

Mapping MusiQoL onto the EQ-5D-5L utility index in patients with multiple sclerosis

Leire Garmendia Bergés^{1,2,3}, *Iñigo Gorostiza Hormaetxe*^{1,2,3}, *Alfredo Rodríguez Antigüedad*^{4,5},
Mar Mendibe Bilbao^{4,5}, *Irantzu Barrio Beraza*^{2,6}, *Amaia Bilbao Gonzalez*^{1,2,3}

¹lgarmendia@kronikgune.org, Kronikgune Institute for Health Services Research, Barakaldo, Spain

²Network for Research on Chronicity, Primary Care, and Health Promotion (RICAPPS), Bilbao, Spain

³Osakidetza Basque Health Service, Basurto University Hospital, Research and Innovation Unit, Bilbao, Spain

⁴Osakidetza Basque Health Service, Cruces University Hospital, Department of Neurology, Barakaldo, Spain

⁵BioCruces Bizkaia Health Research Institute, Barakaldo, Spain

⁶Department of Mathematics, University of the Basque Country, Leioa, Spain

Multiple sclerosis is a chronic disease that has a high impact in the quality of life. Due to the prevalence and the economic cost of the disease, the cost-effectiveness analyses are very relevant to decision makers. A measure that is commonly used in those studies are the quality-adjusted life-years (QALYs), which combine quantity and quality of life and allow comparing the health related quality of life (HRQoL) of different treatments, or populations. One of the necessary parameters to estimate QALYs is the utility for a given health state, as a measure of quality of life. Utilities are usually measured with generic health-related quality of life questionnaires, such as the EQ-5D-5L questionnaire, from which a utility index is derived based on a preference-based scoring function. However, in clinical practice, specific questionnaires, such as the multiple sclerosis international quality of life (MusiQoL), are more often used instead of the generic ones. Unfortunately, it is not possible to obtain the utility index directly from the specific questionnaires, and for that, mapping functions need to be developed to relate specific and generic questionnaires, in order to obtaining the utility index based on the specific questionnaires.

The objective of this study is to develop mapping functions to map the global score of the MusiQoL questionnaire onto the EQ-5D-5L utility index in patients with multiple sclerosis, using different algorithms and to compare and validate those functions.

To develop these mapping functions we used a real data set of patients with multiple sclerosis. We recruited 185 patients and collected baseline information using the EQ-5D-5L and the MusiQoL questionnaires, together with some sociodemographic questions. 6 months later, only 165 of the patients completed the follow-up questionnaires. For the development of these mapping functions baseline data were used, and for the validation the 6-month follow-up data. To map the global score of the MusiQoL into the EQ-5D-5L utility index, general linear models (GLMs), Tobit models, Beta regression models, and adjusted limited dependent variable mixture models (ALDVMM) were used.

This study provides different mapping algorithms to predict the EQ-5D-5L utility index based on the global score of the MusiQoL questionnaire in patients with multiple sclerosis.

Keywords: Mapping, utility index, multiple sclerosis.