



Strengthening the Occupational Health Expertise and Scientific Performance of Public Health Institution of Turkey



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Study protocol 5 : Plan of analysis

A 4.1 ppt; first presentation on day 4 of training A

Part of the Chapter Methods of the protocol



Learning Objectives

1. You are able to define your study variables
2. You are able to make an analysis plan for descriptive statistics

Summary of presentation



- Study variables
- Descriptive statistical analyses

Study Protocol Part 5

Type of analysis

Study plan

- Study design?
- Population?
- Instruments?
- Errors?
- Ethics?
- **Plan for analysis?**

Analysis plan

- Define your variables
- In this stage define only the main exposure variables and the dependent variable(s).

Analysis plan

Type	Variable	Nominal definition	Operational definition
I			
D			
C			

I = Independent variable
D = Dependent variable
C = Confounder variable or effect modifier (potential)

Analysis plan, example

Type	Variable	Nominal definition	Operational definition
I	Belonging to an enterprise	Is the determination of the relation between the employee and the employer in terms of the existence of a labor contract with the enterprise or company	1) Independent worker (self-employed) 2) Dependent worker (employee)
D	Work accident in the past 5 years.	Occurrence of accidents at work causing an injury and absence of work during at least one day, in the last 5 years.	1)Yes 2)No
C	Age	Time expressed in years of life, starting with birth until today	1) 15 - 24 years 2) 25 - 34 years 3) 35 - 44 years 4) 45 - 54 years 5) 55 - 64 years 6) 65 and more years

I = Independent variable
 D = Dependent variable
 C = Confounder variable or effect modifier (potential)

Why is age a potential confounder?

Analysis plan, example

Type	Variable	Nominal definition	Operational definition
I	Physical work demands	Questions on ergonomic conditions (e.g. Questionnaire MEP, questions 1-16)	Summation from 0 – 64
D	Back pain	Back pain during the last 12 months that impede to perform the job (Questionnaire x, e.g. Nordic questionnaire, Kuorinka 1987)	Yes, no
C			

I = Independent variable
D = Dependent variable
C = Confounder variable or effect modifier (potential)

Analysis plan, example

Type	Variable	Nominal definition	Operational definition
I	Educational level	To fill in	Low Medium High
D	Use of personal protection equipment PPE	To fill in	Yes, no
C	Gender	To fill in	

I = Independent variable
D = Dependent variable
C = Confounder variable or effect modifier (potential)

Analysis plan

- The statistical analysis in a descriptive study might first be limited to:
 - Descriptive analysis of personal, work and health variables (means, median, standard deviation, etc.)
 - ✓ in the whole population and in subgroups.
 - Comparison of personal, work or health scores in the subgroups (Chi2 test, Student t-test, linear regression, logistic regression, etc).
 - Associations of independent variables such as work variables, with dependent variables such as health variables
 - ✓ in the whole study population and/or in subgroups
 - ✓ without & with adjustments for potential confounders.

Analysis plan - guidance 1

Descriptive data analyses

Categorical data, present absolute and relative frequencies

Continuous data, present

- median and range for *not normally distributed data*
- mean and standard deviation for *normally distributed data*

Analysis plan - guidance 2

The 12-months prevalence of work-limiting back pain, comparison formal and informal workers, **use Chi²-test.**

The independence of potential confounders (e.g. age) and the 12-months prevalence of work-limiting back pain, **use Chi²-test.**

The independence of potential confounders (e.g. age) and the formality of the workers, **use Chi²-tests.**

Potential confounders with a $p < 0.10$ relation (with I and D) will be included in the final **multiple logistic regression model.**

Strong and weak points

- Every project has strong and weak points; *advantages and disadvantages*.
- There is no perfect design for every need.
- Consider and be aware of the strong and weak points (limitations) of your study and project!
- After the discussions during the workshops and after studying the Manual, it will be easy to summarize these in a half page.

Contributions and resources

- Specify the budget or financial resources needed to realize the activities as planned.
- The contributions are all means used in the study such as financial resources, personnel, time, materials, services, etc.
- You may present suggestions where to find financial and other support for the study project.
- Realize the difference between the development of a study protocol for learning purposes in this course and opportunities to perform the study in reality, which depends on many external conditions.

Timetable

- Indicate every step and present how you will ensure a successful completion of the step
- Dependent on where the study will be conducted, present:
When to present/discuss the proposal with:
 - ✓ the owners of the company (companies)
 - ✓ industrial branch association representatives
 - ✓ the workers' council or union or other representatives of workers
 - ✓ clinicians, nurses and management of a hospital
 - ✓ community health center professionals & volunteers
 - ✓ patients' representatives in a community health center or hospital
 - ✓ community representatives

Summary

Structure of a summary (located after the title in the protocol)

Similar with the abstract of a scientific article (but without results) including

- 1-3 sentences on Theoretical background
- General objective
- A few sentences presenting design, study population (with numbers), instruments and strategy of field work
- Not more than 200 words

Workshop 5

Work in small groups

- Plan how to do your analysis
- After that, take time for the final writing of your protocol and presentation
- When citing from other publications use “ ”, and refer to the source. In the Manual (5.8.1) you can read about how to avoid plagiarism and fraud
- Give your protocol file a *clear file name* (see Manual).