

METHODS OF DATA COLLECTION: QUESTIONNAIRE AND OTHER TOOLS

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LEARNING OBJECTIVES

- Name and describe the different methods of data collection •
- Identify the uses and limitation of questionnaire and observation checklist in data collection •
- State the characteristics of a well designed questionnaire and observation checklist •
- Describe the sections of a questionnaire •
- Explain the steps of designing a questionnaire and observation checklist •
- Distinguish between the phrasing and responses of questions designed to collect knowledge and attitudes •

PERFORMANCE OBJECTIVE

Design a quality questionnaire and observational checklist for data collection

METHODS OF DATA COLLECTION



Tools for data collection

Six main tools for data collection

Test

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Interview

•

Focus group

•

Questionnaire

•

Observation

•

Secondary data

•

Tests

Examples are tests for personality, IQ, aptitudes, psychological status •

Provides a quantification of a subjective status •

Usually already available for use •

Have high psychometric properties •

Valid (measures the intended status) •

Reliable (give the same results on repeated application) •

Major Limitations

Expensive if we have to purchase the test .1

Psychometric properties need re-evaluation when used in different language other than the original and on different populations .2

Interview

Usually a structured interview is used in research •

Provides mostly qualitative data •

Interviewer ask participants a series of questions in a specific order and record their response using their own words •

Provides in-depth information •

Interviewer may ask participants to explain more (asking them what do you mean? Can you explain further?) •

Major Limitations

Expensive as it is time consuming .1

Difficulty in analyzing participants response (content analysis) .2

Focus group discussion

Includes a small number of participants (6- 12), the researcher who guide the discussion using a series of guiding questions •

Role of researcher is to keep the discussion going •

The discussion is recorded for further analysis of the content •

Provides qualitative data related to concepts and ideas •

Major Limitations

Expensive in application (expert in focus group and repeated application on a number of groups) .1

Difficult in content analysis and interpretation of the findings .2

Questionnaire

Relies on self report

Filled by the participant (self administered) or the interviewer (interview questionnaire)

Usually designed specifically for the study and by the investigators

Effective for the collection of data from large sample

Provides quantitative data

Major Limitations

Interviewer bias if the procedure is not standardized

Recall bias from the part of participants

•

•

•

•

•

.1

.2

Observation

Observation of participants in a natural or structural environment (laboratory) •

Allows the recording of what is actually done than relying on self-report •

Examples: Observation of physician's performance, observation of mothers' behavior with children •

It is either •

Structured: Using a checklist to record the findings based on task analysis •

Unstructured: Researcher takes note to record the findings •

Major Limitations

Expensive and difficult in analysis when applied in laboratory setting using unstructured interview •

Secondary data

Archived data that was collected for purposes other than the research •

Example is the use of hospital records (using a transfer sheet) •

Provides a detailed data on each individual cases •

Time saving since the data are available •

Major limitations

Some of the data necessary to meet the research objectives are not available .1

Possibility of missing information .2

Difficulty in the interpretation and analysis of free text data .3

QUESTIONNAIRE: USES AND DESIGN



USES OF QUESTIONNAIRE

Knowledge - what people know

•

Opinions, attitudes, beliefs, values - what people think about

•

Practice based on self report - what people do

•

Attributes - what are people's characteristics

•

STRENGTHS OF QUESTIONNAIRE

The study involve large samples

A straightforward answer is required

Standardization of data from identical questions

”Interest is on “what” occurs rather than “why” or “how



LIMITATIONS OF QUESTIONNAIRE

Superficial

Difficult to capture the richness of meaning

Don't deal with context

Information is collected in isolation of environment

Information is not causal

Cannot attribute cause-effect relationships

Information is self-report

Does not necessarily reflect actual behavior

TYPES OF QUESTIONS

Exploratory questionnaires

Collect “qualitative” data not for statistically evaluation
series of open-ended questions, with probes or prompts

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-

Formal standardized questionnaires

Test and quantify a hypotheses then analyzed statistically
characterized by specific

-
-

Wording and order of questions (receives the same stimuli)

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Explanations for each question (handle questions consistently)

-

Response format (rapid completion of the questionnaire)

-

WELL DESIGNED QUESTIONNAIRE

Meet the research objectives

.Obtain the most complete and accurate information possible

Ease to give information and to record the answers

Ease in data processing and analysis

Brief and to the point

Organized to maintain interest of respondent(s)

WELL DESIGNED QUESTIONNAIRE

Consider all parties involved

Easy to follow and can be time specified Interviewer: completed in the

Enjoy the interview experience

Respondent:

Questions phrased to allow truthful

Want to know the return for their opinion

answer

Questionnaire which will result in data Data-processor: which can be processed efficiently with

. minimum error

Respondent's identification data

-

Name, address, date of the interview, name of the interviewer, unique identifier

Introduction

-

credentials of the research institute, the purpose of the study and aspects of confidentiality

Instructions

-

How to move through the questionnaire such as which questions to skip and where to move to if certain answers are .given

Information

Main body of the document and is made up of the many questions and response codes

Classification data

Characteristics of the respondent, particularly related to their demographics

Decide the information required	.1
Decide on question content	.2
Decide on the form or type of the question	.3
Develop the question wording and structure	.4
Put questions into a meaningful order	.5
Put questions in appropriate format	.6
Check the length of the questionnaire	.7
Pre-test the questionnaire	.8
Develop the final survey form	.9

Decide on the information required .1

”Extensive review of the literature and “key studies

Decide on the content of the questionnaire .2

Questions should generate data directly related to the study questions

Include only necessary questions (avoid redundancy)

Decide on the types of question(s) .3

Closed ended

Open ended

Open response options



which of the following factors affect your choice of“
”?contraception method

safety (2) independent from coitus (3) not required (1)
frequent clinic visit (4) minimal side effects (5) reasonable
_____ cost (6) other mentions

Develop questionnaire wording .4

Not too lengthy questions

•

Complete and precise (have you been hospitalized..previous year)

•

No difficult or medical terms

•

No jargon (a lot and little)

•

No double barreled questions “To what extent are you satisfied
”?with the personality and performance of your treating physician

•

Develop questionnaire wording .4

- No favorable responses “Do you prefer to be seen by a doctor of the same sex?” ...“Do you prefer to be seen by (1) male doctor (2) female doctor (3) either male or female doctor
- No negative questions “You never have nightmares?” is better phrased “do you have nightmares
- No threatening questions as “Do you beat the child when the child misbehave?” better to phrased “What you do when the child misbehave
- Use “filtered questions” including “skip” and “not applicable

Put questions in meaningful order .5

Opening question

•

Logic flow (one question leads to another)

•

Put questions in appropriate format .6

Creative use of space

•

Simplify recording and coding of responses

•

Check the length of the question .7

Shorten too long questions



Pretest the questionnaire .8

Test the questions



Time required



Develop the final survey form .9

Knowledge

What is the recommended interval between two successive births

(2) 2 years year 1 (1)

(4) 4 years years 3 (3)

years or more 5 (5)

Attitudes

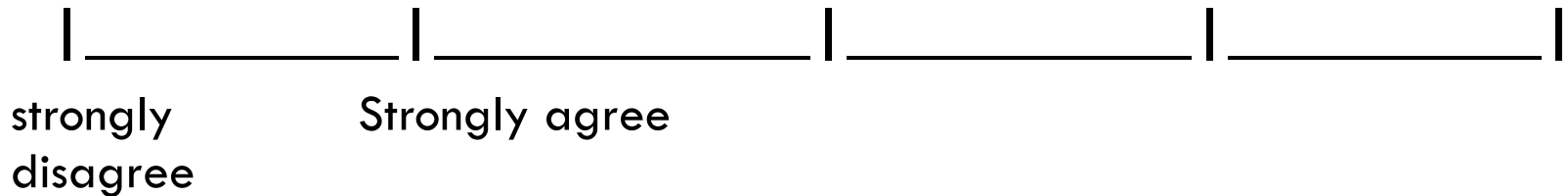
Any person above the age of 30 years should screen annually for hypertension

(2) Disagree Strongly disagree (1)

(4) Agree Somewhat agree (3)

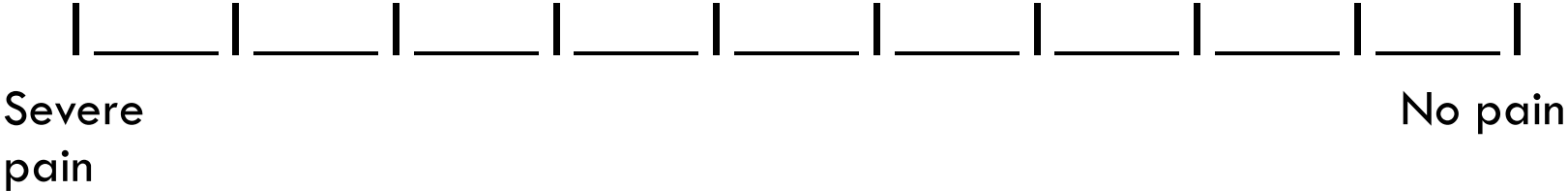
Strongly agree(5)

Visual display



Perceptions

How much knee pain do you experience will
? 10 minutes walking for



Behavior using filtered question

?Do you drink milk

No (skip the next question) (1)

Yes (go to next question) (2)

?How frequent do you drink milk

Daily (1)

times per week 6 – 5 (2)

times per week 4 – 3 (3)

times per week 2 – 1 (4)

Not applicable (0)

Classification questions

| | Age (number of years completed)

Sex (1) men (2) women

Education attainment (1) never been to school (2)
 primary (3) primary completed (4) preparatory less than
higher completed (5) secondary completed (6) university or

Type of occupation

_____ (describe)

professional (2) semi-professional (3) skilled (1)
semiskilled worker (5) unskilled worker (6) others worker (4)
mention

OBSERVATION CHECKLIST: USES AND DESIGNS



OBSERVATION

- Allows investigator to “see what is happening”; observe situations and events and record the findings
- It is a source of direct information (eliminate error of self report)
- Collect real time data
- Collect data about behavior and practice

OBSERVATION CHECKLIST

To design an observation checklist

Have full knowledge and details of what will be observed and associated circumstances for interpretation at a later stage •

Specify the behavior to be observe •

Divide what will be observed into tasks or elements •

Usually it is recorded as done, done correctly, and not done •

Example of constructing an observation checklist based on task analysis in real life situation

Observing the nurse weighing a 5 year old child

Explain the procedure to the mother

Adjust the scale

Check on the child's clothes if they may affect the weight

Keep the child in minimal clothing

Ask the child to take off the shoes

Place the child on the scale

Wait for the reading

Record the reading immediately to the nearest 0.5 Kg

Provide feedback to the mother

