

The online version of EMPRO: a new platform for the standardized appraisal of PRO instruments.



Yolanda Pardo, Olatz Garin, Gemma Vilagut, Itxaso Alayo, Victor Zamora, Cristina Oriol, José María Valderas, Jordi Alonso, Montse Ferrer, and the EMPRO Group. IMIM (Hospital del Mar Research Institute); CIBER en Epidemiología y Salud Pública CIBERESP, CIBER en Salud Mental CIBERSAM, CIBER en Enfermedades Neurodegenerativas CIBERNED, Health Services Research on Chronic Patients Network REDISSEC

AIMS

The **EMPRO** (Evaluating the Measurement of Patient-Reported Outcomes) was designed to perform a standardized assessment of the **quality of PROs**. It has demonstrated to have **good validity and reliability**¹ and has been applied on ten conditions (over 50 instruments)²⁻⁴. Our aim was to develop an **online platform** which enables the independent review by several appraisers, and the consensus process to achieve an **agreement**.

1. Valderas et al. Value Health 2008, 11:700-708.
2. Schmidt et al. Qual Life Res 2014, 23, 2169-2181.
3. Maratia et al. Qual Life Res 2016, 25.
4. Sinclair et al. Patient 2017, 10, 4.

METHODS

An **online platform** was developed considering administrator and appraiser profiles. The **administrator profile** allows to design each EMPRO evaluation, specifying: the PROs to be evaluated, the number of appraisers by PRO; the **EMPRO attributes selected** (out of 8 possible); and evaluated materials (articles, instrument itself and its manual,...). In the **appraiser profile** the appraisers can check the materials, complete the EMPRO items for the evaluated PRO, and participate in the consensus process until **agreement**.

Figure 1. List of the appraiser's EMPRO evaluations screen.

Project	Name	Created	Last update	Actions
Minnesota	Minnesota Living With a Heart Failure Questionnaire	24/04/2018 16:04:46	19/10/2018 14:01:49	Start assessment
Respiratory	Saint George Respiratory Questionnaire	17/05/2018 16:02:10	27/09/2018 14:29:38	Pending appraisers
Respiratory	Asthma Control Test	17/05/2018 16:01:16	27/09/2018 14:27:37	Finished
Respiratory	Asthma Control Questionnaire	03/09/2018 10:30:23	03/09/2018 10:30:23	Pending first appraisers agreement round
Prostate cancer	Expanded Prostate cancer Index Composite	17/05/2018 16:03:29	17/05/2018 16:03:29	Start assessment

Figure 2. EMPRO item assessment screen.

Attributes selected:

- I. Conceptual and measurement model
- II. Reliability
- III. Validity
- IV. Responsiveness
- V. Interpretability
- VI. Burden
- VII. Alternative modes of administration
- VIII. Adaptación cultural Catalana
- IX. Adaptación cultural Escocesa

4-point scale response: Strongly agree (4), 3, 2, 1, Strongly disagree

Figure 3. EMPRO item assessment split screen.

The split screen allows accessing materials and copying text into the comments box.

Figure 4. EMPRO consensus screen.

Question	Assessment 1	Daniel Marín	B	C	Modify previous assessment?	Have we come to an agreement?	Reference Comments
I Conceptual and measurement model							
1	3	3	3	3		✓	
2	2	3	3	3	2	✗	
3	3	3	3	3		✓	
4	3	3	3	3		✓	
5	2	3	3	3	2	✗	
6	3	3	3	2	3	✗	
7	3	3	3	3		✓	
II Reliability							

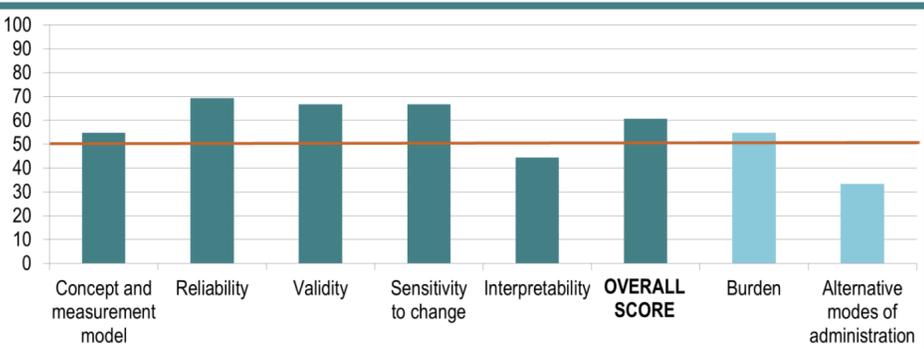


Figure 5. EMPRO scores for the Minnesota Living with Heart Failure questionnaire*. *Garin et al. Heart Fail Rev 2014; 19(3): 359-367.

RESULTS

The new **EMPRO online platform** website is accessible with a user created for each appraiser. The application shows the **list of EMPRO evaluation projects** in which the user participates (**figure 1**). Each EMPRO item is shown on a screen (**figure 2**) with its evaluating criteria, scoring recommendations, and response options. **PRO materials can be consulted in parallel on a split screen** (**figure 3**). Once all appraisers of a specific PRO have finished their evaluation, they can access to the **consensus screen** (**figure 4**) displaying all the appraisers anonymized responses, so they can comment and modify their responses **to achieve an agreement**. Through these **consensus rounds** the experts achieve a **final agreement, which will become the EMPRO scores** (**figure 5**).

CONCLUSIONS

The new EMPRO online platform allows the standardized assessment of the quality of PRO instruments by expert consensus. It facilitates the exchange of information among appraisers, recording every step in the process, therefore simplifying collaborative and international studies.