

# Health survey in Croatia case study

## DELIVERABLE 1

### 1. Introduction

Deliverable 1 will be devoted to apply *exploratory multidimensional methods* to the survey “Health in Croatia” to create synthetic measurements of health, either quantitative or categorical, from the SF36 variables.

Furthermore, all the available information will be used to better understand the behavior of the respondents as far as health evaluation is concerned. We will show how these multivariate methods are useful to enlighten the relationships between the “synthetic measurements of health” built by PCA or by MCA and other variables. Thus, the *exploratory multidimensional methods* can contribute to the selection of the explicative variables for explicative models (Part II).

### 2. Materials

The questionnaire addressed four areas:

- Socio-demographic data: gender, age, education and economic status;
- Lifestyle: smoking and drinking habits, sport or physical activities;
- Self-assessed health by using the SF-36 questionnaire;
- Use of health care: visits to GP’s, a specialist’s office and preventive services.

From the SF36, the following scores have been built:

- PF Physical Functioning
- RP Role limitation due to Physical Problems
- RE Role limitation due to Emotional Problems
- SF Social Functioning
- MH Mental Health
- EV Energy Vitality
- P Pain
- HP General Health Perception

### 3. An application of principal component analysis enriched by clustering

The scores measure the health from different points of view. A PCA applied to these variables will provide a synthesis of them and thus a global measurement.

Each student has to:

- To perform a PCA on the “health scores”. The other variables, available in the file, have to be used as illustrative.
- To interpret the results by following the scheme proposed in the document “Sesión Laboratorio ACP” but giving “a personal touch”.

You have to make clear the results for the user through translating the results in the terms of the initial data. So, make relationships between the results and the initial data.

In the interpretation, do emphasis on the relationships between “health scores” and socio-economic characteristics of the user.

Complete this analysis by clustering the respondents from their principal coordinates. You have to choose an appropriate number of clusters. Describe the clusters from all the variables. Interpret the results.

General conclusion on the results obtained through both methods (ACP + clustering). Do emphasis on the complementary nature of both methods.

The final report concerning this part must be clear, precise, concise and well written (in Catalan, Spanish or English). Up to 6 pages, maximum, are allowed for this section.

### 4. An application of multiple correspondence analysis.

Perform a MCA taking as active the SF36 variables and as supplementary variables those that seem to be useful.

Interpret the results by following exactly the scheme proposed in the document “Interpretation Rules for MCA” but bringing your personal touch.

You have to make clear the results for the user through translating the results in the terms of the initial data. So, make relationships between the results and the initial data.

In the interpretation, do emphasis on the relationships between variables active and illustrative variables.

Complete this analysis by clustering the respondents from their principal coordinates. You have to choose an appropriate number of clusters. Describe the clusters from all the variables. Interpret the results.

General conclusion on the results obtained through both methods. Do emphasis on the complementary nature of both methods.

The final report concerning this part must be clear, precise, concise and well written (in Catalan, Spanish or English). Up to 6 pages, maximum, are allowed.

Obviously, the whole report has to also include:

1. Cover page with project title and author name
2. Outline
3. Chapter about the results obtained from PCA (and clustering) – Up to 6 pages.
4. Chapter about the results obtained from MCA (and clustering)- Up to 6 pages.

In these chapters, you have to include a short description of each method, in such a way that the user can understand it.

You have also to present and comment the results in such a way that the user will understand a minimum.

5. Global conclusions

The final delivering of part I of the deliverable will take place on April, 17<sup>th</sup>.