



# MEDICAL RESEARCH MODIFIED NO.5



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# Week 2

## Part 4:





# Questions: wording

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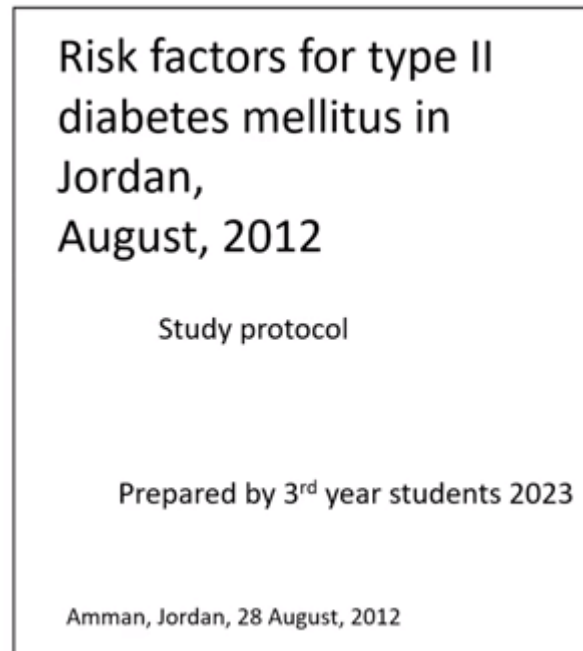
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	Slides
	Doctor
	Additional info
	Important

# Before starting to design a questionnaire

## Write a study protocol !!

- Define objectives
- Define study questions



- Inside you have the components of literature review , study design aims , objectives , analysis plan , sample size , calculations , field work ,ethical approval
- We often prefer to have a cover page for the questionnaire



- **The doctor emphasized on the idea of writing the study protocol and proposal before starting designing your questionnaire** and distributing your questions and that's because writing **the protocol or proposal and having good literature review helps you to define your objectives and the study questions you want, to know all the questions that we need to cover or items that can predict the response to treatment /quality of life score/ behaviors believes.**
- for example, you have a study related to the uptake of mammography screening, if you don't have literature review showing the importance of family history and predicting the family history of cancer or knowing the women's approach breast cancer screening or mammography screening.
- You're going to miss it and when you do the analysis, you'll have a major weakness in your study that you did not study the impact of family history or approach to mammography. And this can be applied to different settings ,so please ensure that you have the study objectives ready, good literature review and you have things in your mind from your experience or from the experts experience on the component of the questionnaire, but please read previous studies at least key references and look at the items they asses in their studies and ensure that you're including them in your questionnaire, so please always start with the proposal and protocol to ensure that you are covering **all the direct questions in your questionnaires to cover the objectives, predictors of responses** and why we say the study proposal and protocol because the protocol will help you actually to have roadmap and to draw a map for data collection, **the sample size that you need, and all the steps you need to cover in the survey or the collection of data for the questionnaire**

# Study protocol and questionnaire

## Study protocol

Definition of objectives



List of variables to collect



Analysis plan

We should write all the items we will cover ,then we will ask questions:

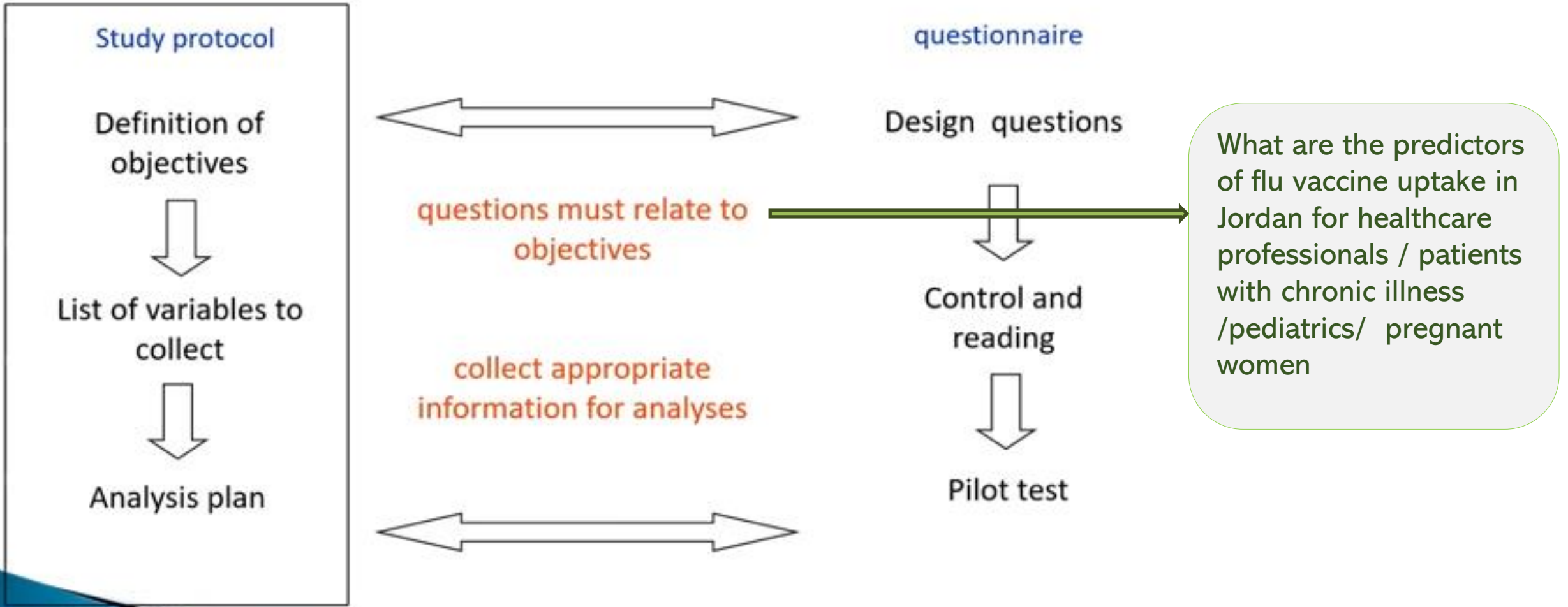
**For example**, you wanna have a study on the flu vaccines knowledge uptake and barriers let us **divide the questionnaires** into 4 parts the first part will be related to demographic factors I, medical history, drug history and things related to the social economic factors (education, job income ).

Part two will cover everything that's related to the questionnaire and the objectives of the study.

Part three will cover the uptake rate of the flu vaccine. We start by asking. Have you heard about the flu vaccine ,history of previous flu vaccine uptake, uptake during the season. Part 4 will cover fear from the vaccine all the items related to the health belief model that we discussed the last time we can include in this questionnaire.

\*\*\*and I'll provide you with a sample study that we did this year in a national study looking at the flu vaccine different groups in Jordan

# Study protocol and questionnaire



the very common mistake that the doctor has been seen happening all the time is people writing the questionnaire distribution and then they go to the analysis and write the objectives and other things definitely we're gonna miss key important questions and this will be one of the major limitations. it could be a large limitation for study or at least maybe you would be unable to publish it a good journal because you're missing some key predictors of the responses in your study.

Now when you have questions ready in your questionnaire please **start with what we called pre testing before even the pilot phase.**

What we do we mean by **pretesting**?

give your questionnaire to **your colleague ,to your friend ,or your family member, to an expert to the field to see their feedback and what items they don't understand, items you have missed ,things that should be deleted , things that needs editing and here we are not talking about the study population, It just pretesting.**

And when you're done and you're confident that the questionnaire is ready for distribution. Please don't start with the study population =

**= Start with the pilot test,** Pilot test is done after pretesting and when you have a sample of more than hundred your pilot testing will be on 30 people from the population and they should be representative the same as your study group if you have a study at different types of:

- for example in Jordan, you will take people from north. South center of Jordan. It's enough for you to have just one site and distribute these 30 questionnaires to the potential participants and get their feedback things that you can look at while doing the pilot testing:  
duration to be completed(for example you thought that the study would take 10 minutes, but when you did the actual test, you felt like it needed 20 to 30 minutes), do you think that it will be a self completed questionnaire but you found that many people needed assistants because it was difficult, and there are many illiterate people so you'll change it into a face to face, you thought that you were gonna complete your study quickly, but you found out it was difficult to find participants and convince people to participate in the study so you will reconsider a new sampling technique, So what you basically do is **get the feedback from your research assistance and participants from your private study and edit your survey based on that** And after that you can start the fieldwork, So to sum up, pretesting is different than pilot study pretesting. We might have a few potential participants and you ask your family colleagues or experts, but in **pilot study you're targeting the same as potential participants in the study, we should not include the "piloting outcomes or questionnaires in the pilot phase" in the final analysis.**



# Summary of steps used in questionnaire design

A. Consider the following questions:

- " What do I need to know?
- How will the information be used?
- Is a questionnaire the best way to collect the information I need?
- Who do I need to get the information from?

B. Consult with partners and community members

e.g., focus group + consult stakeholders

Ex. **Consult people** who are working at the primary healthcare including physicians , nurses , pharmacists , show them your study objectives outcomes , proposal and questionnaire.

Ex. In this is particular in **focus groups**. We have a study on various homograph screening in Jordan, and one of the things that we need to look at is to check the items through the focus groups that could be helpful in your survey then we draft them by your questionnaire

C. Draft and pilot test the questionnaire "what is the study population?"

# Developing your questions

## Search the literature

- bibliographic databases (eg: PubMed, Medline, Cinahl; Psychinfo)
- Citation searches of key articles

## Preliminary research

- focus groups
- key informants interviews

Please **don't write questionnaire based on your experience** or things that you have in your mind or with some experts, please do **literature review** ,it will help You understand the topic further , get more ideas, look at the things that are important to be covered in your questionnaire, predictors of responses and sometimes we have the ready to use questionnaires like quality of life scores , psychological being stories and literature review will help you to identify predictive responses , what are the information that we need to obtain further to these in addition to these already in use questionnaires

# Question wording

- Questions need to be clear, simple and precise
- **Use simple wording and appropriate language**

Be chatty and use long questions when asking sensitive questions

- Use simple wording and appropriate language
- Poorly written questions lead to ambiguity and misunderstandings and can be wasteful
- Responses: open, closed, what type of response set will you use?

ولي الامر انه ما بياخذ ابنه للمستشفى بهاد السؤال و كأنك بتلوم

- Avoid**
- ✗** *When was that special occasion when you took your offspring to an ambulatory facility for anthropometrics assessment?*
  - ✓** *When was the last time you took your child to the clinic to be weighted and measured?*
- 
- ✗** *Don't you think that people should not smoke? (double -ve)*
  - ✓** *In your opinion, what do you think about smoking?*



# Measuring variables

Two requirements for every variable:

■ Good definition



*Operational definition vs lab*

■ A method of measuring it

*Repeatability and validity*

- Suppose for example you have a chart review form where your collecting data from the lab you should have a clear criteria for the inclusion of the test or if you have a definition of quality of life **you should have a clear way of defining these variables**

**We will discuss them next week!!**

**Repeatability** is the reliability that if you made an assessment for the psychological being with a subject today and you repeated the assessment tomorrow you should have the same answers and this is what we call reliability if you could conducted the assessment by yourself and your colleague repeated it this assessment under the same conditions had the same outcomes and got the same responses with the same questionnaire this is called inter rater reliability(This should be consistent)

**validity** means that your questionnaire should obtain the result that we expect in the assessment for example you have a tool for the psychological being issue and the subject, for example had depression your score should lead to the identified subjects with depression. If you have a poor quality of life aspects, the questionnaire should lead to identifying these aspects with scores

# Choice of variables

Please write down the variables you need to include in your study write, the primary and secondary outcomes and predicted responses then draft your questionnaires

- **Variable are characteristics that are measured either numerically e.g. Age or in categories e.g. Absence or presence of disease.**
- **Variables should be selected based on their relevance**
- **Begin by producing a comprehensive list of all the variables that you think would be required for the study**

# TYPES OF RESPONSE FORMATS

- ▶ Provide sufficient response categories
- ▶ Be sure categories are mutually exclusive
- ▶ Yes/no
- ▶ Ratings (scales)
- ▶ Rankings
  - ▶ -----      -----      -----  
Most      Second-most      Third-most  
important      important      important
- ▶ Multiple choice
- ▶ Open-ended question



# Types of response options

## Examples

✗ *Which category best describes your patient's medical history?*

*(a) has type II diabetes*

*(b) hypertensive*

*(c) has high lipid profile*

*(d) has osteoarthritis*

✓ *Does your patient the patient have?*

*(a) type II diabetes                      Yes   No*

*(b) hypertensive disease              Yes   No*

*(c) high lipid profile                    Yes   No*

*(d) osteoarthritis                        Yes   No*

# Responses

How many steps/boxes should there be?

– *five to seven response categories ideal*

▶ People averse to extreme ends of a scale

– *avoid absolutes eg; almost always vs always, almost never vs never*

**As a rule of thumb for your questionnaires**

if you are asking about the **knowledge ,practices** for example have you taken the vaccines yes or no? Any **direct question/ practice we can ask yes or no or any two options**

however if you are talking about **attitudes ,opinions** please avoid yes or no options. Do you think flu vaccine is good for your health? you should give a **scale** (strongly agree, agree, neutral ,disagree, strongly disagree.

- This will allow you to look for all variations and to compare differences with time. And avoid what is called floor and ceiling effect where all subjects will have to choose either A or B. Will be showed later on 😊

## Responses

- ▶ Should there be an even or odd number of categories
  - *not an issue if your scale goes from 'not at all' to 'very much' (unipolar scales)*
  - *If your scale is bipolar (eg: strongly agree to strongly disagree), decide whether you want a 'neutral' point*

■ Be sure the respondent knows whether you want a factual answer or an opinion

✗ *Is it desirable to charge people for medications?*

✓ *In your opinion, is it desirable or undesirable to charge people for medications?*



# Questionnaire design: What do you need to avoid?

Avoid language that suggests a response

- ▮ Does smoking increase the risk of cancer by 30%?

You're giving them a **leading answer** 30% at least either you **give options** or **make it an open ended** question like for example smoking increases the risk of cancer by :10% / 20% / 30% / 40%

# Common problems with wording

## Leading questions:

- ▶ Do you prefer being examined by a doctor of your own sex?
- ▶ Would you rather be examined by a:
  1. Male doctor
  2. Female doctor
  3. Either/doesn't matter

## Questionnaire design:

What do you need to avoid?

Biased or value-laden questions:

**that certain words betray one's presupposed values**

Do you think that taking part in research activities is a waste of time?

**Instead of this question we can ask:**

a. What do you think of taking part in research activities?

b. Taking part in research activities is important to me:

1. Strongly agree 2. Agree 3. Disagree 4. Strongly disagree

Other examples:

-Do you think evidence-based medicine is a waste of time?

- Do you think fizzy drinks are bad for teeth?

We should ask in a different way

■ Be sure the respondent knows whether you want a factual answer or an opinion

✗ *Is it desirable to charge people for medications?*

✓ *In your opinion, is it desirable or undesirable to charge people for medications?*

# Common problems with wording

## ▮ Threatening questions

- Do you know enough about treating patients with stroke?  
How would you rate your knowledge of treating patients with stroke?

(I know very little, I need to learn a little more, I need to learn a lot more etc..)

Do you have any knowledge of the condition “subclinical hypothyroidism”

- How do you rate your knowledge of the condition “subclinical hypothyroidism”
- Thyroid function tests results for patients with subclinical hypothyroidism include:
  1. High TSH & Low Free Thyroxine
  2. Low TSH & Low Free Thyroxine
  3. High TSH & Normal Free Thyroxine
  4. High TSH & High FT4

If you asked this question people might get offended and not answer



## Questionnaire design: What do you need to avoid? Threatening questions

- ▮ Do you know how to manage ischemic colitis
- ▮ An alternative question

How do you rate your knowledge of ischaemic colitis management:

0 1 2 3 4 5 6 7 8 9 10

Or

How do you rate your knowledge of ischaemic colitis management:

1. I am satisfied with my knowledge
2. I need to know little more
3. I need to know much more
4. I know very little

Questionnaire design:  
What do you need to avoid?  
Double-barrelled questions

**Two concepts in one question**

- ▮ Have you had a shoulder pain or back pain since your last visit?
- ▮ The right approach:

Since your last visit have you experienced any of the followings:

	Yes	No
Shoulder pain		
Back pain		
Knee pain		
Neck pain		

# Common problems with wording

## Double-barrelled questions

- ▶ Have you had a neck ache or a back ache since your last visit?
- ▶ Since your last visit, have you had any of the following symptoms (tick as many that apply):

Neckache

Backache

Headache

# Ask one thing at a time

*7 - Do you smoke cigarettes and do you exercise regularly?*

*Yes*

*No*

# Be accurate

8 – *What is the situation of smoking in public place in your city?*

- Good*
- Bad*



**Versus**

8 - *How often did you see people smoking in public places in your city during the last week?*

- Once*
- Twice*
- Three times or more*
- Never*
- Don't know*

- This is wrong because what is bad for you maybe considered good to others
- for example if you saw two people smoking in in London it would be considered bad because usually there is one or no smokers, however if we ask this in Jordan it will be good because usually there are more than seven smokers 😞



# Be objective

10 - *Do you agree that smoking in public places is annoying?*

- Yes
- No



- This is wrong because it is about opinions, and in opinion we should avoid yes or no questions

versus

10 - *According to you smoking in public places is*

- not at all a public health problem*
- not a major public health problem*
- a potential public health problem*
- an important public health problem*
- no opinion/don't know*

# Be simple

*11- Did you see more than 3 people smoking in public places while you were out of you home for shopping or other purposes during last week?*

- Yes
- No

versus

*11- Did you see more than three people smoking in public places last week?*

- Yes
- No
- Don't know

# Targeting our Respondents

Please keep in mind when you do the questionnaire who is the target audience

- ▮ Asking lay person about risk factors of multiple myeloma?
- ▮ Asking school children about contraceptive pills?

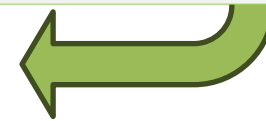
Questionnaire design:  
What do you need to avoid?

Avoid hypothetical questions

**✗** *If you were to become pregnant, where would you seek prenatal care?*

**✓** *With your last pregnancy, where did you seek prenatal care?*

First ask if she is married then ask if she ever gets pregnant if yes ask this question (ask an open-ended question)



Questionnaire design:  
What do you need to avoid?  
Effort required to answer questions

**AVOID**

**Effort required to answer questions** Or responses can vary between subjects

- ▶ Eg: During your last consultation with your doctor, did the doctor discuss medications to help lower your blood pressure?

What is meant by discuss?; relies on recall of discussion



Discuss dose , change of medication, time/date of medications

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# Problems with responses

## Floor and ceiling effects:

Use scale or categories instead of binary responses

✗ Do you feel you are not interested in socializing over the last week?  
A. Yes  
B. No

✓ Do you feel you are not interested in socializing over the last week?

Look at responses with details that will give you better outcome and changes after time?

All of the time	Most of the time	Some of the time	A little of the time	None of the time
▼	▼	▼	▼	▼

Please always remember that you have a **manual** for the assistance of the face-to-face interview or instructions if it self completed essay it includes What is meant by all the time most of the time some of the time a little of the time none of the time

Example all the time means seven days a week, most of the time five or six days a week, some of the time 3 to 4 days a week of a time one or two days a week times zero days a week, and this is important because **all the time for me could be different from another subject**. If you have research assistance, maybe everyone will describe this in different ways

# Questionnaire design: What do you need to avoid? Floor and Ceiling effects

Remember in opinions ,attitudes , evaluations  
avoid two options

- ✗ Are you satisfied with your hospitalization at the cardiac centre
  1. Not satisfied
  2. Satisfied



**Strongly agree**

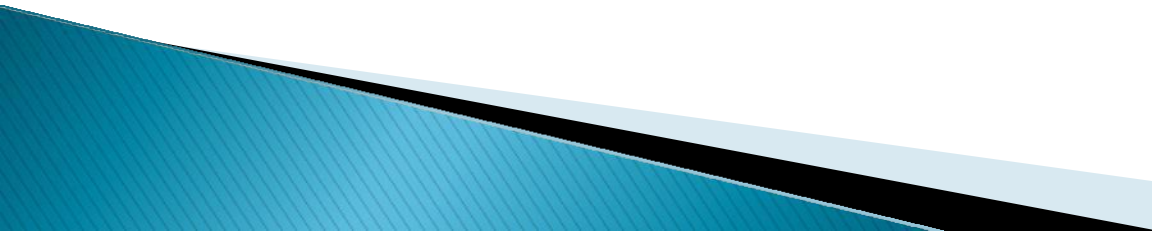
**agree**

**neutral**

**disagree**

**strongly  
disagree**

## Common problems with wording

- ▶ **Vague questions:**
  - ▶ Taken altogether, how happy are you with your stay in hospital?
  - ▶ Have you seen a doctor during the past year?
- 

# Threatening questions

## More Ways to Ask:

- ▶ "Did you usually perforate your patients' urinary bladder during catheterization?"

## 4. The "Sandwich" Method

- ▶ Put the sensitive topic between more threatening ones, thereby reducing its perceived threat.

- ▶ "Have you ever done any of the following?"

- a. Did invasive procedure without sterilization
- b. perforate the urinary bladder during catheterization
- c. Performed urinary bladder catheterization on empty bladder without ultrasound guidance

## ▶ 5. The Assumption Method

Assume the behaviour; ask about frequencies and other details.

"How many times you have perforated urinary bladder during catheterization?"



We need to show that it is not something to be ashamed of.

As participants considers it's a sensitive question be chatty about it

# Common problems with wording

## Negative questions:

This is wrong  
Don't you think that people shouldn't smoke? We need to avoid these questions.

- ▶ – avoid using negative wording 'not', 'rarely', 'never',
- ▶ or words with negative prefixes
- ▶ 'in-', 'im-', 'un-'.
- ▶ Doctors should not be required to see patients outside surgery hours: agree / disagree



# Common problems with wording

✗ ▶ Doctors should not be required to see patients outside surgery hours: Agree /disagree

Surgery Means : primary healthcare clinics

✓ ▶ Doctors should be required to see patients outside regular hours:  
Agree /Disagree

# Common problems with wording

## Complex questions:

- ▮ On a scale of 1 to 10, please rate for each of the 8 categories listed below, your level of knowledge, confidence and experience:

Laparoscopic cholecystectomy,  
saphenofemoral ligation, splenectomy  
,liver transplantation, bowel  
resection&anastomosis, hernia repair,  
internal fixation of fracture, chest tube  
insertion

Complex and difficult question,  
so make it simple.

# Common problems with wording

## Complex questions:

- ▶ On a scale of 1 to 10, please rate for each of the eight procedures listed below, your level of knowledge, confidence and experience.
- ▶ Please complete the table below about your level of knowledge, confidence and experience in each of the following areas.
- ▶ Please complete the table below about your level of knowledge, in each of the following areas:

To simplify the question create a table where participants can easily rate their knowledge, confidence and experience. This method makes the question more straightforward and easier,

When you have different outcome /different responses please make it a table

**On a scale of 1 to 10, please rate for each of the eight procedures listed below, your level of knowledge, confidence and experience.**

	<b>Knowledge</b>	<b>Experience</b>	<b>Confidence</b>
<b>1. Laparoscopic cholecystectomy</b>			
<b>2. Saphenofemoral ligation</b>			
<b>3. Splenectomy</b>			
<b>4. Liver transplantation</b>			
<b>5. Bowel resection&amp;anastomosis</b>			
<b>6. Hernia repair,</b>			
<b>7. Internal fixation of fracture</b>			
<b>8. Chest tube insertion</b>			

# Common problems with wording

▮ **Avoid pitfalls:**  
jargon / abbreviations / slang

*Should those travelling to malaria endemic areas receive PTBT?*

*(prophylactic treatment before travelling)*

Write the full form not the abbreviation

# Common problems with wording

Avoid not mutually exclusive options

- What is your age ?

- 16-20
- 20-25
- 25-30
- 35-40



# Avoid....

- ▶ Making the questionnaire too long
- ▶ Typographical / spelling errors

Remember be concise in all questions except for sensitive ones

# Common problems with wording

## Avoid Position Bias:

### Position Bias:

“How important are flexible hours in evaluating job alternatives?”

“What factors are important in evaluating job alternatives?”

### No Position Bias:

“What factors are important in evaluating job alternatives?”

“How important are flexible hours in evaluating job alternatives?”

- example, I have a questionnaire on the risk factors of ischemic heart disease (IHD). I'll start by this question “smoking will increase the incidence of ischemic disease by...( 10-20- 30-40%)”
- physical activity will increase the risk of IHD heart by this percent and then after 10 or 15 questions, I'll ask what are the risk factors of IHD from the following list and you have a list of 30 items and you need to pick 10 BUT you have already given answers to them above

# Problems with responses

- ▶ **The “Other People” Approach**

**Some ladies do not like breast feeding, what do you think of their attitudes?**

Instead , ask them about their favourite attitude

- ▶ **The Illustrative Technique**

- ▶ **“Which of the following pictures is closest to what happened to your patient?”**

# Tips on Questionnaire Layout

- ▶ Questionnaire should appear interesting and easy to read
- ▶ Use illustrations (arrows and circles) to guide respondents
- ▶ Provide space at the end for additional comments
- ▶ Use large and consistent font
- ▶ Put instructions in boldface and in boxes
- ▶ Include an expression of appreciation

# Summary

- ▮ Make sure everyone will interpret the question the same way
- ▮ Specify the frame of reference
- ▮ Avoid leading questions
- ▮ Avoid double-barreled questions
- ▮ Avoid questions that contain double negatives
- ▮ Be aware of the impact of “socially desirable” phrases
- ▮ Make sure questions are applicable to all respondents
- ▮ Make sure response categories are mutually exclusive

questionnaires to write the proposal, the protocol and sheet in which you write all the potential items that you need to ask for.

إِذَا سَيِّدٌ مِّنَّا خَلَا قَامَ سَيِّدٌ

قَوْلٌ لِّمَا قَالَ الْكِرَامُ فَعُولٌ



VERSIONS	SLIDE #	BEFORE CORRECTION	AFTER CORRECTION
V1→V2			
V2→V3			



امسح الرمز و شاركنا بأفكارك لتحسين أدائنا !!