

Exploratory multidimensional methods in the analysis of psychiatric data

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Particularities of psychiatric data could stand in a high number of clustered variables (psychiatric scales for instance) analysed in an exploratory perspective (clear cut *a priori* hypotheses are perhaps less frequent than in other areas). A potential danger of such a situation relies in an over use of statistical tests, with a major problem of multiple testing. The use of graphical multidimensional methods could help the statistician here: they can give an exploratory insight in the pattern of relationship of a list of variables without focussing abusively on a list of p-values.

Two methods implemented in the “psy” package of the R software will be presented. The spherical representation of a correlation matrix improves the traditional principal component analysis (PCA) graphics in terms of quality and topological consistence of the proposed representation. Focused principal component analysis is an extension of PCA, it also represents graphically the relationship of a list of variables, but with a focus on the relationship between a given variable (often a dependent variable) and all the other variables (often explanatory variables). These last associations are represented faithfully while the associations between the explanatory variables can suffer a certain level of distortion, as in traditional PCA.