the calculated targeted sample size is greater than 5% of the population, the targeted sample size should be adjusted to take into account the finite population correction factor.

If sampling without replacement is used and the sample is large relative to the population (the sample size is greater than 5% of the population size), an adjustment should be made to the targeted sample size using a finite population correction factor (fpc). The fpc may be computed using the formula: fpc = square root of (N - n) / N – 1), where N = the population size, and n = the sample size. The fpc has little effect when the sample size is less than 5% of the population. The finite population correction takes into account that unlike the assumption made in standard statistical theory that population is infinite, the population is finite in size and the sample is selected without replacement. The higher the sampling fraction (n/N), the lower the fpc and the standard error of estimates based on the sample.

Guideline 7.15.*Design effect.* If probability cluster sampling is used, the targeted sample size should be adjusted taking into account the design effect.

The formulas presented in the above discussion of the confidence interval and the hypothesis testing approaches in determining the size of a sample assume that simple random sampling will be used. On the other hand, other formulas must be used for alternative sample designs. A review of these formulas is beyond the scope of this text. Yet, an adjustment may be made via the targeted sample size by applying the design effect. The design effect (DEFF) is the ratio of the variances of sample design employed to the variances of a comparable simple random sample design. The DEFF of a stratified sample design tends to be a little less than one, indicating that if stratification is used the sample size may be smaller than the sample size simple random sampling at the same margin of error. Technically, the DEFF indicates how much less (or more) the precision of a nonsimple random design used when it is compared to the precision of simple random sample design. From a sample size perspective, it indicates how many more (or fewer) elements should be selected in the planned sample design compared to the sample size required for a simple random sample to achieve the same level of

sampling variance. If the DEFF of a cluster sample is greater than 2 (a DEFF of 2.0 is typically a default value), the sample size for the sample must be more than twice the sample size of a comparable simple random sample at the same margin of error.

> **Guideline 7.16.***Attrition/mortality rate.* The targeted sample size should be adjusted to take into account the attrition or mortality rate.

If a longitudinal study is planned, in particular a panel study, attrition should be anticipated. The initial sample size should be adjusted to take this factor into account.

Summary

The choice of sample size is a very important decision. Guidelines for choosing the size of a sample indicate that such factors as having an exploratory research objective, the minimization of the burden on study participants, homogeneous population, scattered population, and limited resources suggest a smaller sample size rather than a larger sample size. On the other hand, such factors as quantitative, nonexperimental, and longitudinal research designs and a complex and detailed data analysis design suggest a larger sample size rather than a smaller sample size. “Rules of thumb” are suggested for nonprobability sample designs, and statistical formulas are suggested for probability sample designs. The statistical formulas take into account such factors as confidence intervals, level of significance, level of power, and effect size. The final sample size should be calculated after making adjustments for the incidence rate, the nonresponse rate, the finite population correction factor, the design effect, and the attrition/mortality rate.

Review Questions

- How does sample size determination in nonprobability sampling differ from sample size determination in probability sampling?
- What guidelines should be used in determining the appropriate sample size for nonprobability sampling?
- What guidelines should be used in determining the appropriate sample size for probability sampling?
- Illustrate the confidence interval approach of determining sample size.
- Illustrate the hypothesis-testing approach of determining sample size.
- In determining sample size, how might one decide on the level of confidence desired and the level of accuracy to use?
- Is it necessary to make a determination of the size of a sample before beginning to select

elements for the sample? Justify your answer.
What is sequential sampling, and its strengths and weaknesses?
Is a larger sample size always better? Why or why not?
Qualitative researchers tend to consider factors in determining sample size that are different from the factors that quantitative researchers tend to consider. What do you consider to be the key factors that a qualitative researcher should consider? What are the reasons for your answer? Once you have answered these questions, consider Small's "'How Many Cases Do I Need?' On Science and the Logic of Case Selection in Field-Based Research." (2009).
Suppose you desired to conduct a study of 1,000 lesbians. What procedures would you use to achieve this goal and why? Once you have answered these questions, consider Fish's "Sampling Lesbians: How to Get 1000 Lesbians to Complete a Questionnaire" (1999).

Key Terms

Define and give examples of the following concepts:

confidence interval
data saturation
design effect
finite population correction factor
margin of error

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http://dx.doi.org/10.4135/9781452272047.n7