



MEDICAL RESEARCH

MODIFIED NO. 3



كتابة: نجين بلال

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• ملاحظة صغيرة

الدكتور حرفيا كل شغلة شرحها بهاي المحاضرة كان يعطي عليها مثال، فراح تشوف يمكن كل سلايد كلمة **for example** فما تعمل سكيب واقرأ المثال لأنه يحاول يقرب الفهم للنقطة

والله يقويكم جميعا، محاضرة سهلة 😊

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■	Slides
■	Doctor
■	Additional info
■	Important

Surveys

A survey may be defined as a collection of information from all individuals or a sample of individuals chosen to be representative of the population from which they are drawn

- Sometimes we have a population of 100-1000 and you can reach the population as a whole, we will collect data from all of them.
- Sometimes the population is larger, and we want to have a representative sample from that population, we will discuss the sampling techniques in the coming lectures.

Definition of Survey

- ▮ Non-experimental research design used primarily to measure characteristics of a population
- ▮ A research method based on self reported information from participants rather than on observations or measurements taken by researchers

Survey ≠ Questionnaire

Why? Questionnaire is done for cohort, case control, clinical trials and cross-sectional studies, while Survey is a study design, and we use the Questionnaire for survey. Sometimes we have chart review for survey.

Not every questionnaire is a survey. For example, if we have a questionnaire for mental health and we use it to assess conditions like depression and anxiety, we may then provide an intervention based on the results. After the intervention, we administer a similar questionnaire to evaluate the outcomes. In this case, the questionnaire is used as part of a clinical trial, not as a survey. **(Explanation in the next slide)**

Questionnaire:

- Think of a questionnaire as just a list of questions. It's a tool researchers use to gather information from people.
- The main purpose of a questionnaire is to collect specific information by asking people to respond to questions.

Survey:

- A survey is more than just a list of questions; it's the entire process of collecting and analyzing information.
- When we say "survey," we're talking about the whole approach to gathering data from a group of people. This includes deciding who to ask, how to ask them, and what to do with the answers.
- Surveys usually use questionnaires to gather data. However, they can also include other methods, like chart reviews (looking at existing records or data) to get more details or verify information.

In summary:

- A questionnaire is the list of questions.
- A survey is the whole process of gathering, verifying, and analyzing data, often using a questionnaire as a tool.
- **In the previous example**, the questionnaire is being used as part of an experimental process to evaluate the impact of an intervention (clinical trial). It's not being used solely to gather descriptive data from a sample, which is what a survey would do. Therefore, it doesn't qualify as a survey.

Types of information collected by survey

- **Morbidity prevalence** → cross-sectional studies are a special type of surveys where we collect data at point of time to look at prevalence of certain factors.
- **Mortality**
- **Detailed risk factors or behavioral information**
- **Knowledge, attitudes, and practices**
- **Physical signs / symptoms** (paralysis, splenomegaly, malnutrition)
- **Serological or laboratory tests**

For example, looking for the number of subjects with abnormal liver function tests, positive COVID results, etc.

Data Collection Methods

- ▮ Primary: where the investigator is the first to collect the data. Sources include: medical examinations, interviews, observations, etc.

Advantage: less measurement error, suits objectives of the study better.

Disadvantage: costly (if you need large number of participants) , may not be feasible.

- ▮ Secondary: where the data is collected by OTHERS, for other purposes than those of the current study.

- ▮ Sources include: individual records (medical / employment); group records (census data, vital statistics) data from ministry of interior, a study of your colleague.

Characteristics of survey

Convenience sampling is a non-probability sampling method where participants are selected based on their availability and ease of access. It's quick, inexpensive, and often used when time or resources are limited, but it may not represent the entire population well, leading to potential bias in the results.

- **representative if sample chosen correctly** → We need to agree on not choosing a convenience sample, as many great studies have been limited because of this.
- **Single point in time –snapshot** → This is a key difference between surveys (point) and cross-sectional (period).
- **Provide more in-depth information than surveillance or chart reviews** → instead of looking at a file and getting data from it (like chart reviews), surveys will have more items to be collected .
- **Usually performed by a limited number of personnel specially trained to perform surveys**
- **Can sometimes be expensive, time consuming to perform** → For example, I have a survey questionnaire that considers the quality of life of diabetic patients. It can be expensive and time-consuming because you need to have a license for the questionnaire you use and assign people to collect the data for you.
- **Cannot be used to monitor change unless repeated**

Unless you have a longitudinal cross-sectional study, where you collect data of different points of time.
(key characteristic of surveys)

When to do a survey

- **When accurate population-based data are needed to determine the magnitude of the problem**
- **When more detailed or recent information is needed than is available from record review or surveillance (demography, examination, laboratory)**
- **When information is needed on health problems that may not routinely be seen by health providers**
- **When information is needed on health behaviors or health knowledge and attitudes not routinely available through existing mechanisms**

Survey

Key Concepts of survey design:

1. Primary data
2. Communication → How will you reach the subjects? Are you going to interview patients, call them, or provide them with a questionnaire?
3. Sample
4. Representative

TYPE OF MEASUREMENT

- ▮ Attitudes: What people feel (stress, anxiety, depression)
- ▮ Knowledge: What people know (what the patient or his family know about the disease)
- ▮ Beliefs: What people think is true: their beliefs (for example, we need to change the beliefs on vaccines)
- ▮ Behaviours: What people do or have done (uptake medication, regular checkup)
- ▮ Evaluation: People's perception of thing are/were (key thing in the quality to look at the patient satisfaction, evaluation of their management plan)

Classifying Survey Research Methods

1. By method of communication.
 - a) Personal Interviews
 - b) Telephone interviews
 - c) Self-administered interviews
2. By degree of structure and disguise.
 - a) Structured disguised
 - b) Structured undisguised
 - c) Unstructured disguised
 - d) Unstructured undisguised
3. By time frame (Temporal classification).
 - a) Cross-sectional surveys
 - b) Longitudinal surveys

By degree of structure and disguise

Completion for the last point in this slide:

- The key limiting factor for unstructured questions is that they are difficult for you as the investigator to analyze. If we were asked by the doctor for our opinion on this course, he would receive hundreds of responses; however, he can't quantify them and make a clear conclusion.

Disguised (indirect): When the purpose of the data collection is not told to the respondents and asked in indirect manner.

For example, we will ask patients, "What cancer runs in your family?" They might respond with "breast cancer" or "colorectal cancer."..etc. (Here, the researcher's intention is to determine whether they have a positive or negative family history.)

Undisguised (direct): purpose of data collection is known to respondents

Do you have a family history of cancer? What cancers run in your family?

Adding cancer margin positivity in the chart review form in a study for quality of life assessment for breast cancer survivors

Structured disguised: close

Unstructured: open ended questions → What do you think about your hospital stay?

This is a good approach, as it allows you to gather all the data and information you might need about a disease or health problem. You will receive various responses, which will help you understand the topic more thoroughly.

Temporal Classification of Survey Research

1. Cross-sectional studies: studies in which various segments of a population are sampled and data collected at a single point in time. (also to measure prevalence of certain factors or diseases)
2. Longitudinal studies: studies in which data are collected at different points in time
 - When we assess data like quality of life of patients with IHD at different times

Survey

- ▮ Focus on personal and demographic characteristics, illness and health related habits
- ▮ These surveys may also examine frequencies of disease and other characteristics may be examined in relation to age, sex, location, education, etc

Range of uses of survey

- If you had a problem with coming out with an idea of your research, surveys can give you million of ideas.

Target groups:

1. Patients

Examples of topics of interest:

Need for services.

Satisfaction with care given.

Side effects of care. Side effect of medications

Compliance with therapy. For different patients with all cancer sites, acute, and chronic illnesses.

Quality of life.

Health behaviour and beliefs.

Of different lifestyles, smoking, physical activity, dietary intake, vaccines..etc.

For example, satisfaction with the care given to patients with chronic diseases, or satisfaction in primary health care and the emergency department.

An issues in developing countries, we prescribe medications without describing the importance of complying with the medication or why it is important for the patient to take the pills regularly and you can look at the compliance of medication with different chronic illnesses.

Range of uses of survey

Target groups:

2. Health professionals

Examples of topics of interest:

Knowledge and experience You can do a survey for their knowledge on medical researcher, any condition of your interest.

Activities undertaken For example, surveys on activities, workshops held in the University of Jordan.

Attitudes to the provision of care What do you think of the care provided at the emergency department?

Sources of stress and dissatisfaction High stress on emergency department mostly.

Educational needs

Range of uses of survey

Target groups:

3. Relatives and carers *Key area of research to do in our region*

Examples of topics of interest:

Understanding of illness and its treatment

Satisfaction with information given/*services provided*

Knowledge of available support services

Attitudes to and stresses of caring

Mental health of the patients or their relatives, especially to patients with chronic illnesses, cancer or patients with disabilities...etc.

Range of uses of survey

Target groups:

4. General public and selected subgroups

Examples of topics of interest:

Morbidity Of different risk factors like hyperlipidemia, physical activity.

Quality of life In general population or in specific population.

Unmet need for services People in MA'AN/ TAFILA will ask for a cardiovascular center

Access to services

Use of preventive services

Health behaviour and beliefs

Range of uses of survey

Target groups:

5. Health care facilities

Examples of topics of interest:

Availability of equipment

Staffing levels

Training and experience of staff

Extent of provision of services

Nature of service organisation

- If you want to do a survey without interviewing the patients or the health care professionals:

Align your measure with your theoretical orientation

- ▮ Good survey measures must be grounded on sound theory and conceptual definitions

Examples:

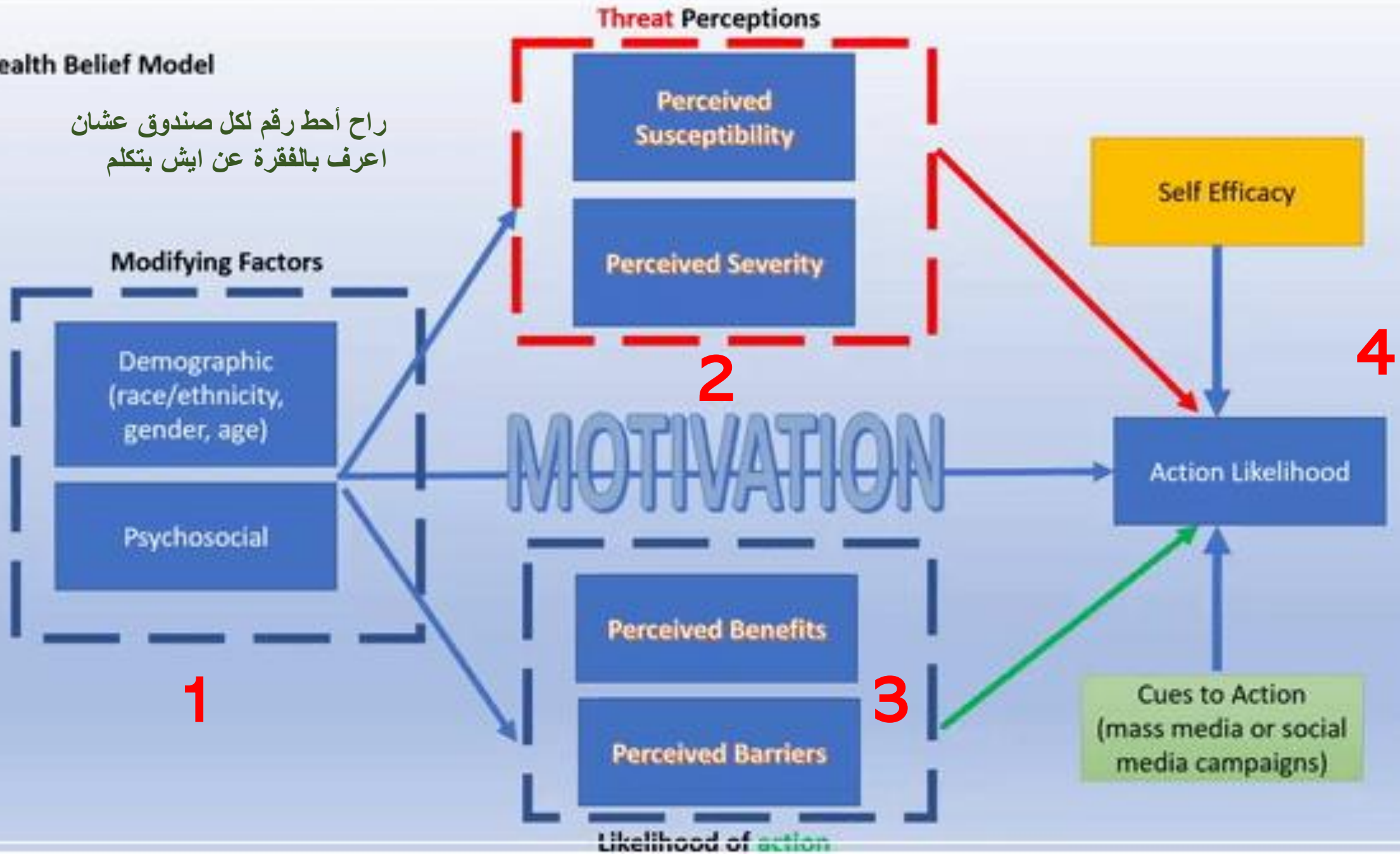
- ▮ Health Belief Model
- ▮ Illness behavior model

- There are some theories that we study in health behavior or mental health, held either on healthy people or patients with illnesses, to better understand these subjects, the 2 main theories are:
 - Health Belief Model
 - Illness Behavior Model
- We have seen 100s or 10s of studies on smoking uptake in Jordan or in the region, and we have repeated many of them multiple times because they are not well structured → solution:
- Follow these theories to develop a well-prepared questionnaire that will lead to comprehensive and valid outcomes for your studies.

Influenza vaccine uptake, Breast cancer screening uptake

Health Belief Model

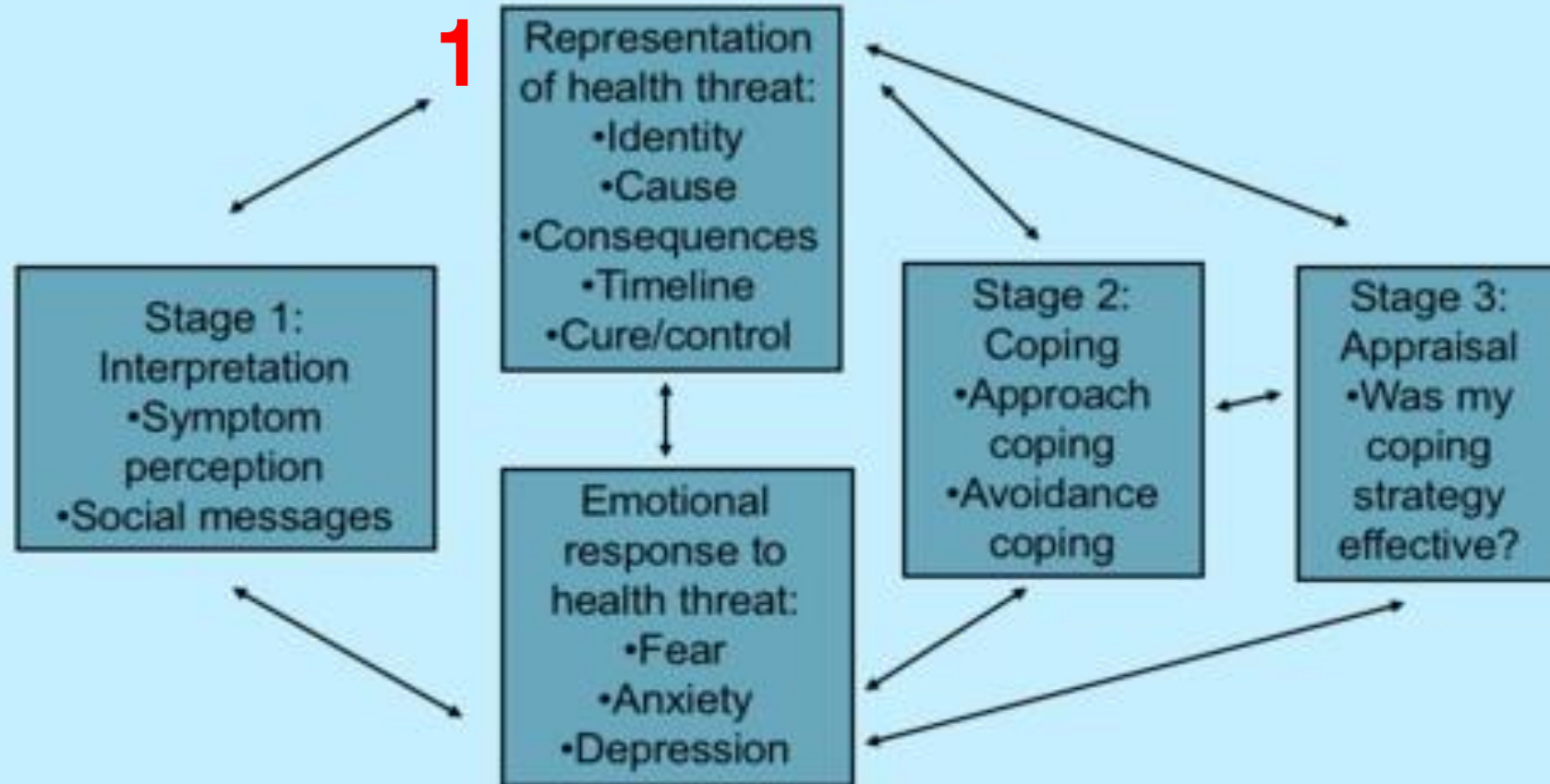
راح أحط رقم لكل صندوق عشان
اعرف بالفقرة عن ايش بتكلم



- The Health Belief Model is a theoretical model that can be used to guide health promotion and disease prevention programs. It is used to explain and predict individual changes in health behaviors. It is one of the most widely used models for understanding health behaviors.
- Key elements of the Health Belief Model focus on individual beliefs about health conditions, which predict individual health-related behaviors. The model defines the key factors that influence health behaviors as an individual's perceived threat to sickness or disease (perceived susceptibility), belief of consequence (perceived severity), potential positive benefits of action (perceived benefits), perceived barriers to action, exposure to factors that prompt action (cues to action), and confidence in ability to succeed (self-efficacy).

- We will explain the previous picture now:
- It represent the health belief model, this is a model that target subjects without a disease/ influenza vaccine uptake, breast cancer screening uptake. For example:
- Who have a female patient come to the clinic with no symptoms of breast cancer and you try to convince her to do screening or to do questionnaire about her attitudes/ beliefs about the practice of breast cancer screening.
- Example 2:
- We have patients older than 50 years or parents of kids at age 6 months to five years, you want to look at their approach for giving the flu vaccine to their kids.
- Example 3:
- You have health care professionals, and you want to give them the flu vaccine and you do a study to assess the flu vaccine uptake and barriers to uptake.
- These studies (surveys) should contain information about their age, gender, education levels, and other demographic factors, then you look at the social psychosocial factors. **Square number 1**
- We have threat perception as a health care professional, am I at a high risk of having flu?, will my first flu be severe or mild?, do I have a history of previous severe flu infection? **Square number 2**
- If I receive the vaccine, will I protect my self and my family? What are the barriers?, is it a free chart? Do I have time for it? Am I worried about certain adverse reactions? **Square number 3**
- To receive the vaccine, I must have self efficacy convention and convinced that the vaccine will be value and will prevent these complications, what are the cues to action for example: do we have program at the hospital to convince us to take the vaccine? We have questions about the availability of the vaccine. **Square number 4**
(نروح وما تكون موجودة او موجود بمكان بعيد)

Leventhal's Self-regulatory Model of Illness Behaviour



COPD: Chronic obstructive pulmonary disease

شوف ال stage + الترقيم وانت بتقرأ الكلام الي بالاسلايد الي بعد هاي

On the other hand, we have a questionnaire designed to target patients with certain illness, you want to convince a patient with COPD to give up smoking, and you want to assess the smoking behaviour among patients with COPD.

Example 2:

You want to look at the compliance with thyroxin treatment on daily basis for patients with hypothyroidism. We will start with **(Stage one)** the symptoms + social messages → I have COPD, I will have (as a patient) thread on my life when I smoke (as a risk factor for COPD)

Now look at the first box that I number with 1

So smoking is the health thread. Cause → COPD, what will happen to the patient → if they continue smoking will they have more admissions, life threatening?

If they quit smoking for example, will you have better control of the illness?

Box number 2:

So, we need to have questions on fear, anxiety, depression.

Stage 2 will be helping the patients to cope and have will the patients give up smoking and continue to give up.

We will have different questions on different models to deal with.

ADVANTAGES OF SURVEYS

- ✓ Can complete structured questions with many stakeholders within a relatively short time frame.

↪ There are some limitations from using these (telephone and mail)

- ✓ Can be completed by telephone, mail, fax, or in-person. → We prefer this

- ✓ It is quantifiable and generalizable to an entire population if the population is sampled appropriately.

↪ Key thing of using surveys

- ✓ Standardized, structured questionnaire minimizes interviewer bias.

For Example:

If I need 5-10 students to do a study without a questionnaire → every student could ask the questions in a different way, so when we make a national study for example, we must use standardized questionnaires to make sure we're all following same approach.

ADVANTAGES OF SURVEYS

- ✓ Tremendous volume of information can be collected in short period of time. Sometimes, there is a manual that we refer to to explain certain questions
- ✓ Speed: faster data collection than other methods
- ✓ Cost: relatively inexpensive data collection Compared to cohort, case-control, clinical trials—especially if it is just a survey questionnaire without sample collection—and cross-sectional studies, they are relatively more expensive
- ✓ Accuracy
- ✓ Efficiency: measured as a ration of accuracy to cost, surveys are generally very efficient data collection methods

The accuracy and efficiency depends on the wording of the questionnaire. If you prepare the questionnaire in the right way in the scientific way, and you utilize the literature review and expert opinion, you'll have well structured and valid questionnaire, and the outcome will be of value.

If you just have a questionnaire for the sake of time, you'll just have some questions from your mind without return to the published literature about the expert opinion without piloting test you're just wasting your time because your data will not be valid.

DISADVANTAGES OF SURVEYS

- More difficult to collect a comprehensive understanding of respondents' perspective (in-depth information) compared to in-depth interviews or focus groups.

In a qualitative study, in-depth interviews are often conducted to gain a deeper understanding of participants' experiences, thoughts, and feelings about a specific topic. This approach allows researchers to explore complex issues in detail and to capture rich, nuanced data that might not emerge from quantitative methods.

There are some limitations to surveys when compared to qualitative research methods like interviews. For example, consider the issue of breast cancer screening uptake in Jordan. Out of approximately one million eligible women, fewer than 50,000 attend breast cancer screenings each year. To understand why women in Jordan are not regularly going for routine breast cancer screenings, a qualitative study might be necessary to gain more in-depth insights.

In such a study, we would conduct in-depth interviews with community members, healthcare professionals, and community representatives within the primary healthcare system in Jordan. These interviews would help us understand the factors influencing women's participation in breast cancer screenings. Based on the insights gathered from these interviews or focus groups, we could then design and conduct a cross-sectional study using a specialized questionnaire to further explore these issues.

- **Survey error: Potentially large sources of error in surveys** We will discuss this next week, if you don't write the questionnaire correctly you will have survey errors.
- **Communication Problems – Each of the different communication survey methods has its own unique problems.** We need to compare self-completed surveys with face-to-face interviews and decide which method is more suitable for our population.

WHY DO YOU WANT TO DO THIS SURVEY?

1. Why have you chosen to conduct a survey?

What did you want to learn from the results and/or what decisions need to be made from the results?

Clearly write down your survey research questions.

2. When considering why you want to do this survey?

Be very specific

3. Focus on the 'need' to know, not the 'nice' to know

Does your reasoning fit the uses of surveys?

If not, perhaps you should consider a different method.

Survey design

4. WHO ARE THE STAKEHOLDERS?

To understand read the example in the next slide

- ▮ Stakeholders are all those individuals who would have an interest in the questions you are asking and the results obtained (i.e. Stakeholders of the screening program/service/medication)

Involving them will assist in results dissemination and utilization

Stakeholders are all the people or groups who care about the questions you're asking in your survey and the answers you get. For example, in a **screening program, service, or medication study**, the stakeholders could include:

1. **Patients** – They want to know how the program or medication will affect their health.
2. **Healthcare providers** – They need to understand if the program or medication is effective for their patients.
3. **Government and policymakers** – They may use the results to decide on public health policies or funding.
4. **Pharmaceutical companies** – They are interested in whether their medication works and how it's perceived.
5. **Insurance companies** – They may base coverage decisions on the effectiveness of the program or medication.

These stakeholders are invested in both the process of asking questions and the results, as they directly impact their interests or decisions.



If you wanna do a survey on the satisfaction of patients coming to the emergency department at Jordan University Hospital, you conducted a survey and your conclusion was that satisfaction rate was poor only 30% of the participants had good responses and satisfaction rate was low at the Hospital exit, to say you take the results to the hospital management or the ministry of health they might not accept the result of your study because you do not include the stakeholders.

Who are stakeholders? they might say that you for example, you look at angry subjects and you included them in the study while you left subjects you can see their impression that they were satisfied or they were happy about the service they received, if you want to do a study on Satisfaction with the provider services, you should have your questionnaire ready.

Ask experts in the field to review your questions. Since you're focusing on satisfaction with emergency department services, visit the emergency room and consult with the head ER nurses and physicians working there. Additionally, engage with the quality department and hospital management to discuss your questions. Encourage them to feel that this is their project and that they are a part of it. Listen to their feedback, then read and edit the questions based on their input.

Then they'll accept the results, even if they indicate poor satisfaction. Therefore, always ensure that you involve the stakeholders. You may need to obtain permission for the study and collect data outcomes that highlight existing issues. However, the acceptance of your study may be limited if you do not include the stakeholders. Based on my experience, I can tell you that stakeholders have always helped me create better questionnaires, and the outcomes of the study will be utilized much more effectively than if you conduct a study without considering the stakeholders.

Survey design

5. WHO IS THE POPULATION OF INTEREST?

- ▮ Describe the population you are interested in surveying:
- ▮ What is their demographics (age, gender, ethnicity)?
- ▮ Where do they live?
- ▮ Are they all very similar or are there unique differences?
- ▮ Are you interested in any sub-groups of this population?

Survey design

Study population

Determining the characteristics of your population of interest gives you some indication of:

- I. How you can get a **representative** sample of respondents
- II. Whether you need to stratify your sample (subgroups)
- III. How many people you would need to survey. **By sample size calculation**

Survey design

Study population

What is the best way to reach them?

What is the best way to communicate with them?

Face to face

Medium (phone, fax, mail, e-mail)

Time of day

Time of week

For example, you have a study on breast-feeding females who gave birth within the last six months if you go to the primary healthcare centers during the workday for example Monday, Tuesday, Thursday morning time we're gonna get only housewives, who are not working but if you go Saturday you might have some working females.

Example 2: you have to study the satisfaction of the emergency department maybe during the workdays and the morning working hours you will have good satisfaction maybe there is an issue at the evening or night time or early morning time so if you're gonna do a study of satisfaction at the department, we need to go a different times of the week and different times of the day for example at weekends weekdays morning, evening, time and night early morning otherwise your study will be biased and you're not covering all subject at risk or subjects who should be in your study.

Survey design: summary

- Describe the group of interest For example, study on patient with DM II
- Obtain a list of possible participants DM II of 10 years
- Decide on sample size DM II (uncontrolled patient)
- Select the methods sampling

For example, we want to do a study, but we aren't following probability sampling techniques, like when you want to do a study at the University Hospital looking at complications of type two diabetes, you go there and you see that the complication rate of DM 2 is around 50% and you publish study saying that the complication rate for type two diabetes in Jordan is 50%, your studies is biased by that, you only collected the sample from tertiary center. You have patients with type two diabetes controlled at the primary healthcare and you have also patients at the family medicine Clinic and internal medicine clinic, patients going to the tertiary center usually tend to be more complicated and the cases and the complication rate is expected to be much higher than with patients with controlled type two diabetes seeking health or healthcare from the primary healthcare center or from family medicine clinic so in order to have a representative sample of type two diabetes patients enjoy the you need to go for the primary secondary tertiary health care centers and also from the middle north south of Jordan



Primary, secondary, and tertiary healthcare services refer to different levels of medical care:

1. **Primary healthcare:** This is the first point of contact for patients, like a family doctor or general practitioner (GP). They handle general health issues like check-ups, vaccinations, and minor illnesses. Example: Visiting a GP for a cold or flu.
2. **Secondary healthcare:** Specialized care provided by medical specialists after a referral from a primary care provider. Example: Seeing a cardiologist for heart issues.
3. **Tertiary healthcare:** Advanced, specialized medical care, often in hospitals with specialized equipment and expertise. Example: Undergoing surgery or cancer treatment at a major hospital.

These levels of care work together to provide comprehensive health services. ●

Additional sources

1. Book pages
2. Youtube videos
3. [Health belief model](#)

والرأي رأي القاهر الغلاب
وتصادم الإرهاب بالإرهاب

لا رأي للحق الضعيف ولا صدق
لا عدل إلا إن تعادلت القوى

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



امسح الرمز و شاركنا بأفكارك لتحسين أدائنا !!