ANALYSIS OF THE SF-36: THE BETA-BINOMIAL DISTRIBUTION APPROACH

I. Arostegui [†1], V. Núñez-Antón [1], J. M. Quintana [2]

[1] *University of the Basque Country UPV/EHU*
[2] *Galdakao Hospital*

[†] E-mail: *inmaculada.arostegui@ehu.es*

Health Related Quality of Life (HRQoL) is an important indicator of health status and the Short Form - 36 (SF-36) is a generic instrument to measure it. Multiple Linear Regression (MLR) is often used to study the relationship of HRQoL with patients' characteristics, though HRQoL outcomes tend to be not normally distributed, skewed and bounded (e.g. between 0 and 100). A sample of 193 patients with eating disorders has been analyzed to evaluate the performance of the MLR approach under non normality conditions. Normal distribution was rejected for seven out of the eight domains. Results using MLR have been compared for real and simulated data. A beta-binomial distribution is proposed to fit HRQoL data given by the SF-36. The beta-binomial distribution was not rejected for five out of the eight domains. Thus, a Beta-Binomial Regression (BBR) approach is suggested to analyze HRQoL data and results for real and simulated data are also compared. Performance of the BBR approach is shown to be better than MLR in the HRQoL domains with few ordered categories and very similar to MLR in the more continuous domains. Moreover, the interpretation of the estimates obtained with BBR is clinically more meaningful. A common technique of statistical analysis is preferable for all the dimensions present in the HRQoL instrument. Therefore, the BBR approach is recommended not only to detect significant predictors of HRQoL when SF-36 is used, but also to analyze and interpret the effect of several explanatory variables on HRQoL.