SOCIAL SCIENCE METHODS: SURVEY RESEARCH

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Surveys are questionnaires distributed to a population of interest to gather information—generally from a limited sample of respondents—that can be analyzed quantitatively. Questionnaires may be self-administered or administered by an interviewer in written form (e.g., via paper copy, text message, or online) or verbally (e.g., in person or over the telephone).

- Example: Sattler (2002) distributed surveys to 253 university students in El Salvador following two earthquakes to measure symptoms of acute stress disorder.

☐ **Determining Research Question(s)**

Determining your guiding research question(s) is one of the most important steps in designing a survey as it will inform (a) what specific questions are asked on the survey, (b) who makes up the sample, and (c) what analytic strategy is used.

- Determine whether your research is exploratory or whether you have predictions about patterns you expect to find in your data. If the latter, establish hypotheses based on previous literature/theory.
- Make sure your research questions (and/or hypotheses) are specific. Make explicit what variables you are interested in measuring and what kind of relationship you are testing for (i.e., correlational, causal, etc.)
- Ensure that your research questions (and/or hypotheses) match the type of data that you will be collecting. For example, if you are interested in testing whether something is caused by something else, you will need to ensure that your research design can effectively establish causality (e.g., gathers data over multiple time points, includes a comparison group, etc.).

For more information on this topic, see the Matching Methods to Questions in Extreme Events Research check sheet in this series.

☐ **Survey Development**

Choosing appropriate questions for the survey will determine the quality of the data and, therefore, the rigor of the results and the conclusions that can be made. There are a number of guidelines to consider when choosing what questions to ask in a survey.

- Consult your original research questions (and/or hypotheses) and critically evaluate which variables you need to collect data on and which you do not. Survey length can negatively affect completion rates, so avoid including unnecessary questions.
- Once you have a list of the variables that you want to include, consult previous literature to see what indicators, scales, or indexes have been used before to measure these variables. Use pre-existing measures when possible. This ensures that your questions measure the variables that you want to be measuring (validity), that they are consistent (reliability), and that your research can build upon knowledge in the field. If the measures do not perfectly fit your context, you can modify them while still giving credit to the original authors of the measure. Take care to use measures that have been validated for the culture or context from which you are collecting the data. If this is not possible, consider adapting these measures using a culturally-informed approach.

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- When there are no pre-existing measures available, construct questions that are precise and unambiguous, contextually appropriate to your sample, and do not lead participants toward a certain answer. Consider the tendency of participants to answer questions in socially desirable ways (e.g., overstating their disaster preparedness levels) and tailor your questions to encourage truthful and accurate responding.
- Consider the possibility of emotional discomfort or distress from the types of questions being asked. While your Institutional Review Board should also screen for this, it is your responsibility to ensure that participants are well-informed about the survey content, and that all questions are sensitive to the participants' lived experiences and their wellbeing. For more information, see Ferreira, Buttell, and Ferreira (2015).
- Consider the order that questions are presented so that they flow smoothly and participants understand the survey and complete it thoroughly. Group similar questions under a larger block of questions and provide linking statements/explanations/introductions when needed.
- Pilot your survey with a small group prior to administering it at full-scale. This involves asking a small number of people (preferably of a similar demographic to the sampled population) to complete the survey and provide feedback on what does and does not make sense. It is especially important to pilot surveys when trialling new questions/measures to ensure they are coherent and measuring what is intended.

☐ **Sampling Techniques**

The importance of a well developed sampling technique requires more than determining how many people are in the sample. It also includes deciding which groups to sample from, ensuring representativeness of the sample, choosing a sampling medium, determining how to minimize bias (from the researcher and the participants), and reducing potential confounding factors.

- Consult your research questions to determine the source population (e.g., university students, residents from a specific neighborhood, children, families that have relocated, etc.) and how many participants you will need to recruit to run your statistical test (e.g., by conducting a power analysis).
- Decide if you want your sample to be representative of a larger target population so that findings can be generalized to others outside of your study. If so, it is preferable to use *probability sampling* (each individual within the source population has an equal chance of being chosen, i.e., recruitment by lottery). Other methods using *non-probability sampling* include *snowballing* (participants recommend other people to take part) or *purposive* (the researcher actively seeks out participants based on specific criteria important for answering the research question).
- Determine the format of your survey. If administered by the research team (face-to-face or by telephone), consider how to ensure consistency and minimize researcher bias (i.e., by not asking questions in a leading way or assuming how a participant will answer based on previous responses). If self-administered by the participant (online or by mail), consider how to maximise survey completion (e.g., by reducing the survey length) and response rates (e.g., by providing prepaid return postage). Computer aided technology, such as Computer-Assisted Telephone Interviewing, can facilitate survey administration.
- Consider the timeline for data collection. If data is perishable (e.g., you are measuring emotional response immediately after a disaster), then the sampling method should be realistic and data collection should be expedited when possible. Even when data is not perishable, careful consideration should be paid to the sampling time frame. Confounding events (e.g., other disasters that occur in the midst of data collection) can obscure data and inhibit your ability to draw clear conclusions.
- Consider the non-response bias implicit in your method and how this might affect your ability to draw conclusions about the data. For example, who might be less likely to respond to mail surveys? Who does not have access to the internet? What groups are missing from the data? Here you can use census data, for example, to compare your sample response rate to the broader population.

For more information on this topic, see the Approaches to Sampling check sheet in this series.

☐ **Data Management and Sharing**

Once survey data has been collected, it is important to move forward with data storage, management, treatment, and analysis.

- Adhere to a strict method of data storage that ensures data privacy. When possible, remove all identifying information from responses and store your aggregated, de-identified dataset in a secure place. Natural hazards research datasets, for example, can be stored, managed, and shared on the DesignSafe Cyberinfrastructure.

- Clean the data so that the responses can be analyzed using quantitative methods. This may involve reverse-coding data (re-coding questions that were negatively framed, but should be positively framed, or vice versa), coding open-ended text responses into categories, or imputing missing data.
- Consult your research questions (and/or hypotheses) to determine the types of statistical tests that you should perform. Ensure that these tests fit the nature of the data collected, and that the data meets the assumptions of the test before proceeding with analysis.
- Consider how to share data and research findings with participants so that they remain involved in the research process and actively benefit from it. Datasets and findings should be made available, when possible, on open science frameworks or research websites in order to encourage research transparency and replication.

For more guidance on writing a Data Management Plan and ethically sharing research findings, visit the CONVERGE Extreme Events Research Check Sheets series.

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