

Metric properties of the 8-Item version of the Patient Health Questionnaire (PHQ-8) in Europe. Results from the European Health Survey (EHIS-2).

Jorge Arias-de la Torre^{1,2,3}, Gemma Vilagut^{2,4}, Amy Ronaldson¹, Jordi Alonso^{2,4,5}

¹*IoPPN, King's College London, UK.* ²*CIBERESP, Spain.* ³*IBIOMED, Universidad de León, Spain.* ⁴*IMIM, Spain.* ⁵*Universidad Pompeu Fabra, Spain.*

Research questions/Hypotheses:

One of the aims of population health surveys is the monitoring of the health status of the population. The monitoring of mental health using these surveys, usually relies on self-reported measures and questionnaires. In the case of international surveys, measurement equivalence of the questionnaires between countries should be ensured to allow suitable and relevant comparisons. The 8-Item version of the Patient Health Questionnaire (PHQ-8) is a screening measure of major depression. The PHQ-8 is one of the instruments most frequently used worldwide and has been included in the second wave of the European Health Interview Survey (EHIS-2). However, while widely used worldwide, there is limited evidence on whether its metric properties vary between countries in Europe. The aim of this study was to assess and compared the metric properties of the PHQ-8 across the 27 European countries included in EHIS-2.

Methods:

All participants from the 27 countries included in EHIS-2 (Denmark, Estonia, Finland, Iceland, Lithuania, Latvia, Norway, Sweden, Cyprus, Greece, Italy, Malta, Portugal, Bulgaria, Czechia, Croatia, Hungary, Poland, Romania, Slovakia, Slovenia, Austria, France, Germany, Ireland, Luxembourg, United Kingdom) between 2014-2015 with complete information of the PHQ-8 were included (n=258,888). The metric properties of the PHQ-8 across countries were assessed. The PHQ-8 is a self-reported measure of depression composed of 8 Likert type items with responses ranging from 0 (Not at all) to 3 (Nearly every day). The final score is computed by adding the score for each of the items ranging from 0 to 24. The internal consistency of the questionnaire was calculated for each country using the alpha (α) coefficient. The reliability of the questionnaire was evaluated through multi-group confirmatory factorial analysis for categorical data (iCFA). For these analyses country was considered the group variable. Additionally, from the output of the multi-group iCFA configural invariance (whether the overall factor structure is the same between countries), metric invariance (whether the factor loadings are equivalent across countries) and scalar invariance (whether the item intercepts are equivalent across countries) were assessed.

Preliminary findings and conclusions:

The internal consistency was high for all of the countries (α coefficients ranged from 0.93 to 0.79 for Romania and Austria respectively). The models from the confirmatory factorial analysis for categorical data (iCFA) showed measurement invariance according to the country. A suitable goodness of fit at configural, metric and scalar levels using the Chi-Square test (χ^2 : configural=18,112.640; metric=28,697.329; scalar=26,220.679), the Comparative Fit Index (CFI: configural=0.987; metric=0.979; scalar=0.981), the Tucker-Lewis Index (TLI: configural=0.982; metric=0.978; scalar=0.987), Root Mean Square Error of Approximation (RMSEA: configural=0.058; metric=0.064; scalar=0.049), and the Standardized Root Mean Square Residual (SRMR: configural=0.027; metric=0.032; scalar=0.034).

The PHQ-8 is a reliable and valid tool for the screening of depression in Europe in the context of population health surveys, with a suitable comparability between countries at all levels. New research considering these results could be helpful to develop a common framework for the assessment of depression both in Europe and worldwide using population health surveys. This will be helpful to improve the monitoring of depression, the knowledge about its determinants, to inform and focus preventive measures against the development of depression and, hence, reduce its burden.

Keywords: Depression; Patient Health Questionnaire; Public Mental Health.