Lecture # 10

Validity

It is the degree to which an instrument measures what it is supposed to measure (المصداقية).

Each instrument needs to be both valid and reliable.

Validity coefficient: has a value from 0 to 1, and is what determines the validity of an instrument. When we mention the validity coefficient of an instrument, we must also mention the type of validity used and the evaluators who tested the validity.

Types of validity:

1. *Face validity:*

When a non-related/ non-exert person is asked by the researcher about a certain instrument.

This is the weakest form of validity, and is not accurate.

2. *Content validity:*

The most widely used validity.

It covers all the variables and aspects you are interested to measure in your research.

It reflects the degree to which an instrument has an appropriate sample of the items.

It is evaluated by content validity index:

- We get more than one expert, usually 3 to 5, with specialization and publication within the same field, so we can trust their judgement on the validity.
- When more than one expert evaluates it and there is a high similarity between evaluators' views , these reviews will have a high accuracy.
- When there is some controversy of the reviews of the evaluators on a certain item, the researcher must rephrase that item, so that all the evaluators agree on its validity.

3. *Criterion related validity:*

There is similarity between instrument's validity (the tool that researcher is using) and external criteria, which is an established standard criterion of validity of that instrument. The correlation between instrument's validity and the external criteria determines the instrument's validity.

2 types of criterion related validity:

- Predictive validity:
  The ability to predict something in the future, its validity is studied by regression.
  Eg: tofel exam is a valid instrument to predict someone's abilities in English language.
- Concurrent validity:

Using two instruments concurrently used to measure something, one of the instruments is already valid, and the other is being tested for its validity.

4. *Construct validity:*

It is the most complex way for validity. Consists of convergent validity and discriminant validity.

Has 4 types:

- Known groups technique
- Factor analysis
  It is by entering all the values to statistics program, and the program will correlate similar items with each other. In statistical language these items are called subscales, in research language these items that correlate together are called factors.
- Multi-trait multi-method:
  It is the most complicated one, is using more than one method and more than one instrument at the same time, and finding correlations between different items. It's just complicated.
- Structural equation modeling (Dr didn't mention, took from Wikipedia)

Criteria for screening instruments:

Sensitivity: the ability to correctly identify the case

Specificity: the ability to identify/ disregard the non-case

Ethical aspects:

Codes of ethics:

Eg: Declaration of Helsinki (1964), Belmont report (1978)

Ethical dilemma:

The situation in which the rights of the participants are in direct conflict with the requirements of a rigorous study.

Ethical principles: (the ones that must be in every research)

- *Principle of beneficience:* "do no harm"
  Give the participant the max benefit you can, and do not harm them (do not cause pain, not even discomfort or stress)
- *Principle of respect of human's dignity:*

Right for self determination of wether the person wants to participate in the study or not. No one can be forced into a study, also a consent form must be given to the participant who wills to participate.
Right for full disclosure, and by that the participant must be informed with all the things he needs to know about the research, the information should not be deceptive or misleading.

- *Principle of justice:*
  Right of fair treatment: For example in interventional studies were drugs are given for patients with the disease, 2 groups are made, intervention group (were drug is actually given) and control group (patients are on traditional drugs) and the patient has no right to choose the group that he wants to be in, if the drug proves its efficacy later, the control group has the right to get the treatment like the other group.
- *Right of privacy:*
  Confidentiality: close the curtains when you interview the participant, lower your voice, do not talk about other participants, etc.
  Anonymity: it is that even you as a researcher cannot identify the participant's identity. Even at the data collection you should not be able to know which participant is the source of this data.

IRB: "institutional review board"

Is found in most of the countries, including Jordan. It gives the ethical approval for the proposed studies, and guarantees the rights of the humans participating in the research.

Informed consent: "consent form"

You must include in it the purpose of the research, why the patient was selected, who can participate, risks and benefits of the study, the time and duration of the study.

The consent form should be written in the language of the participants, so it must be translated to Arabic by native speakers, then retranslated to English to make sure that the translation is stable and accurate. The consent form must be simple and understandable even by a seventh grade student.

Special vulnerable groups: (the ones which should not participate in studies)

This includes children (must have their parents approval),

mentally or emotionally disabled people,

severely/ terminally ill or physically disabled people (unless consent was taken from the patient's near ones)

unconscious/ disoriented people,

institutionalized people (eg: in jail),

pregnant women (the mother has no right to participate, because she has a fetus in her which could be harmed by drugs, unless there is a complete guarantee that there is no harm on the fetus)

At the end of the lecture the doctor mentioned few things about entering data into a statistical program. He said that all the data must be in the form of a code (number), for example, when data entered is either single, married or widowed, each of the items should be coded by a number, so it becomes 1, 2 and 3 respectively.

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