KING SAUD UNIVERSITY

COLLAGE OF NURSING

NURSING ADMINISTRATION & EDUCATION DEPT.

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NURSING RESEARCH

(NUR 412)

MODULE 7

Methods of data collection

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Introduction:

Data Collection (D.C.) is a very important step in the research process. Its accuracy is essential for the validity of the results.

In most cases, the researcher collects his/her own data by him/herself. But, in big researches, he has to hire a team of data collectors. *This team has to be Provided with adequate knowledge about the research topic, purpose, question/hypothesis, D.C. method, and tool/instrument for D.C.*

Learning Outcomes:

1. Recognize The Importance Of Questionnaires As A Data-Collection Method
2. Enumerate The General Characteristics Of Questionnaires
3. Construct Items For A Questionnaire
4. List The Advantages And Disadvantages Of Questionnaires As A Data-Collection Method
5. Acknowledge The Importance Of Interviews As A Data-Collection Method
6. Recognize The Necessity For Training Of Interviewers Before Data Collection
7. Differentiate Among The Three Different Levels Of Structure That Can Be Used In Interviews
8. List Guidelines To Be Used In The Three Phases Of An Interview
9. List The Advantages And Disadvantages Of Interviews As A Data-Collection Method
10. Recognize The Importance Of Observation As A Data-Collection Method
11. List Criteria For Selection Of A Data-Collection Instrument
12. Compare And Contrast The Various Types Of Data-Collection Methods
13. Critique The Data-Collection Methods Used in Research Studies Reported In The Literature

- **Generally, a data collector should be:**

    a. Alert.

    b. Flexible.

    c. Quick thinker.

    d. Good observer.

    e. Decision maker.

    f. Able to influence and manage people

- **Selection of data collection method:**

    When selecting a data collection method, the researcher should consider the following:

    1. Research problem.

    2.   „   purpose.

    3.   „   design.

    4.   „   variables.

    5.   „   sample.

    6. Available time.

    7. Available resources (as money and subjects).

For example:

- When <u>factual information</u> is being collected and sample members can read and write ***Questionnaires*** are appropriate.

- When <u>Psychological information</u> is being collected, ***interviews*** are more appropriate as they allow probing and clarification.

- When <u>behaviors</u> or <u>activities</u> or skills are collected, ***Observation*** is more appropriate.

- When sample elements are: *Geographically scattered, Literate, and/or time is limited -----* ***Questionnaires*** are <u>more appropriate</u>.

- When sample elements are <u>illiterate</u>, both *observation* and *interviews* are more appropriate.

Data collection methods:

There are **four data** collection methods, these are:

1. Observation.
2. Interview, Focus group
3. Questionnaire.
4. Record examination

I. Observational Methods

Definition:

It is the process of noting, seeing, and recording information, events, behavior…etc.

Preparation for observation:

- Before data collection by observation, the researcher has to determine:

1. The setting.
2. The sample members.
3. What will be observed?
4. When and where the observation will be recorded.
5. How accuracy will be reinforced?
6. The relationship between the observer and the observed, and
7. How that relationship will be established?

Role of the researcher in the observation

a. *Participant observer:* **(i.e., Researcher's involvement)** When he gathers data as he participates with the sample members who are being observed.

b. *Non-participant observer:* When he does not participate with the sample members. He just observes and records information.

Types of observation

In general, observation may be either structured or unstructured.

A) **Structured observation:**

▪ This can only be used when the researcher has knowledge about the phenomenon being studied, so that, appropriate planning for categorizing, recording and encoding observation can be done.

▪ Such a category system can be developed into either a **check-list** or **rating-scale**.

1. *Check-list:*

▪ It is a tool for recording the appearance of specified behavior, event, or characteristic.

▪ They are used to tally whether the phenomenon described by a category is present or not. Therefore, a category system for encoding the observed phenomenon should be prepared.

e.g. the evaluation check-list for a nursing procedure.

2. *Rating Scale:*

▪ Here, the observer is required to rate some phenomena according to points along a dimension that is typically *bi-polar* or *Dichotomous* such as: Male Vs. female., Conscious Vs unconscious, Tense Vs. relaxed.

- It could also be *multi-polar* such as the following examples:
- According to your perception, how tense the nurse was during the procedure?

    - Extremely tense   (   )
    - Tense   (   )
    - Not tense nor relax   (   )
    - Relax   (   )
    - Extremely relax   (   )

B)   Unstructured observation:

- It is an observation that used when the researcher is not familiar with the phenomenon being studied. So, it proceeds without a previous structure of category, recording, and encoding the observed information.

- Therefore, copious notes of a descriptive nature are recorded and later analyzed.

Advantages of observational methods:

1. It is the best method for data collection when the subjects cannot give a verbal response as in case of: An unconscious patient, a young child, a subject who cannot verbalize his thoughts
2. It is best for behavioral descriptions as it happens and evaluation of functional skills.
3. It demands less cooperation from the subjects than other methods and is independent of the subject's willingness to report.
4. It can be started and stopped at any time whenever subjects are available.
5. Tools/instruments, here, are much easier to prepare than in other methods.

Disadvantages of observational methods:

1. *Bias*. It occurs due to perceptual errors, emotions, attitudes, moods, and values of the observers.
2. It is impossible to predict when something will be happening. So, time may be wasted waiting for something to happen.
3. People tend to behave differently when they know they are being observed.

II.   <u>Interviews</u>

Definition:

It is a face to face meeting of an interviewer and an interviewee for the purpose of giving and gaining information.

<u>Types of interviews:</u>

1. *Standardized interview:*
    - Here, an ***"interview schedule"*** is used; **it** is a pre-prepared questionnaire sheet.
    - The interviewer here is **NOT** allowed to change the wording of any question or the sequence of the questions.
    - The interviewer must also conduct it precisely in the same manner each time with each interviewee.
    - **No** clarification is allowed.

2. *Semi-standardized interview:*
    - Here, an ***"Interview guide"*** is used; it is a sheet with the main questions only.
    - The interviewer here can also probe and clarify for the interviewee.

3. *Focused interview:*
    - It focuses on a specific topic that is explored in depth.
    - The interviewer asks questions that elicit responses about the topic.

4. *Non-structured interview:* (*conversational in nature*)
    - Here, the interviewer is not responsible to ask any specific questions.
    - He/she has complete freedom to modify the questions as appropriate for the situation.

5. *Non-directive interview:*
    - Here, subjects are allowed to discuss their ideas, feelings, attitudes…etc, regarding a specific topic.

- They are free to discuss whatever they want without any direction from the interviewer.

Guidelines for conducting an interview:

1. Develop the tool and specify how to handle the questions that do not fit the respondents' situation.
2. The interviewer must familiarize himself/herself with the question.
3. Determine the time of the interview: which day of the week; which time of the day; and consider subjects' convenience.
4. Holidays, prayer times…etc, should be avoided.
5. Be sure that the place is quite, comfort, and private.
6. Start by stating your name, position, and purpose of interview. Also, till how much time it will approximately take. Then, ask the permission.
7. Watch your tone of voice and avoid judgmental comments or facial expressions.
8. Questions should read as written.
9. Ask the questions in the same order as they are presented on the sheet.
10. No question should go unanswered. If there is hesitation, the interviewer may repeat the question.
11. After each question, allow the subject time to think and answer appropriately.
12. Answers should be recorded immediately, in the subject's own words.
13. As recording may make it difficult to maintain a conversation, a portable tape recorder may be used (with interviewee permission).
14. At the end of the interview, the interviewer should ask if the subjects has any questions and thank him/her for participation.

III.Questionnaires

Definition:

It is a simple data collection method/instrument. It collects a self-reported information from the respondents through self-administration of questions in a ***paper format***.

- In this method, a sheet of questions is distributed to the subjects either by hand or by mail.
- The subjects are asked to answer it and return it back to the researcher.

Construction of a questionnaire:

The questionnaire usually contains THREE parts:

a) Covering letter.
b) Instructions to the respondents.
c) Questions.

a) *Covering letter:*

It should include the following:

1. Who is the researcher.
2. Purpose of the research.
3. How the respondent is selected.
4. Why his/her answers are important.
5. Return address.
6. Deadline for receiving it back.
7. Assure confidentiality.
8. Respondent's signed consent form.

b) *Instructions to the respondents:*

This should explain how one is going to answer the questionnaire. It should be:

1. Clear and simple.

2. Each time a different mode of answer is requested, a clear direction should be given.

3. If one answer only is needed, indicate that in the instruction.

4. If more than one answer is needed, also indicate so.

Questions:

They are the heart of the questionnaire, since the researcher depends on them to collect the needed data. Therefore, the questions should be appropriate in relation to:

1. Chosen words should be simple, clear, direct and familiar to the sample's subjects.

2. Questions should be clear, specific and in short simple structure.

3. Questions should be stated in the **positive**, rather than **negative**, form.

- For example: Positive: "Do you use a contraceptive method?"

    Negative: "Don't you use a contraceptive method?"

4. *Ambiguous (نكرة) words* should be avoided.

- For example: "How many nurses are working **there**?". There here may indicate a unit/ward, a hospital, a city or a country.

5. Use *filter questions*. Such as "…if yes, answer the following 3 questions, if no skip them".

6. Quantity should be expressed in terms of specific units of measurement, such as: frequency, number of years, kilograms…etc., rather than expressed in words such as: few, many, several…etc.

- For example: "For how many years you have been in nursing? "

    a. A few years.   (   )
    b. Some years.   (   )
    c. Several years. (   )
    d. Many years.   (   )

    This way is **not good** and should not be used.

- It should be written in the following way:

  a. < 2 years.

  b. $2 > 4$

  c. $4 > 6$

  d. $6 > 8$

  e. $8 \geq 10$

7. ***Double-barreled questions***, i.e.; asking two or more questions, are to be avoided. They frustrate the respondent and the researcher will be uncertain which question the subject answered.

- For example: "Nursing image is not as high as it should be, what about medical image?"

8. ***Leading questions*** that are suggesting an answer should be avoided.

- For example: " All people like milk, don't you?"

  "Smoking is harmful, don't you agree?"

9. Questions should be ordered from general to specific, so as not to suggest any answers. Also, from known to unknown.

10. The first questions should stimulate interest, but should not be personal, sensitive, or threatening as they may make the subject suspicious about the purpose of the study.

11. More personal questions can be asked after the subject have answered a few questions and has had a chance to develop more trust in the questionnaire.

12. Questions about a specific topic should be clustered together and questions should have a clear orderly sequence.

Types of questions:

1. *Open ended questions:*

- These are questions that do not restrict the respondent's answers to pre-established alternatives.

- For example: "What is your age?"

     "Which colors do you prefer?"

      "What is your attitude towards girl's education?"

- *This type of questions is* difficult to analyze, as it takes longer time and needs more skills.

2. *Closed - ended questions:*

- These are questions that offer the respondents a set of mutually exclusive alternative replies from which the one that is most appropriate or accurate is to be chosen.

- In preparing such questions, the researcher should:

   a. Include all possible alternatives, however, if possible add an item *"other, please specify."*

- For example: "Which color do you most prefer?"
  - ♦ Black   (   )
  - ♦ White   (   )
  - ♦ Red   (   )
  - ♦ Blue   (   )
  - ♦ Green   (   )
  - ♦ Yellow   (   )

♦ Other, specify ……………………………

    b. Avoid overlapping alternatives,

- For example: "How many children do you have?"

        ♦ None   ( )

        ♦ 1 – 2 ( )

        ♦ 2 – 3 ( )   **THIS IS A WRONG WAY**

        ♦ 3 – 4 ( )

        ♦ None   ( )

_____

        ♦ 1 – 2 ( )

        ♦ 3 – 4 ( )   **THIS IS THE RIGHT WAY**

        ♦ ≥ 5 ( )

    c. List the alternative responses in order, i.e.; there should be a sequence in which they are presented.

    d. Responses length or alternatives should be not too long or too short. They should also be equally long for all questions as possible.

3. Frequency scales:

▪ These are <u>quantity scales</u> that provide answers to *"HOW MUCH"* or *"HOW OFTEN"*.

▪ Example: "How much of your working time do you spend doing non-nursing activities?"

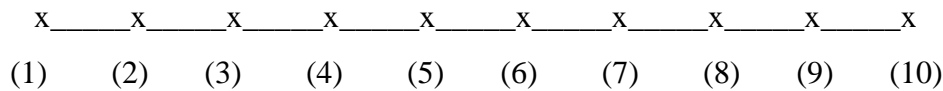   a. $< 20\ \%$.   ( )

    b. $20\ \%$.   ( )

    c. $40\ \%$.   ( )

    d. $60\ \%$.   ( )

    e. $\geq 80\ \%$ ( )

4. *Graphic rating scales:*

- Here, the researcher provides a continuum along which the respondents assign a numerical score to distinguish the degree to which an **attribute** is possessed.

- Example: "How do you describe the intensity of your pain on this continuum?"

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X_____X_____X_____X_____X_____X_____X_____X_____X_____X
(1)    (2)    (3)    (4)    (5)    (6)    (7)    (8)    (9)    (10)
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5. *Rank order alternatives:*

- Here, the question asks the respondents to rank order their responses in a way that put more value to the response that comes first.

- Example: "Rank order the following persons by placing an (a) to the one you consider most intimate to you and place a (g) to the one you consider least intimate to you"
    - Father.   (   )
    - Mother.   (   )
    - A sister.   (   )
    - A brother.   (   )
    - A grandparent.   (   )
    - An uncle / aunt.   (   )
    - A cousin.   (   )

6. Check lists:

- It groups together several questions that require the same response format and that can be answered by placing a check in the appropriate place.

- Example: "How important is each of the following items in infection control in hospital?"

Item	Very Imp.	Imp.	Not dep.	Slit. Imp.	Not imp.
1. Hand washing. 2. Use of disposable gloves. 3. Restriction of visitors. 4. Use of disposable syringes. 5. Isolation of infected patients.					

- Generally, after the preparation and construction of the questionnaire; the researcher has **to pretest** it to measure its:

  a. Clarity.

  b. Adequacy.

  c. Effectiveness.

  d. This pretest is done by applying the questionnaire on a group of people homogenous to the study sample, then consider the following:

    - Were the questions clear?

    - Were the questions adequate?

    - Did the pretest group feel comfortable answering the questions?

    - Did they have any trouble with any of the items?

    - Did the sequence of items seem logical?

    - Did the respondents get bored, tired, or inpatient?

    - How long did it take to answer the questionnaire?

    - How do they think the questionnaire could be improved?

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