



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



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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).