**MATRIC NO: 16/MHS02/003**

**CORURSE CODE: NSC 414**

**COURSE TITLE: RESEARCH METHODS IN NURSING**

**ASSIGNMENT**

READ ABOUT DATA COLLECTION METHODS:

At the end of your reading you should summarise the following in maximum of 6 typed pages-

1.  Quantitative data collection methods with relevant examples

2. Qualitative data collection methods with relevant examples

Data collection is described as the “process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer queries, stated research questions, test hypotheses, and evaluate outcomes.”

Depending on the discipline or field, the nature of the information being sought, and the objective or goal of users, the methods of data collection will vary. The approach to applying the methods may also vary, customized to suit the purpose and prevailing circumstances, without compromising the integrity, accuracy and reliability of the data.

Quantitative data collection

These are data that deal with quantities, values or numbers, making them measurable. Thus, they are usually expressed in numerical form, such as length, size, amount, price, and even duration. The use of statistics to generate and subsequently analyze this type of data add credence or credibility to it, so that quantitative data is overall seen as more reliable and objective.

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.

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 enable 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.

(-) While data analysis is still possible, it will be restricted by the lack of details.

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 and/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.

Computer-assisted interviews. This is called CAPI, or Computer-Assisted Personal Interviewing where, in a face-to-face interview, the data obtained from the interviewee will be entered directly into a database through the use of a computer.

(+) The direct input of data saves a lot of time and other resources in converting them into information later on, because the processing will take place immediately after the data has been obtained from the source and entered into the database.

(-) The use of computers, databases and related devices and technologies does not come cheap. It also requires a certain degree of being tech-savvy on the part of the data gatherer.

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.

When quantitative data is being sought, the approach is naturalistic observation, which mostly involves using the senses and keen observation skills to get data about the “what”, and not really about the “why” and “how”.

(+) 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.

Qualitative data

Qualitative data is a type of data that describes information. It is investigative and also often open-ended, allowing respondents to fully express themselves.

Qualitative data can be observed and recorded. This data type is non-numerical in nature. This type of data is collected through methods of observations, one-to-one interview, conducting focus groups and similar methods. Qualitative data in statistics is also known as categorical data. Data that can be arranged categorically based on the attributes and properties of a thing or a phenomenon.

Also known as categorical data, this data type isn’t necessarily measured using numbers but rather categorized based on properties, attributes, labels, and other identifiers. Numbers like national identification number, phone number, etc. are however regarded as qualitative data because they are categorical and unique to one individual.

Types of Qualitative Data

Qualitative Data can be divided into two types, namely; Nominal and Ordinal Data

•Nominal Data:

In statistics, nominal data (also known as nominal scale) is a classification of categorical variables, that do not provide any quantitative value. It is sometimes referred to as labelled or named data.

Coined from the Latin nomenclature “Nomen” (meaning name), it is used to label or name variables without providing any quantitative value. This is not true in some cases where nominal data takes a quantitative value.

However, this quantitative value lacks numeric characteristics. Unlike, interval or ratio data, nominal data cannot be manipulated using available mathematical operators.

For example, a researcher may need to generate a database of the phone numbers and location of a certain number of people. An online survey may be conducted using a closed open-ended question.

Example: Enter your phone number with country code.

The best way to collect this data will be through closed open-ended options.

The country code will be a closed input option, while the phone number will be open.

•Ordinal Data: Ordinal data is a type of qualitative data where the variables have natural, ordered categories and the distances between the categories are not known. For example, ordinal data is said to have been collected when a customer inputs his/her satisfaction on the variable scale — "satisfied, indifferent, dissatisfies".

Thus, ordinal data is a collection of ordinal variables. For example, the data collected from asking a question with a Likert scale is ordinal.

•An organization creates an employee exit questionnaire which primarily highlights this question: “How will you rate your experience working with us?”

•Very great

•Great

•Bad

•Very bad

Other examples of ordinal data include the severity of a software bug (critical, high, medium, low), fastness of a runner, hotness of food, etc.

In some cases, ordinal data is classified as a quantitative data type or said to be in between qualitative and quantitative. This is because ordinal data exhibit both quantitative and qualitative characteristics.

Importance of Qualitative Data

Qualitative data is important in determining the particular frequency of traits or characteristics. It allows the statistician or the researchers to form parameters through which larger data sets can be observed. Qualitative data provides the means by which observers can quantify the world around them.

Here are the qualitative data collection methods:

1. One-to-One Interviews: One of the most commonly used data collection instrument for qualitative research, mainly because of its personal approach. The interviewer or the researcher collects data directly from the interviewee on a one-to-one basis. The interview may be informal and unstructured – conversational. The questions asked are mostly open-ended questions, spontaneous, with the interviewer letting the flow of the interview dictate the next questions to be asked.

2. Focus groups: This is done in a group discussion setting. The group is limited to 6-10 people and a moderator is assigned to moderate the ongoing discussion.

Depending on the data which is sorted, the members of a group may have something in common. For example, a researcher conducting a study on track runners will choose athletes who are track runners or were track runners and have sufficient knowledge of the subject matter.

3. Record keeping: This method makes use of the already existing reliable documents and similar sources of information as the data source. This data can be used in a new research. This is similar to going to a library. There one can go over books and other reference material to collect relevant data that can likely be used in the research.

4. Process of observation: In this qualitative data collection method, the researcher immerses himself/ herself in the setting where his respondents are, and keeps a keen eye on the participants and takes down notes. This is known as the process of observation.

Besides taking notes, other documentation methods, such as video and audio recording, photography and similar methods can be used.

5. Longitudinal studies: This data collection method is performed on the same data source repeatedly over an extended period of time. It is an observational research method that goes on for a few years and in some cases can go on for even decades. The goal of this data collection method is to find correlations through an empirical study of subjects with common traits.

6. Case studies: In this method, data is gathered by in-depth analysis of case studies. The versatility of this method is demonstrated in how this method can be used to analyze both simple and complex subjects. The strength of this method is how judiciously it uses a combination of one or more qualitative data collection methods to draw inferences.

Qualitative Data Examples

Qualitative data is also called categorical data since this data can be grouped according to categories.

For example, think of a student reading a paragraph from a book during one of the class sessions. A teacher who is listening to the reading gives a feedback on how the child read that paragraph. If the teacher gives a feedback based on fluency, intonation, throw of words, clarity in pronunciation without giving a grade to the child, this is considered as an example of qualitative data.

It’s pretty easy to understand the difference between qualitative and quantitative data, qualitative data does not include numbers in its definition of traits whereas quantitative data is all about numbers.

Advantages of Qualitative Data

1. It helps in-depth analysis: Qualitative data collected provide the researchers with in-depth analysis of subject matters. While collecting qualitative data, the researchers tend to probe the participants and can gather ample amount of information by asking the right kind of questions. From a series of question and answers, the data that is collected is used to draw conclusions.

2. Understand what customers think: Qualitative data helps the market researchers to understand the mindset of their customers. The use of qualitative data gives businesses an insight into why a customer purchased a product. Understanding customer language helps market research infer the data collected in a more systematic manner.

3. Rich data: Collected data can be used to conduct research in the future as well. Since the questions asked to collect qualitative data are open-ended questions, respondents are free to express their opinions which leads to collecting more information.

Disadvantages of Qualitative Data

1. Time-consuming: As collecting qualitative data is more time consuming, fewer people are studies in comparison to collecting quantitative data and unless time and budget allow, a smaller sample size is included.

2. Not easy to generalize: Since fewer people are studied, it is difficult to generalize the results of that population.

3. Is dependent on researcher’s skills: This type of data is collected through one-to-one interviews, observations, focus groups etc. it relies on the researcher’s skills and experience to collect information from the sample.