Research types & Methods-Part 1

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Basic Research Methods NUR 308

5th week

Outline

- Research types based on design.
- Research types based on time.
- Research types based on intervention.
  - Observational & Experimental research.
- Cross-sectional research.

Research types: based on design

- Qualitative research.
- Quantitative research.

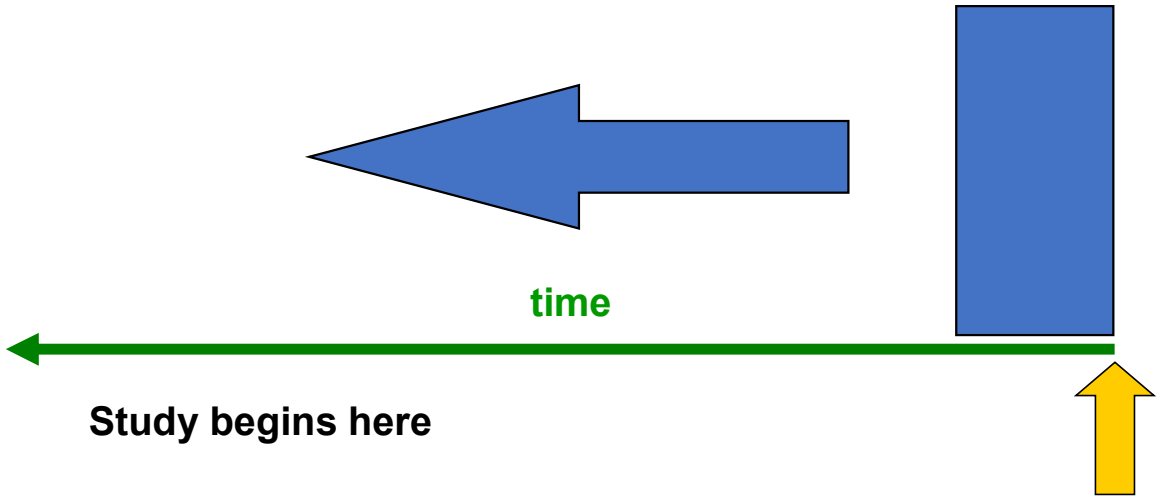
Research types: based on time

- Retrospective : Any design that looks at data that have already been gathered.

- Prospective : Any design that collects data on groups of subjects over time, beginning at time zero.

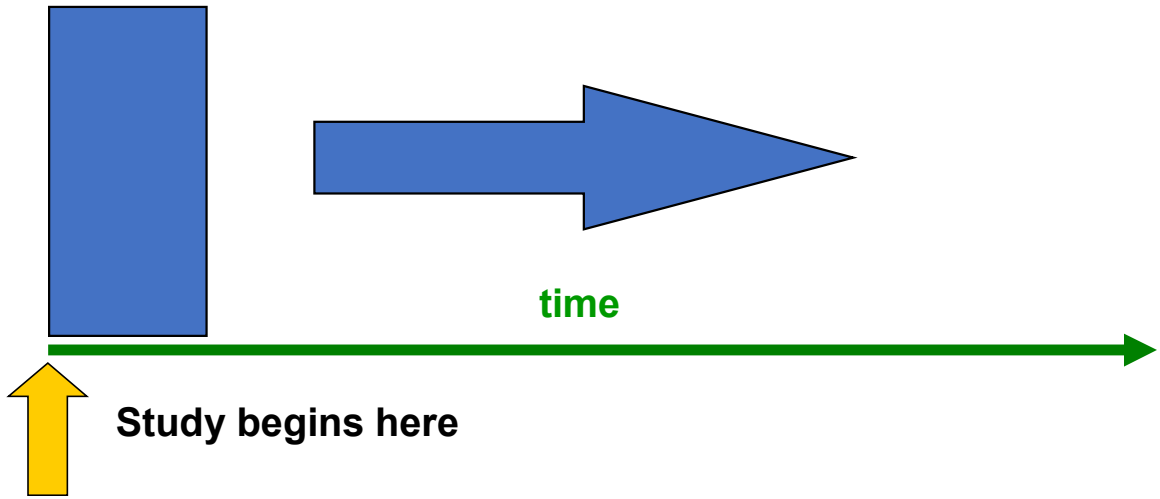
Timeframe of Researches

- **Retrospective Research - "to look back", looks back in time to study events that have already occurred**



Timeframe of Researches

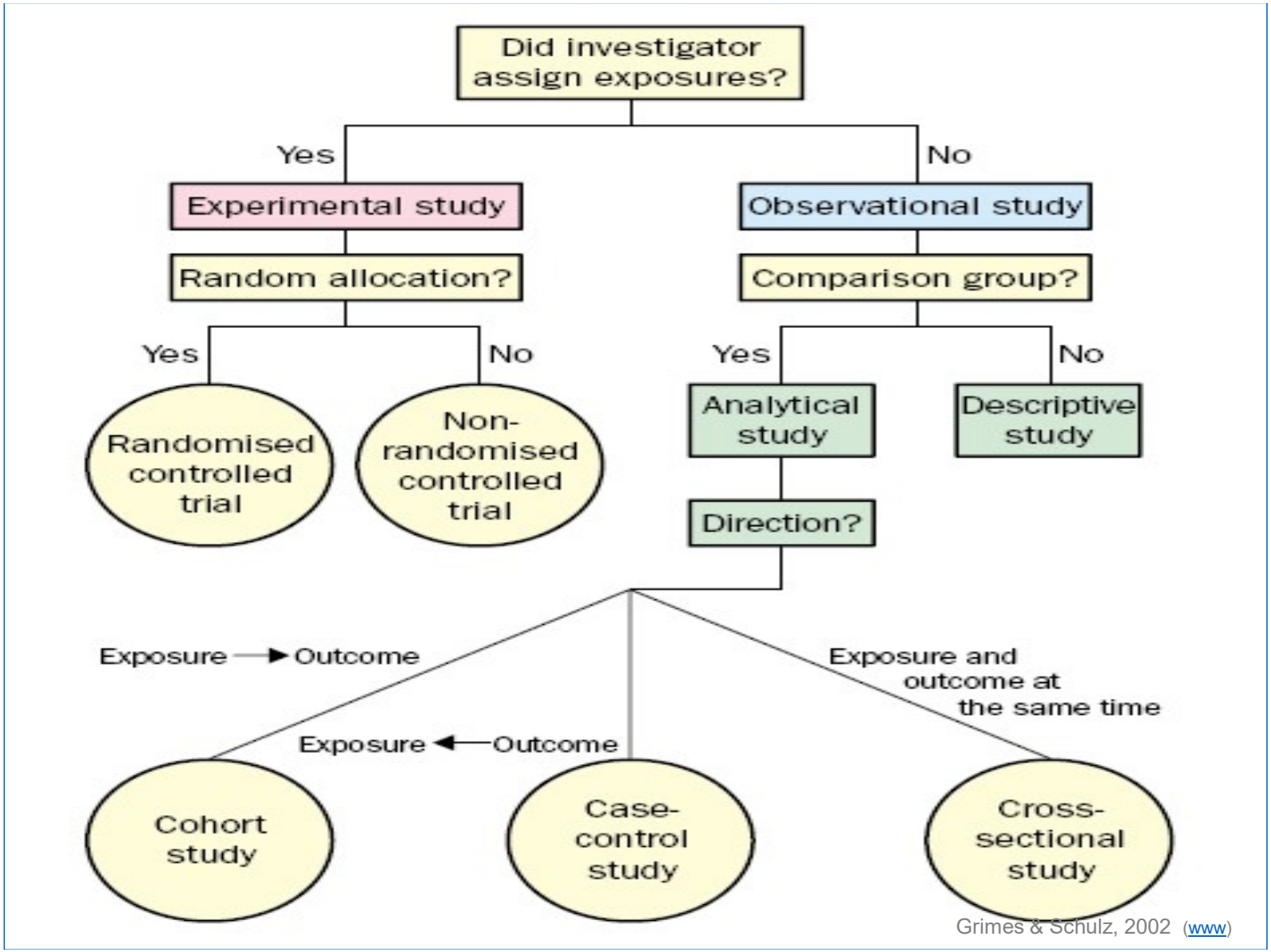
- **Prospective research - looks forward, looks to the future, examines future events, follows a condition, concern or disease into the future**



Research types: based on intervention

It divides the studies into two categories

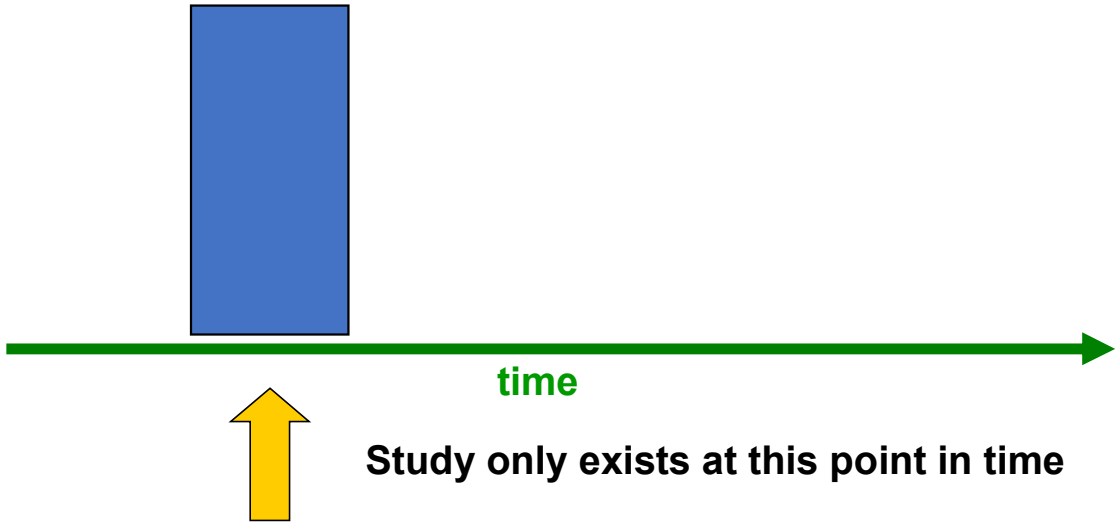
1. Observational researches (no intervention): the investigator measures but does not intervene.
2. Experimental researches / Interventional researches: involve an active attempt to change a disease determinant, such as an exposure or a behaviour, or the progress of a disease through treatment.



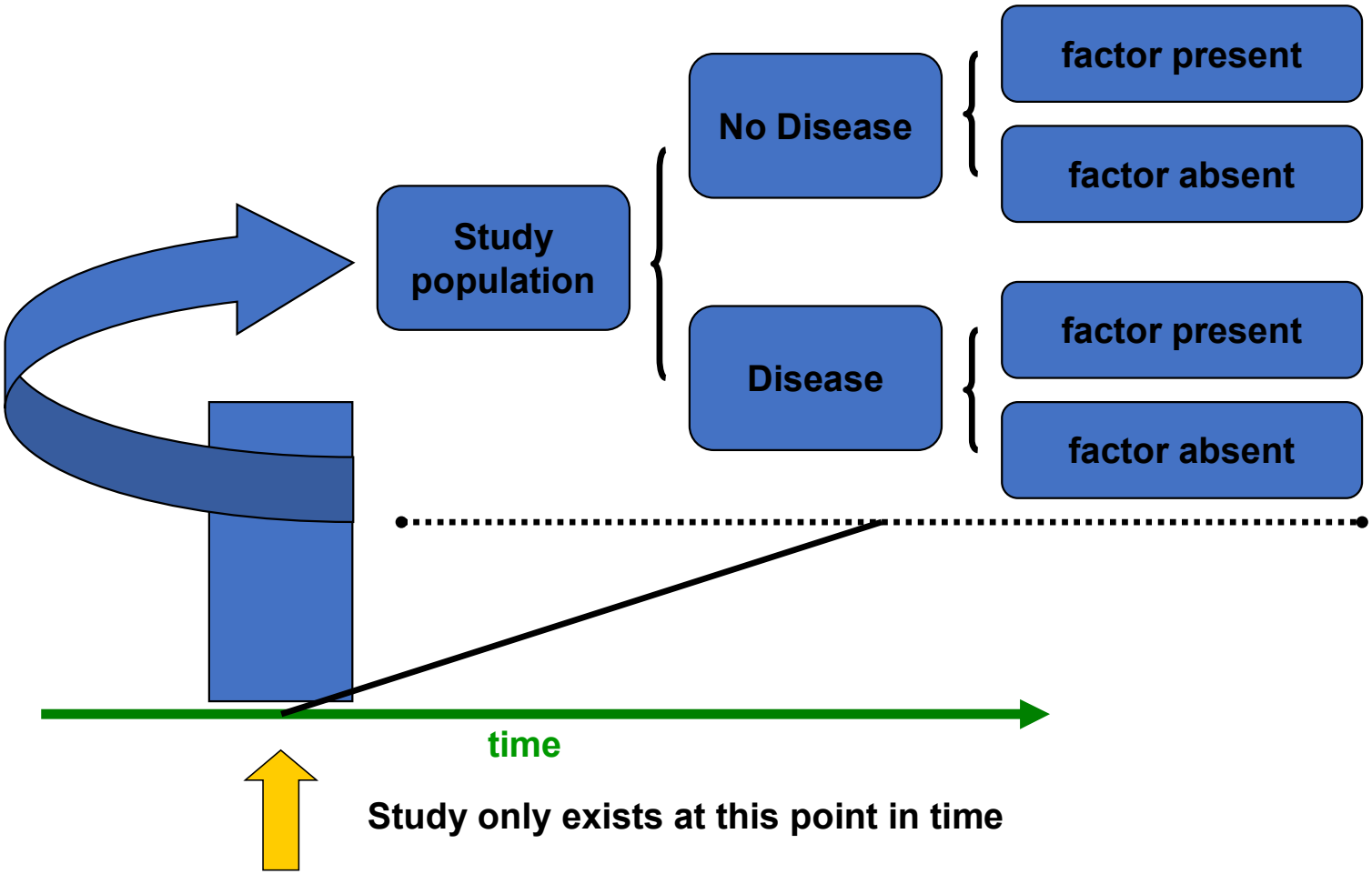
Grimes & Schulz, 2002 (www)

Cross-sectional research

- Measures simultaneously the exposure and health outcome in a given population and in a given geographical area at a certain time.



Cross-sectional Research



Uses of cross-sectional research

- Often used to study conditions that are relatively frequent with long duration (nonfatal, chronic conditions).

- It measures prevalence, not incidence of disease.

Example: prevalence of diabetes mellitus in a community.

Strengths of cross-sectional research:

- Relatively quick, easy and economical to conduct.
- Can estimate prevalence of outcome of interest because sample is usually taken from the whole population.
- Many outcomes and risk factors can be assessed.
- Provide important information on the distribution and burden of disease.

Strengths of cross-sectional research(Cont.):

- Appropriate for screening hypotheses because they require relatively shorter time and fewer resources.
- There is no loss to follow-up.
- Can provide initial information on exposure -outcome relationship.

Weaknesses of cross-sectional research

- Cannot tell us about causal relationships.
- Generalizability of the finding is limited.
- Sample size requirements may be very large (especially when looking at rare outcomes or exposures).
- Potential for selection bias.

Weaknesses of cross-sectional research(Cont):

- Can not estimate incidence of the disease.
- Not suitable for studying rare or highly fatal diseases or a disease with short duration of expression.
- It is difficult to establish the time-sequence of events and hence etiology.

Cross-sectional research
Basic measure : Prevalence

- Hypothesis:

Smoking is a risk factor for heart diseases.

Example :

100 retirees living in Erbil city, 60 of them with heart disease, 50 of those with heart disease were smokers while only 10 of those without heart disease were smoker

1. Identify type of the research
2. Draw appropriate table
3. Find measure of association
4. Comment on the result

Cross-sectional research
Basic measure : Prevalence

- 2x2 table

		Heart disease +	Heart disease -
Smoking	+	50	10
	–	10	30

Cross-sectional research
Basic measures : Prevalence

- Prevalence of heart disease among smoker= 50/60=0.8.
- Prevalence of heart disease among non-smoker= 10/40=0.2.
- Prevalence ratio =0.8/0.2= 4.0.

Smoker are four times more likely to have heart disease than non-smoker.

References

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