NSC414

RESEARCH METHODS IN NURSING

16/MHS02/004

QUANTITATIVE AND QUALITATIVE DATA COLLECTION METHODS

**Quantitative data** are data that deal with quantities, values or numbers, making them measurable. They are usually expressed in numerical form, such as length, size, amount, price and duration.

**Qualitative Data** deals with quality, so that they are descriptive rather than numerical in nature. Unlike quantitative data, they are generally not measurable, and are only gained mostly through observation.

**QUALITATIVE DATA COLLECTION METHODS**

They are exploratory in nature, these methods are mainly concerned at gaining insights and understanding on underlying reasons and motivations, so they tend to dig deeper. Since they cannot be quantified, measurability becomes an issue.

1. **Face-to-Face Personal Interviews**

This is considered to be the most common data collection instrument for qualitative research, primarily because of its personal approach. The interviewer collects data directly from the subject (the interviewee), on a one-on-one and face-to-face interaction. This is ideal for when data to be obtained must be highly personalized.

* This allows the interviewer to probe further, by asking follow-up questions and getting more information in the process.
* The data will be highly personalized (particularly when using the informal approach).
* This method is subject to certain limitations, such as language barriers, cultural differences, and geographical distances.
* The person conducting the interview must have very good interviewing skills in order to elicit responses.
	1. **Qualitative Surveys**
* **Paper surveys or questionnaires:** Questionnaires often utilize a structure comprised of short questions and, in the case of qualitative questionnaires; they are usually open-ended, with the respondents asked to provide detailed answers, in their own words. It’s almost like answering essay questions.
* Since questionnaires are designed to collect standardized data, they are ideal for use in large populations or sample sizes of respondents.
* The high amount of detail provided will aid analysis of data.
* On the other hand, the large number of respondents (and data), combined with the high level and amount of detail provided in the answers, will make data analysis quite tedious and time-consuming.
* **Web-based questionnaires.** This is basically a web-based or internet-based survey, involving a questionnaire uploaded to a site, where the respondents will log into and accomplish electronically. Instead of a paper and a pen, they will be using a computer screen and the mouse.
* Data collection is definitely quicker. This is often due to the questions being shorter, requiring less detail than in, say, a personal interview or a paper questionnaire.
* There is a limitation on the respondents, since the only ones to be able to answer are those who own a computer, have internet connection, and know their way around answering online surveys.
	1. **Focus Groups**

[Focus groups method](https://www.cleverism.com/lexicon/focus-group/) is basically an interview method, but done in a group discussion setting. When the object of the data is behaviors and attitudes, particularly in social situations, and resources for one-on-one interviews are limited, using the focus group approach is highly recommended. Ideally, the focus group should have at least 3 people and a moderator to around 10 to 13 people maximum, plus a moderator.

* There may be a small group of respondents, but the setup or framework of data being delivered and shared makes it possible to come up with a wide variety of answers.
* The data collector may also get highly detailed and descriptive data by using a focus group.
	1. **Documental Revision**

This method involves the use of previously existing and reliable documents and other sources of information as a source of data to be used in a new research or investigation. This is likened to how the data collector will go to a library and go over the books and other references for information relevant to what he is currently researching on.

* The researcher will gain better understanding of the field or subject being looked into, thanks to the reliable and high quality documents used as data sources.
* Unfortunately, this relies heavily on the quality of the document that will be used, and the ability of the data collector to choose the right and reliable documents. If he chooses wrong, then the quality of the data he will collect later on will be compromised.
	1. **Observation**

In this method, the researcher takes a participatory stance, immersing himself in the setting where his respondents are, and generally taking a look at everything, while taking down notes.

Aside from note-taking, other documentation methods may be used, such as video and audio recording, photography, and the use of tangible items such as artifacts, mementoes, and other tools.

* The participatory nature may lead to the researcher getting more reliable information.
* Data is more reliable and representative of what is actually happening, since they took place and were observed under normal circumstances.
* The participation may end up influencing the opinions and attitudes of the researcher, so he will end up having difficulty being objective and impartial as soon as the data he is looking for comes in.
	1. **Longitudinal studies**

This is a research or data collection method that is performed repeatedly, on the same data sources, over an extended period of time. It is an observational research method that could even cover a span of years and, in some cases, even decades. The goal is to find correlations through an empirical or observational study of subjects with a common trait or characteristic.

* This is ideal when seeking data meant to establish a variable’s pattern over a period of time, particularly over an extended period of time.
* As a method to find correlations, it is effective in finding connections and relationships of cause and effect.
* The long period may become a setback, considering how the probability of the subjects at the beginning of the research will still be complete 10, 20, or 30 years down the road is very low.
* Over the extended period, attitudes and opinions of the subjects are likely to change, which can lead to the dilution of data, reducing their reliability in the process.
	1. **Case Studies**

In this qualitative method, data is gathered by taking a close look and an in-depth analysis of a “case study” or “case studies” – the unit or units of research that may be an individual, a group of individuals, or an entire organization. This methodology’s versatility is demonstrated in how it can be used to analyze both simple and complex subjects.

* It is flexible and versatile, analyzing both simple and complex units and occurrence, even over a long period of time.
* Case studies provide in-depth and detailed information, thanks to how it captures as many variables as it can.
* Reliability of the data may be put at risk when the case study or studies chosen are not representative of the sample or population.

 **QUANTITATIVE DATA COLLECTION METHODS**

Data can be readily quantified and generated into numerical form, which will then be converted and processed into useful information mathematically. The result is often in the form of statistics that is meaningful and, therefore, useful. Unlike qualitative methods, these quantitative techniques usually make use of larger sample sizes because its measurable nature makes that possible and easier.

1. **Quantitative Surveys**

Unlike the open-ended questions asked in qualitative questionnaires, quantitative paper surveys pose closed questions, with the answer options provided. The respondents will only have to choose their answer among the choices provided on the questionnaire.

* Similarly, these are ideal for use when surveying large numbers of respondents.
* The standardized nature of questionnaires enables researchers to make generalizations out of the results.
* This can be very limiting to the respondents, since it is possible that his actual answer to the question may not be in the list of options provided on the questionnaire.
1. **Interviews**

Personal one-on-one interviews may also be used for gathering quantitative data. In collecting quantitative data, the interview is more structured than when gathering qualitative data, comprised of a prepared set of standard questions.

These interviews can take the following forms:

* **Face-to-face interviews:** Much like when conducting interviews to gather qualitative data, this can also yield quantitative data when standard questions are asked.
* The face-to-face setup allows the researcher to make clarifications on any answer given by the interviewee.
* This can be quite a challenge when dealing with a large sample size or group of interviewees. If the plan is to interview everyone, it is bound to take a lot of time, not to mention a significant amount of money.
* **Telephone or online, web-based interviews:** Conducting interviews over the telephone is no longer a new concept. Rapidly rising to take the place of telephone interviews is the video interview via internet connection and web-based applications, such as Skype.
* The net for data collection may be cast wider, since there is no need to travel through distances to get the data. All it takes is to pick up the phone and dial a number, or connect to the internet and log on to Skype for a video call or video conference.
* Quality of the data may be questionable, especially in terms of impartiality. The net may be cast wide, but it will only be targeting a specific group of subjects: those with telephones and internet connections and are knowledgeable about using such technologies.
1. **Quantitative Observation**

This is straightforward enough. Data may be collected through systematic observation by, say, counting the number of users present and currently accessing services in a specific area, or the number of services being used within a designated vicinity.

* It is a quite simple way of collecting data, and not as expensive as the other methods.
* The problem is that senses are not infallible. Unwittingly, the observer may have an unconscious grasp on his senses, and how they perceive situations and people around. Bias on the part of the observer is very possible.
1. **Experiments**

 These methods involve manipulation of an independent variable, while maintaining varying degrees of control over other variables, most likely the dependent ones. Usually, this is employed to obtain data that will be used later on for analysis of relationships and correlations.

* **Laboratory experiments.** This is your typical scientific experiment setup, taking place within a confined, closed and controlled environment (the laboratory), with the data collector being able to have strict control over all the variables. This level of control also implies that he can fully and deliberately manipulate the independent variable.
* **Field experiments.** This takes place in a natural environment, “on field” where, although the data collector may not be in full control of the variables, he is still able to do so up to a certain extent. Manipulation is still possible, although not as deliberate as in a laboratory setting.
* **Natural experiments.** This time, the data collector has no control over the independent variable whatsoever, which means it cannot be manipulated. Therefore, what can only be done is to gather data by letting the independent variable occur naturally, and observe its effects.