**Matric-17/mhs02/111**

**Course-Reseach method in nursing(414)**

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**1. QUANTITATIVE DATA COLLECTION METHOD.**

Quantitative data collection methods are based in mathematical calculations in various formats. Methods of quantitative data collection and analysis include questionnaires with closed-ended questions, methods of correlation and regression, mean, mode and median and others.

Quantitative methods are cheaper to apply and they can be applied within shorter duration of time compared to qualitative methods. Moreover, due to a high level of standardization of quantitative methods, it is easy to make comparisons of findings.

Quantitative data research is comprehensive, and perhaps the only data type that could display analytic results in charts and graphs. Quality data will give you precise results, and data analysis is probably the essential component, which will not only hamper the integrity and authenticity of your research but will also make the findings unstable if you have weak data. Therefore, it does not matter what method you chose to collect quantitative data, ensure that the data collected is of good quality to provide insightful and actionable insights.

Methods used for quantitative data collection

A data that can be counted or expressed in numerical’s constitute the quantitative data. It is commonly used to study the events or levels of concurrence. And is collected through a structured questionnaire asking questions starting with “how much” or “how many.” As the quantitative data is numerical, it represents both definitive and objective data. Furthermore, quantitative information is much sorted for statistical and mathematical analysis, making it possible to illustrate it in the form of charts and graphs.

Discrete and continuous are the two major categories of quantitative data where discreet data have finite numbers and the constant data values falling on a continuum possessing the possibility to have fractions or decimals. If research is conducted to find out the number of vehicles owned by the American household, then we get a whole number, which is an excellent example of discrete data. When research is limited to the study of physical measurements of the population like height, weight, age, or distance, then the result is an excellent example of continuous data.Any traditional or online data collection method that helps in gathering numerical data is a proven method of collecting quantitative data.

Probability sampling

A definitive method of sampling carried out by utilizing some form of random selection and enabling researchers to make a probability statement based on data collected at random from the targeted demographic. One of the best things about probability sampling is it allows researchers to collect the data from representatives of the population they are interested in studying. Besides, the data is collected randomly from the selected sample rules out the possibility of sampling bias.

There are three significant types of probability sampling

Simple random sampling: More often, the targeted demographic is chosen for inclusion in the sample. Systematic random sampling: Any of the targeted demographic would be included in the sample, but only the first unit for inclusion in the sample is selected randomly, rest are selected in the ordered fashion as if one out of every ten people on the list. Stratified random sampling: It allows selecting each unit from a particular group of the targeted audience while creating a sample. It is useful when the researchers are selective about including a specific set of people in the sample, i.e., only males or females, managers or executives, people working within a particular industry.

Interviews

Interviewing people is a standard method used for data collection. However, the interviews conducted to collect quantitative data are more structured, wherein the researchers ask only a standard set of questionnaires and nothing more than that.

There are three major types of interviews conducted for data collection

Telephone interviews: For years, telephone interviews ruled the charts of data collection methods. However, nowadays, there is a significant rise in conducting video interviews using the internet, Skype, or similar online video calling platforms.

Face-to-face interviews: It is a proven technique to collect data directly from the participants. It helps in acquiring quality data as it provides a scope to ask detailed questions and probing further to collect rich and informative data. Literacy requirements of the participant are irrelevant as F2F interviews offer ample opportunities to collect non-verbal data through observation or to explore complex and unknown issues. Although it can be an expensive and time-consuming method, the response rates for F2F interviews are often higher.

Computer-Assisted Personal Interviewing (CAPI): It is nothing but a similar setup of the face-to-face interview where the interviewer carries a desktop or laptop along with him at the time of interview to upload the data obtained from the interview directly into the database. CAPI saves a lot of time in updating and processing the data and also makes the entire process paperless as the interviewer does not carry a bunch of papers and questionnaires.

Surveys/questionnaires

Surveys or questionnaires created using online survey software are playing a pivotal role in online data collection be is quantitative or qualitative research. The surveys are designed in a manner to legitimize the behavior and trust of the respondents. More often, checklists and rating scale type of questions make the bulk of quantitative surveys as it helps in simplifying and quantifying the attitude or behavior of the respondents.

There are two significant types of survey questionnaires used to collect online data for quantitative market research.

Web-based questionnaire: This is one of the ruling and most trusted methods for internet-based research or online research. In a web-based questionnaire, the receive an email containing the survey link, clicking on which takes the respondent to a secure online survey tool from where he/she can take the survey or fill in the survey questionnaire. Being a cost-efficient, quicker, and having a wider reach, web-based surveys are more preferred by the researchers. The primary benefit of a web-based questionnaire is flexibility; respondents are free to take the survey in their free time using either a desktop, laptop, tablet, or mobile.

Mail Questionnaire: In a mail questionnaire, the survey is mailed out to a host of the sample population, enabling the researcher to connect with a wide range of audiences. The mail questionnaire typically consists of a packet containing a cover sheet that introduces the audience about the type of research and reason why it is being conducted along with a prepaid return to collect data online. Although the mail questionnaire has a higher churn rate compared to other quantitative data collection methods, adding certain perks such as reminders and incentives to complete the survey help in drastically improving the churn rate. One of the major benefits of the mail questionnaire is all the responses are anonymous, and respondents are allowed to take as much time as they want to complete the survey and be completely honest about the answer without the fear of prejudice.

Observation

As the name suggests, it is a pretty simple and straightforward method of collecting quantitative data. In this method, researchers collect quantitative data through systematic observations by using techniques like counting the number of people present at the specific event at a particular time and a particular venue or number of people attending the event in a designated place. More often, for quantitative data collection, the researchers have a naturalistic observation approach that needs keen observation skills and senses for getting the numerical data about the “what” and not about “why” and ”how.”

Naturalistic observation is used to collect both types of data; qualitative and quantitative. However, structured observation is more used to collect quantitative rather than qualitative data.

Structured observation: In this type of observation method, the researcher has to make careful observations of one or more specific behaviors in a more comprehensive or structured setting compared to naturalistic or participant observation. In a structured observation, the researchers, rather than observing everything, focus only on very specific behaviors of interest. It allows them to quantify the behaviors they are observing. When the observations require a judgment on the part of the observers – it is often described as coding, which requires a clearly defining a set of target behaviors.

**2. QUALITATIVE COLLECTION METHOD**

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.

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.

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.

Qualitative data is about the emotions or perceptions of people, what they feel. In quantitative data, these perceptions and emotions are documented. It helps market researcher understand the language their consumers speak. This, in turn, helps the researchers identify and deal with the problem effectively and efficiently.

Qualitative Data Collection Methods- Types of Qualitative Data

Qualitative data collection is exploratory in nature, it involves in-depth analysis and research. Qualitative data collection methods are mainly focused on gaining insights, reasoning, and motivations hence they go deeper in terms of research. Since the qualitative data cannot be measured, this leads to the preference for methods or data collection tools that are structured to a limited extent.

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.

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.