

# SURVEY METHODS

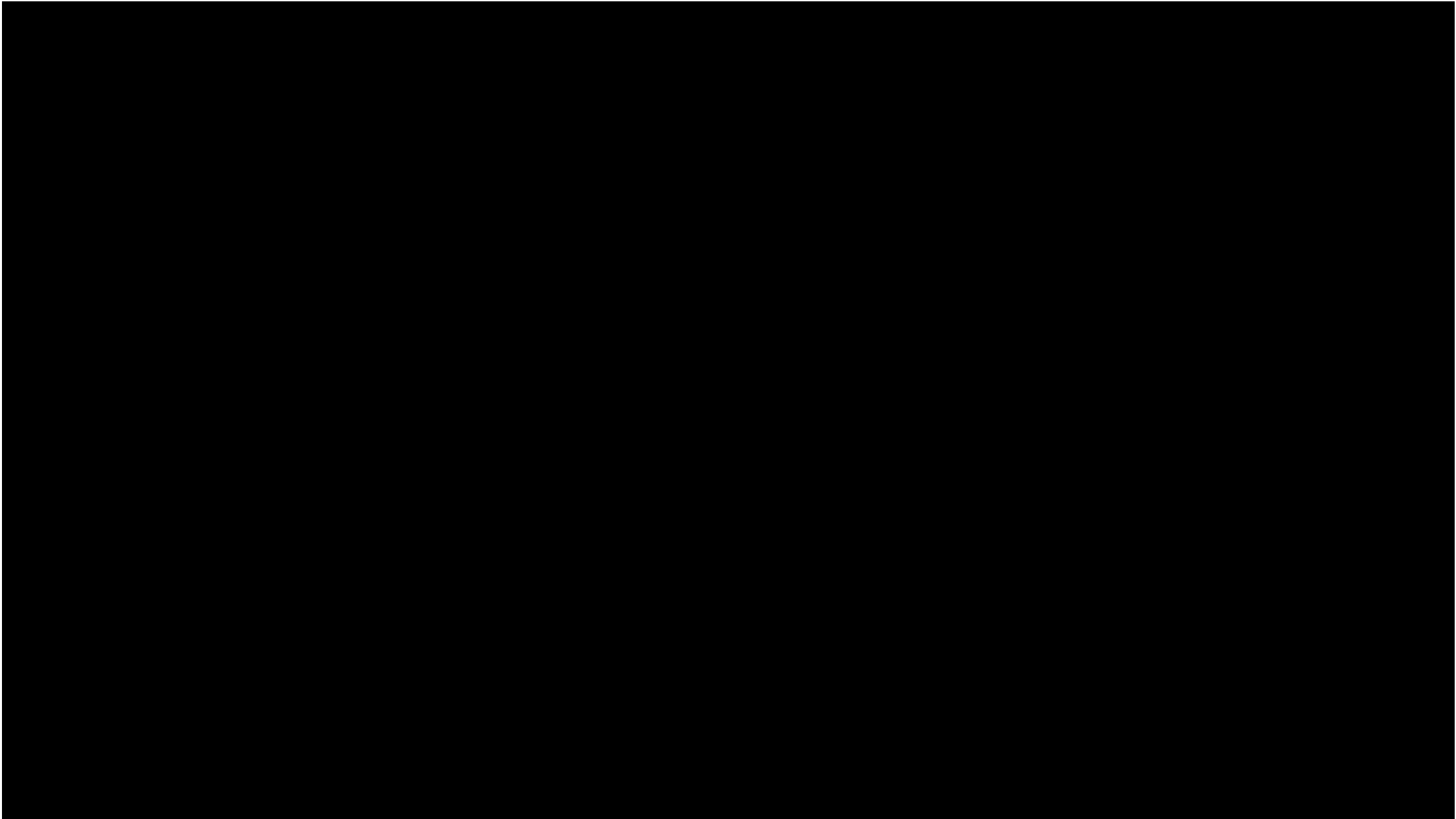
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# OUTLINE

- Basic concepts for developing a survey
- Examples
- How to design a questionnaire
- Ways to collect data with a questionnaire



# What is a survey?

## Why do we need surveys?

- Surveys represent one of the most often used techniques of collecting information from or about people to describe, compare, explain, or predict their knowledge, attitudes, or behaviors.
- Surveys are used to measure:
  - Attitudes/behaviors
  - Beliefs/perceptions
  - Satisfaction
  - Utilization of programs/trainings
  - Student performance
  - Quality of facilitation/service
  - Audience opinions
  - Program evaluation



# “Good” Survey

## Survey Characteristics

Measurable survey objectives	(a) statement, (b) question, (c) Hypothesis
Sound research design	Research method, administration plan of the survey, comparisons, frequency of administration
Effective survey question design	“Asking the right questions”
Sound sampling strategy	Sampling according to the need
Effective survey response strategy	strategy will help ensure you receive an acceptable quantity and quality of responses
Data management	Recording, transcription, translation, qualitative/quantitative analysis, interpretation
Effective data display and reporting	Narrative, tables, figures, graphics

# Errors in Surveys

- Regardless of the type of survey, there will always be some level of error. The key is to develop your survey instrument and its administration plan so that you can minimize the error. There are four types of potential errors.
- They are:
  - Coverage error
    - Wrong respondent group / inequality in opportunity to participate
  - Sampling error
    - Only a particular subset of your population is targeted for response rather than the entire population or representative sample
  - Non-response error
    - people selected for the survey who do not respond are different from those who do respond
  - Measurement error
    - wrong questions are asked or the right questions are asked in the wrong way

# Formulating a Research Question

- PICO(T)

- Population/Patient/Problem
- Intervention/Indicator
- Comparison
- Outcome
- (Time/Type of study)

*Does hand washing among healthcare workers reduce hospital acquired infections?*

*In African-American female adolescents with hepatitis B (P), how does acetaminophen (I) compared to ibuprofen (C) affect liver function (O)?*

- Feasible

- Adequate numbers of subjects?
- Adequate technical expertise?
- Affordable in time and money?
- Is it possible to measure or manipulate the variables?

- Interesting

- To the investigator?

- Novel

- To the field?

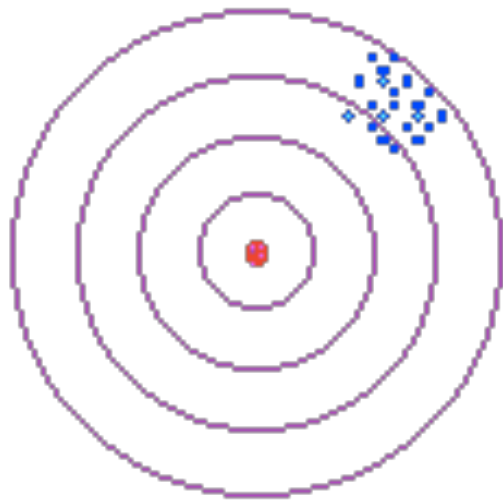
- Ethical

- Potential harm to subjects?
- Potential breach of subject confidentiality?

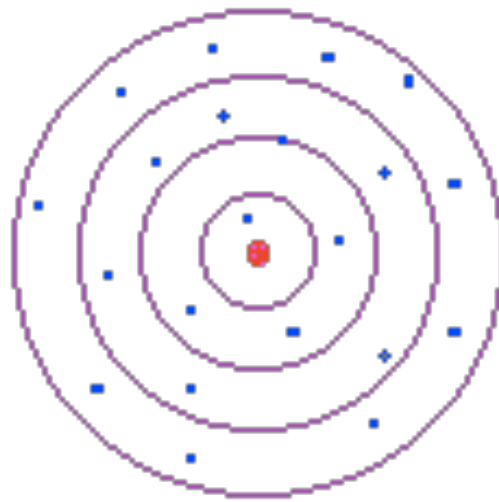
- Relevant

- To scientific knowledge/theory?
- To organizational, health or social management and policy?
- To individual welfare?

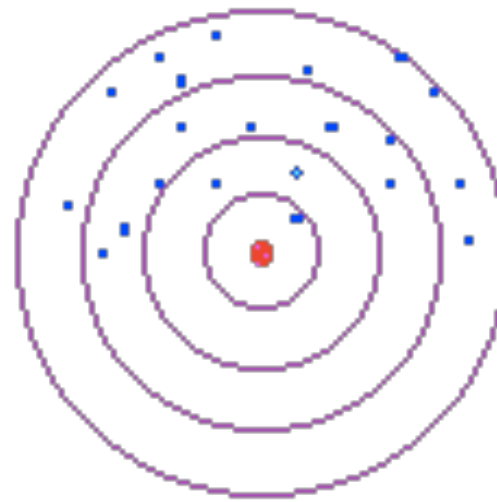
- **Reliability** is the degree to which an assessment tool produces stable (repeatable) and consistent results.
- **Validity** refers to how well a test measures what it is targeted to measure



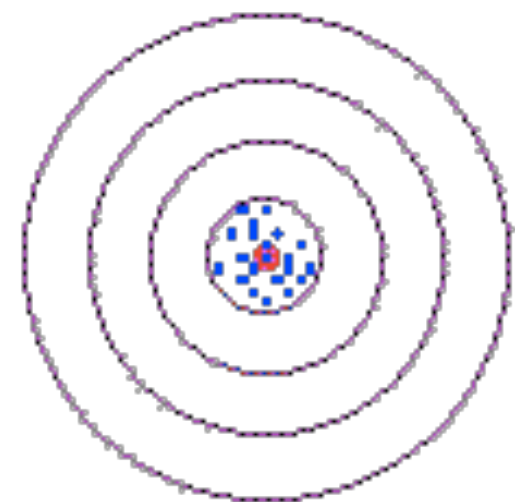
**Reliable  
Not Valid**



**Valid ?  
Not Reliable**



**Neither Reliable  
Nor Valid**



**Both Reliable  
And Valid**



# Stages of response to a question

Understanding the question



Retrieval of information



Inference and estimation



Formatting the response



Final editing and communication

Would you say that your own health in general is excellent, good, fair, or poor?

- ✓ When you answered question about your health, what were you thinking about?
  - ✓ Others of the same age?
  - ✓ Myself at a younger age?
  - ✓ Myself now as compared to 1 year ago?
  - ✓ Any other thoughts?

# Questions study participants ask themselves during a survey

- Are these researchers still as **trustworthy and competent** as I thought they would be?
- Is the issue that they are doing research about and the research itself still **relevant to me and my community**?
- Are the researchers still communicating with me in a **respectful manner**?
- Does what I am getting out of this study correspond to promises made or established **expectations**?
- Is it as **exciting** as I thought it would be?
- Can I deal with the **burdens** of participating? Is it still easy enough for me to continue participation?
- Is it still **safe** to participate? Is it as safe as I was told?
- Do other people still think **this project is okay**?
- **How many people have already participated**? Are others also continuing their participation?


# Types of items in questionnaires

# Structured / Semi-Structured / Open-Ended

Have you ever smoked marijuana?

☐ Yes

☐ No



If yes, about how many times have you smoked marijuana?

☐ Once

☐ 2 to 5 times

☐ 6 to 10 times

☐ 11 to 20 times

☐ more than 20 times

# Structured / Semi-Structured / Open-Ended

- Which of the following comprise(s) your monthly income?
  - a. Scholarship
  - b. Full-time Job
  - c. Part-time Job
  - d. Family Support
  - e. Other (Please specify: .....)
  
- Whom of the following would make you feel uncomfortable if they had known your sexual orientation?
  - a. Parents
  - b. Family Members
  - c. Friends
  - d. Other (Please specify: .....)

# Nominal Options

- Please indicate your sexual orientation (Select one option that describes you best).
  - a) Hetrosexual
  - b) Lesbien
  - c) Gay
  - d) Bixesual
  - e) Trans-gender
  - f) Intersex
  - g) Asexual
- City of birth:
  - Adana
  - Adıyaman
  - Afyonkarahisar
  - Amasya
  - Ankara
  - Antalya
  - Artvin
  - Aydın
  - ...
  - Düzce

# Ordinal Options

*Mark the line to indicate how bad your pain is today.*

No Pain |-----| Most severe pain in my life

Question 1: Foot pain level indicated by the child





# Likert Scale

- Abortion should be a legal right protected by the constitution.
  - Strongly Disagree
  - Disagree
  - Neither agree nor disagree
  - Agree
  - Strongly Agree
  - Not sure/not applicable

# Ranking Questions

- Given the menu of possible additional benefits below, please rank the TOP THREE items that would most contribute to your overall well-being and long-term retention, by clicking in the appropriate boxes below.
  - ☐ Housing allowance and/or purchasing partnerships
  - ☐ Equivalent benefits for unmarried and/or same-sex partner
  - ☐ Childcare facilities
  - ☐ Financial assistance for childcare
  - ☐ Financial assistance for eldercare
  - ☐ More flexible family and medical leave options
  - ☐ Access to health/fitness programs for family members
  - Other (Please specify: .....)

# Structured / Semi-Structured / Open-Ended

- Please answer the following question in few sentences or as long as you feel necessary.

- How would you feel if your best friend opened up to you to say that she/he is a lesbian/gay?

.....

.....

.....

.....

# Exercise

# What do you think of the following question?

- Please indicate how much you agree or disagree with each of the following statements about the healthcare services in Koc University Hospital.
  - I feel welcomed by nurses and the staff at the hospital.

## *Correction*

- *I feel welcomed by nurses at the hospital.*
- *I feel welcomed by the staff at the hospital.*

# What do you think of the following question?

- Second year medical education is not easy. Do you think the orientation programs before the classes begin helps you feel prepared for this hard year?
  - Much more prepared
  - Somewhat more prepared
  - Slightly more prepared
  - Not more prepared

## *Correction*

- *The orientation programs before the classes begin helps me feel prepared.*
  - *Strongly agree*
  - *Agree*
  - *Disagree*
  - *Strongly disagree*

# What do you think of the following question?

- What is your monthly income?
  - Minimum wage
  - Min. Wage – 2500 TL
  - 2500 – 5000 TL
  - 5000 TL and above

## *Correction*

- *I have no income*
- *Less than min. wage*
- *Min. wage – 2499 TL*
- *2500 – 4999 TL*
- *5000 TL and above*

# What do you think of the following question?

- In society people do grow up in diverse family structures. With whom did you grow up in your family?
  - Both Mom and Dad
  - Mom as a single parent
  - Dad as a single parent
- *Correction*
  - *two biological parents*
  - *one biological parent & a step parent*
  - *mom as a single parent*
  - *dad as a single parent*
  - *with a relative other than my biological parents*
  - *in foster care*
  - *with adoptive parent(s)*



# What do you think of the following question?

- Do you prefer being examined by a doctor of your own sex?
  - Yes
  - No
- Correction
  - What would be your preference for the gender of your doctor?
    - Male
    - Female
    - Doesn't matter

# Which question should come first?

- How efficient is the nursing staff?
    - Or
  - Which improvements in nursing do you recommend?
- 
- Correct order:
    - Which improvements in nursing do you recommend?
    - How efficient is the nursing staff?

# Assessing smoking...

- How do you assess exposure to secondhand smoke (passive smoking) at work?



**Tobacco Questions for Surveys**  
A Subset of Key Questions from the Global Adult Tobacco Survey (GATS)  
2<sup>nd</sup> Edition



### Q7. Current Working Location

Do you currently work outside of your home?

YES ..... ☐ 1 > ASK Q8

NO/DON'T WORK ..... ☐ 2 > END SECTION

### Q8. Currently Working Indoors or Outdoors

Do you usually work indoors or outdoors?

INDOORS ..... ☐ 1 > ASK Q9

OUTDOORS..... ☐ 2 > END SECTION

BOTH ..... ☐ 3 > ASK Q9

### Q9. Smoking at the Workplace

During the past 30 days, did anyone smoke in indoor areas where you work?

YES ..... ☐ 1

NO ..... ☐ 2

DON'T KNOW ..... ☐ 7

### Purpose

These questions determine if anyone smoked in indoor areas at the respondent's workplace. The first question (Q7) determines whether the respondent works outside of the home. The second question (Q8) determines if the respondent usually works inside or outside. The third question (Q9) determines if anyone smoked in indoor areas where the respondent worked in the past 30 days.

### Instructions

Q7: Ask question and select only one answer. If the respondent says he/she does not currently work, NO/DON'T WORK should be selected. If the answer is NO or DON'T WORK, questions Q8 and Q9 will not be asked.

Q8: Ask question and select only one answer. If the respondent says he/she works both indoors and outdoors, select BOTH. If the answer is OUTDOORS, question Q9 will not be asked.

Q9: Ask question and select only one answer. The respondent should answer yes if he/she saw somebody smoke or smelled the smoke. (DON'T KNOW should not be read to the respondent.)

### Indicator

Exposure to Secondhand Smoke at Work: Percentage of indoor workers who were exposed to tobacco smoke at work in the past 30 days.

**Numerator:** Number of respondents who reported being exposed to smoke in indoor areas at work during the past 30 days.

**Denominator:** Number of respondents who work outside of the home who usually work indoors or both indoors and outdoors. ("Don't know" responses to Q9 are excluded.)

# Exposure to secondhand smoke at work

Participant number: □□□□□

Date of completion: □□ / □□□ / □□□□  
DD MMM YYYY**Section C: General health experience**

**C.1.** When you compare your general health nowadays with your health one year ago, would you say: (*Tick only one*)

- ☐ My general health - has improved
- ☐ My general health - is about the same
- ☐ My general health - has worsened

**C.2.** In comparison with an average person of your age, would you say your general health is: (*Tick only one*)

- ☐ Very good
- ☐ Good
- ☐ Fair
- ☐ Poor
- ☐ Very poor

**Section D: Anthropometry**

**D.1.** Current weight (*To be filled out by interviewer; fill out weight measured during interview, e.g., 109.8 kg*)

□□□. □ kg

# Step-by-step

- **Objective/Purpose**

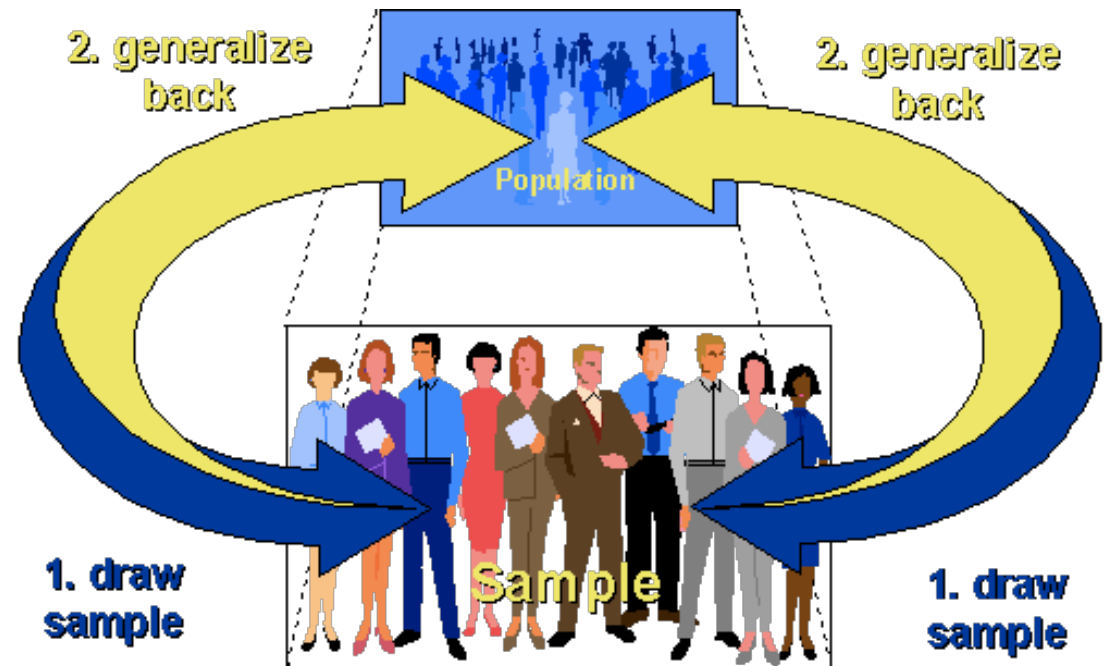
- What do I need to know?
- Why do I need to know it?
- What will happen as a result of this questionnaire?
- Can I get the information from existing sources instead of conducting a survey?

- **Example**

- The purpose of this study is to explore how people with depression experience electronic cigarette (e-cigarette) use.
- *We examined the association of fresh fruit consumption with risks of major cardiovascular events in China.*

# Step-by-step

- Be sure about what you are measuring
  - Behavior, attitude, skill, perception, knowledge
- Who to ask the questions (sampling)
  - External validity!!!
    - the degree to which the conclusions in your study would hold for other persons in other places and at other times.
  - GENERALIZATION





# Step-by-step

- Ensure that the survey instrument you develop is appropriate for your audience → “field test”
- Data collection method
  - Mailed - Telephone – Interview - Web-based
- Choose if data collection will be anonymous or confidential
- Response scales
  - Open-ended or closed-ended
  - Vertical / horizontal
  - Yes/No – True/False
  - Likert
  - Rank order
- Be sure that the question matches with the responses provided
- Put a brief introduction to the survey at the beginning

# Interview protocol

## **Electronic Cigarette Perceptions Study**

**Department of Psychology**

**Virginia Commonwealth University**

**Interviewer name:**

**Date:**

**Interviewee name:**

**Place of interview:**

In this study, we are examining perceptions about electronic cigarettes. Electronic cigarettes include many different devices including e-cigs, cig-a-likes, vape pens, e-hookahs, mods, vapes, or other similar products that heat a liquid to produce a vapor to inhale.

The following pages contain a brief survey about you and your electronic cigarette and tobacco use behaviors. Please answer these questions truthfully. If you have any questions about the survey, please let one of the research staff know and they will provide you with assistance. You do not need to answer any question you do not feel comfortable answering.

Thank you for your participation!

# Step-by-step

- Start with simple, easy-to-answer questions
- Put the important questions at the start
- Ask only one question at a time → avoid “double-barreled questions”
- Provide instructions if necessary
- Use simple language
  - Avoid jargons
  - Provide definitions if necessary
- Length: Be brief → Ask “Need to know questions” rather than “Nice to know questions”
- Provide space for comments or additional information
- Thank the respondents!!!
- Make sure it looks professional!!!

# Order of the items

A checklist to review your instrument:

- start with easy, nonthreatening questions
- put more difficult, threatening questions near end but not at the end
- never start a mail survey with an open-ended question
- for historical demographics, follow chronological order
- ask about one topic at a time
- when switching topics, use a transition
- reduce response set (the tendency of respondent to just keep checking the same response)
- for filter or contingency questions, make a flowchart

# Thank you for your attention.

- Useful sources:
  - <http://www.socialresearchmethods.net/kb/index.php>
  - CMI guidance for authors of surveys.  
<https://www.ncbi.nlm.nih.gov/pubmed/27599691>
  - Jan Van den Broeck, Jonathan R. Brestoff (Eds) Epidemiology: Principles and Practical Guidelines. Springer 2013
  - CDC 2003. Questionnaire Design Reproductive Health Epidemiology Series Module 4  
[https://www.cdc.gov/reproductivehealth/productspubs/pdfs/epi\\_module\\_04\\_tag508.pdf](https://www.cdc.gov/reproductivehealth/productspubs/pdfs/epi_module_04_tag508.pdf)