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Course Title: Research Methods in Nursing

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Assignment title: Data collection methods

Data collection is the process of gathering and measuring data, information or any variables of interest in a standardized and established manner that enabled the researcher to answer or test hypothesis and evaluate outcomes. Methods of data collection are divided into two categories which are secondary methods of data collection and primary methods of data collection.

Secondary data is a type of data that has already been published in books, newspapers, magazines, journals, online portals etc.

Primary data collection methods can be divided into two groups: quantitative and qualitative.

**Qualitative data collection methods**: They are associated with words, sounds, feelings, emotions, colors and other unquantifiable elements. It is exploratory in nature, these methods are mainly concerned at gaining insights and understanding on underlying reasons and motivations, so they tend to dig deeper. It aims to ensure greater level of depth of understanding and qualitative data collection methods include interviews, focus groups, observation, ethnography, case studies, questionnaires.

* **Observations**: this may take place in natural settings and may involve the researcher in taking lengthy and descriptive notes of what is happening. Sometimes the researcher becomes or needs to become a participant observer, where they are taking part in the situation in order to be accepted and further understand the workings of the phenomenon. It can also serve as a technique for verifying of nullifying information provided in face to face encounters.

**Techniques for collecting data through observation**

* **Written descriptions:** the researcher makes written descriptions of the people, situations or environments

**Limitations**

1. Researcher might miss out on an observation as they are taking notes
2. The researcher may be focused on a particular event or situation
3. There is room for subjective interpretation

* **Photographs and artefacts:** this is useful when there is a need to collect observable information or phenomena such as buildings, neighborhood, dress and appearance.

Artefacts include objects of significance- memorabilia, instruments, tools etc.

* **Video recording:** it allows the researcher to also record notes

**Limitations**

1. People may act unnaturally towards the camera or others avoiding the camera
2. The camera may not capture everything**.**

**Strengths of observation**

* 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.

**Weakness of observation**

* Validity may arise due to risk that the researcher’s participation may have an impact on the naturalness of the setting.
* The participation may end up influencing the opinions and attitudes of the researcher**.**

**Paper surveys or questionnaires:** researchers make use of open-ended questions, with the respondents asked to provide detailed answers, in their own word. Its almost like answering essay questions. This will help in the analysis of data and it is ideal for use in large populations or sample sizes of respondents. On the other hand, the large number of respondents, combined with high level and amount of detailed answers provided would make the data analysis 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 pen they will make use of a computer screen and the mouse.

**Limitations**

* Researcher may end up with mostly surface data, no depth or meaning, especially when the data is processed.
* There would be decreased number of respondent, because the only the ones with computer and have internet connection, and their way around answering online surveys will participate.

**Strength**

* Data collection is faster
* **Interviews:** This is considered the most common data collection instrument for qualitative research, primarily because of its personal approach. The interviewer will collect data directly from the subject (interviewee), on a one-on-one and face-to-face interaction. The questions have to be unplanned and spontaneous, with the interviewer letting the flow of interview dictate the next questions to be asked. Interviews may be unstructured, semi-structured, structured.

**Unstructured**

* This can be referred to as “in depth” interviews
* The interviewer may just go with the aim of discussing a limited number of topics
* This allows the discussion to cover areas in great detail.
* They involve the researcher wanting to know or find out more about a specific topic without there being a structure or a preconceived plan or expectation as to how they will deal with the topic.

**Semi-structured**

* They are sometimes also called focused interviews
* A series of open ended questions based on the topic areas the researcher wants to cover.
* The open-ended nature of the question defines the topic under investigation but provides opportunities for both interviewer and interviewee(subject) to discuss some topics in details.
* This method gives the researcher the freedom to probe the interviewee.

**Structured**

* A tightly structured schedule is used.
* The questions may be phrased in order that a limited range of responses may be given-i.e. ‘do you rate our services as very good, good, or poor
* If the the interview schedule is too tightly structured this may not enable the phenomena under investigations to be explored in terms of either breadth or depth.

**Focus groups:** it is basically an interview method, but done in a group discussion setting. The use of focus groups is sometimes used when it is better to obtain information from a group rather than individuals. For example, a researcher conducting a study on the recovery of married mothers from alcoholism will choose women who are:

1. Married
2. Women who have children
3. Women who are recovering from alcoholism

Other para meters such as age, employment status, and income do not have to be similar across the members of the focus group.

**Characteristics of focus groups**

* Recommended size of the sample group is 6-10 people as smaller groups may limit the potential on the amount of information to be collected.
* Several focus groups should be used in order to get a more objective and macro view of the investigation.
* Members of the focus groups should have something in common which is important to the investigation.
* Groups can either be put together or existing groups- it is always useful to be mindful of the group dynamics of both situations

The aim of the focus group is to make use of participants’ feelings, perception and opinions.

This method requires the researcher to use a range of skills:

1.group skills

2. facilitating

3.listening/ observing

4. analysis

5. moderating

**Quantitative data collection methods**

These are data that deals 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 seen as more reliable and objective. The methods used in quantitative data collection includes probability sampling, interviews, survey/ questionnaires, observation, document review.

* **Probability sampling**: it allows researchers to collect data from representatives of the population they are interested in studying. Besides the data is collected randomly based on sample rules out of the possibility of sampling bias. There are three significant types of probability sampling which includes;
* Simple random sampling
* Systematic random sampling
* Stratified random sampling
* **Interviews**: This is a standard method for data collection. However, the interviews conducted for qualitative data are more structured, wherein the researcher ask only a standard set of questions and nothing more than that. There are three main types of interviews conducted for data collection:
* Face-to-face interviews: it is a proven technique to collect data directly from the participants. it helps in acquiring data as it provides a scope to ask detailed questions and probing further to collect rich and informative data.
* Telephone interviews: for years, telephone interviews ruled the charts of data collection methods. However, there is a significant rise in conducting video interviews using the internet, skype, or similar online video calling platforms.
* Computer-assisted personal interviewing: 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. It saves a lot of time in updating and processing data.
* **Survey/questionnaires**: 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 survey as it helps in simplifying and quantifying the attitude or behavior of the respondents. There are two significant survey questionnaires for quantitative data collection which includes:
* Web-based questionnaire: this is one of the ruling and most trusted methods for internet-based questionnaire, they 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. The primary benefits 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 consists of a packet containing a cover sheet that introduces the audience about the type of research and reason why it is being conducted with a prepaid return to collect data online. 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**: 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”.
* 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.
* **Document Review**: it is a process used to collect data after reviewing the existing documents. It is an efficient and effective way of gathering data as documents are manageable and are practical resource to get qualified data from the past. Apart from strengthening and supporting the research data document review has emerged as one of the beneficial methods to gather quantitative research data. There are three primary documents are being analyzed for collecting quantitative research data:
* Public records
* Personal document: This type of document review deals with individual personal accounts such as actions, behavior, health, physique, etc. for example, the height, and weight of the students.
* Physical evidence: physical evidence or physical documents deal with previous achievements of an individuals or of an organization in terms of monetary and scalable growth.