

Validation of a Spanish Version of a 360° Feedback Tool for Residents' Performance: A Pilot Study

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ABSTRACT

Background: The 360° feedback tool emerges as one of the most effective techniques for the assessment of humanistic qualities and communication skills of medical trainees, providing effective feedback. A valid Spanish version of this tool has not yet been published. The aim of this study was to evaluate the validity, reliability and feasibility rates of the Mini-peer Assessment Tool (Mini-PAT), a 360° feedback instrument, translated into Spanish applied on a cardiology residency program. **Methods:** We translated the Mini-PAT questionnaire into Spanish. The validation sample included all residents in our cardiology program (n = 19). Each resident was evaluated by 8 raters chosen by themselves, through a 4-point Likert scale. Validity was evaluated with factor analysis and reliability by analyzing internal consistency using the Cronbach's alpha coefficient. Feasibility was defined by a minimum of 80% of the raters responding the questionnaire. **Results:** The factor analysis clearly identified five item groupings, similar to the theoretical attributes predefined in the original questionnaire, providing evidence of the validity of the Spanish version. The Cronbach's alpha coefficient was 0.92, indicating high internal consistency of the items included. All the evaluators proposed completed the electronic form (152 surveys) demonstrating feasibility to implement. **Discussion:** This study provides evidence of reliability and validity of the Spanish version of the 360° feedback tool Mini-PAT performed in a cardiology residency program to assess global performance and humanistic qualities.

Keywords: Constructive feedback, Educational assessment, Professional competence, Self-evaluation programs, Training programs, Work performance


Background

The growing interest on improving the quality of medical care has led to include in the evaluation of trainees' performance not only theoretical knowledge but also humanistic qualities and communication skills, which cannot be easily evaluated with written examinations.^[1] It is mandatory for a residency

program to implement assessment and feedback on residents' performance during their training period. However, a study by Day *et al.* documented that the vast majority of internal medicine residents were not observed in a patient encounter more than once by a staff physician.^[2] Without this observation, there is no opportunity to assess basic clinical skills and more importantly, to provide feedback to improve performance. This has led to efforts in creating quantitative tools and evaluation instruments that, through direct workplace-based assessment, provide opportunities to

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design an action plan based on the needs identified.^[3,4] Among different methods of evaluation, multisource feedback (MSF) or 360° feedback emerges as an effective instrument widely validated in the English-speaking medical environment.^[5-7] This method provides effective feedback to correct or strengthen actions and performance,^[4] allowing longitudinal monitoring. The 360° feedback assessment consists of a questionnaire where different dimensions such as clinical care, good medical practice, working with colleagues, relationship with patients, and leadership are analyzed. The items are rated on a Likert scale,^[8] with the particularity that the raters are people who continually interact with the residents in their daily practice, such as their peers, staff physicians, nurses, technicians, or any other medical personnel.

Since the eighties, different medical organizations have begun to include these aspects in the evaluation of medical trainees, though initially mostly based on global performance. Ramsey *et al.* were pioneers in demonstrating the reliability and feasibility of a peer-assessment tool consisting of 11 questions answered by a minimum number of 7–13 raters per participant.^[5-7,9] However, the implementation of this instrument was slow, and it was not until 2005 that Archer *et al.*^[10] developed the Sheffield peer review assessment tool (SPRAT), consisting of 24 questions covering five dimensions. A minimum of 8 raters from the health-care system evaluated each physician. The results were so conclusive that the General Council of Medicine of London included this tool to define the standards of good medical practice, adapting it to a shortened version known as mini-peer assessment tool (PAT).^[11]

However, the value of feedback depends not only on the tool but mainly on who gives it. One of the many barriers teachers finds when willing to give feedback is the lack of instructions and training and the fear of providing negative feedback.^[12] Cantillon and Sargeant delivered recommendations in order to give a successful feedback.^[13] There are several techniques to impart it,^[14] but most importantly, feedback should be seen as an everyday component of the teacher–student relationship, so that both sides can expect it and manage its effects.^[13]

Although the validity and reliability of the 360° assessment was demonstrated, each work group used a variety of instruments over time, with questionnaires of different lengths, and without a clear consensus about the minimum number of raters needed. Moreover, a validation of the mini-PAT translated into Spanish with sufficient statistical power to be applied in medical trainees has not yet been published.

The aim of this study was to evaluate the validity, reliability, and feasibility of a modified version of the mini-PAT translated into Spanish applied on a cardiology residency program.

Methods

We conducted an analytical, cross-sectional study. We translated the mini-PAT^[3] questionnaire into Spanish. The instrument consists of 19 items distributed in 5 domains, rated using a 4-point Likert scale, where: (1) below expectations for the year of postgraduate training; (2) meets expectations; (3) above expectations; (4) unable to evaluate. The validation sample included all residents in our cardiology program. Each resident was evaluated by 8 raters, chosen by themselves among the staff physicians, chief residents, head of department, nurses, technicians, and any other health professionals. Each resident also completed a self-assessment questionnaire and by the end of the feedback process, a satisfaction survey.

The questionnaire was created using Google Drive platform forms, which allows to answer online meanwhile automatically stores information in a Google Drive database [Figure 1]. [Questionnaires 1 and 2 from Supplementary material].

The validity of our Spanish version of the questionnaire was evaluated using factor analysis of the variables observed. The principal component analysis approach was used for factor extraction and varimax rotation was used for interpretation. Then, we studied the possible relationship between items with high factorial load for the same component, to identify what this component represents as an attribute, and these attributes were compared with those prespecified in the original English questionnaire.

Reliability was evaluated by analyzing internal consistency using the Cronbach's alpha coefficient. Total and partial consistency were evaluated, analyzing each question within its corresponding dimension, and calculating Cronbach's alpha if the question was not part of that dimension.

The implementation feasibility was assessed by estimating that at least 80% of the evaluators would complete the electronic form.

The study protocol was reviewed and approved by the Institutional Ethics Committee. The investigation was conducted in accordance with the Helsinki Declaration. All the participants gave their consent to take part in the study.

Results

Nineteen trainees in the cardiology residency program were evaluated using the online 360° feedback tool; 57% were women and the mean age was 28.1 ± 3.9 years. A total of 152 evaluations were completed, as all the evaluators proposed completed the electronic form (8 for each resident). One hundred and twenty-five (82.2%) evaluations were fully complete; of the 27 remaining, at least one item was

360-degree assessment

DATE *

mm / dd /aaaa

Evaluated Resident (Name) *

Postgraduate Year *

PGY-1

PGY-2

PGY-3

PGY-4

Chief Residents

How would you rate resident's performance?

1. Below expectations for the year of post-graduate training
2. Meets expectations for the year of post-graduate training
3. Above expectations for the year of post-graduate training
4. Unable to evaluate

GOOD CLINICAL CARE

1. Gathering information from the clinical record and physical examination *

Figure 1: Electronic questionnaire preview (first page)

answered as “Unable to evaluate,” which were considered missing values.

Regarding to the reliability of the tool, the Cronbach’s alpha coefficient was 0.92. Total and partial coefficients were close to 1, indicating that all items included in the instrument have high internal consistency, and thus demonstrating reliability of the translated tool.

As previously mentioned, 100% of the proposed evaluators completed the electronic form, demonstrating the tool was feasible to implement.

The factor analysis clearly identified five item groupings, which explained 73.6% of the variance: good clinical care, maintaining good medical practice, working with colleagues, relationship with patients, and leadership, teaching, and training. This items where conceptually similar to the theoretical attributes predefined in the original English questionnaire, providing evidence of the validity of the Spanish version of the questionnaire [Table 1].

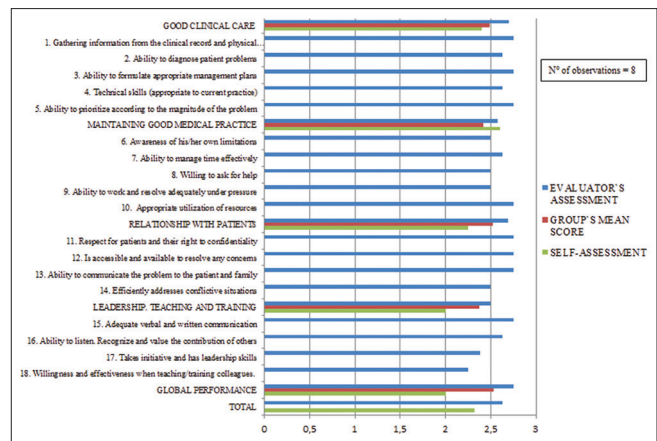


Figure 2: Example of feedback chart returned to each resident

Discussion

This study provides evidence of reliability and validity of the Spanish version of the mini-PAT questionnaire performed in a group of cardiology residents. The implementation of the tool to assess the global performance was feasible, with high levels of internal consistency.

We decided to translate the mini-PAT tool instead of the original SPRAT because as Ramsey *et al.*^[5,6] previously reported, the response rate of the evaluators increases when the number of questions is reduced, maintaining the factorial structure of the original form. This was also proved with the factor analysis of our study.

To give feedback, we used the reflective feedback conversation.^[14] First, we discussed self-assessment conclusions with the learner, allowing him to recognize his own performance deficits and strengths. Then, we revealed the peer-assessment results, starting with their best outcomes and later on, the areas with poor performance or those that could be improved. Finally, we defined an appropriate plan of action to overcome these difficulties. This technique encourages the development of the learners’ ability to self-assess and how he plans to improve, more than only receiving the counterpart’s opinion.^[13] Although the aim of our study was to analyze the feedback tool and not the technique to inform it, we understand that one cannot succeed without the other so we took special interest and thoughtful planning of the feedback deliver, according to international recommendations [Figure 2].

The final aim of the MSF tool is to identify areas requiring improvement through the assessment of global performance, and thus develop a plan of action to achieve the desired learning outcomes and continuously improve residents’ training program. Both the ISO 9001-2008 quality standards for health-care delivery and the Argentine Ministry of Health, following the recommendations of the International

Table 1: Factor analysis. Items gathered in 5 components or dimensions, showing validity

QUESTION	Comp1*	Comp2	Comp3	Comp4	Comp5	Unexplained	DIMENSION
1. Gathering information from the clinical record and physical examination	0.2338	-0.1107	0.0271	0.4644	-0.0737	0.239	GOOD CLINICAL CARE
2. Ability to diagnose patient problems	-0.0192	-0.0518	0.0066	0.6137	0.0764	0.1785	
3. Ability to formulate appropriate management plans	-0.0845	0.1559	-0.0332	0.519	0.0119	0.1978	
4. Technical skills (appropriate to current practice)	-0.0172	0.5185	0.0521	-0.1527	0.0456	0.3481	MAINTAINING GOOD MEDICAL PRACTICE
5. Ability to prioritize according to the magnitude of the problem	-0.1366	0.516	0.0747	0.1645	-0.1157	0.246	
7. Ability to manage time effectively	0.0946	0.2171	-0.0035	0.1579	-0.0011	0.4964	
9. Ability to work and resolve adequately under pressure	-0.0418	0.3032	-0.122	0.0844	0.2507	0.2794	
10. Appropriate utilization of resources	0.2607	0.2824	0.1067	-0.0721	-0.1675	0.3478	
14. Efficiently addresses conflictive situations	0.2419	0.3607	-0.1324	-0.1079	-0.0216	0.2388	
6. Awareness of his/her own limitations	-0.0221	0.0792	0.5748	-0.0014	-0.0746	0.2299	WORKING WITH COLLEAGUES
8. Willing to ask for help	-0.0224	-0.0156	0.5654	0.015	0.0674	0.2352	
16. Ability to listen. Recognize and value the contribution of others	0.0437	-0.0084	0.5034	-0.0202	0.0756	0.3006	
11. Respect for patients and their right to confidentiality	0.461	-0.0835	0.0378	0.117	-0.1592	0.2291	RELATIONSHIP WITH PATIENTS
12. Is accessible and available to resolve any concerns	0.3346	-0.0744	0.1121	0.0156	0.1523	0.3227	
13. Ability to communicate the problem to the patient and family	0.4564	0.0323	-0.1021	0.0336	-0.1007	0.2614	
15. Adequate verbal and written communication	0.4284	-0.0823	-0.0179	-0.1375	0.2261	0.2797	
17. Takes initiative and has leadership skills	-0.0299	0.1319	-0.1031	0.0359	0.5239	0.1665	LEADERSHIP, TEACHING AND TRAINING
18. Willingness and effectiveness when teaching/training colleagues.	-0.0091	-0.0988	0.0843	0.023	0.6591	0.1696	

*Comp: Component, Comp1: Relationship with Patients, Comp2: Maintaining Good Medical Practice, Comp3: Working with Colleagues, Comp4: Good Clinical Care, Comp5: Leadership, Teaching and Training

Medical Councils, encourage the residency programs to apply standardized evaluation methods like the 360° feedback instrument, which are less dependent on subjective factors.^[15]

However, there are no such tools translated into Spanish so far. Therefore, we consider that this could represent a pilot study in order to achieve the international recommendations, as it is the first study able to demonstrate the validity, reliability, and feasibility of implementing the mini-PAT translated from its original English version into Spanish, in a group of medical trainees from a residency program in Argentina. Nevertheless, we are aware of the limitations and possible bias of the results when only including a single and private health-care center.

Other limitation of our study was including only 19 residents in a single subspecialty program. Although the findings agree with the original version in terms of factors identified, repeated testing with other cohorts and in different centers is needed to gather additional evidence of the validity of this tool.

The absence of unified methods to assess residents' performance represents one of the most important barriers to measure it periodically. This pilot study provides evidence of a valid translated tool that could be used by another residency program in Spanish speaking countries, along with written examinations and mini-CEX evaluations,^[15] to help narrowing the gap between actual and desired performance in order to achieve quality care.

Conclusion

The Spanish version of the mini-PAT, a type of 360° feedback tool, used during a cardiology residency program to assess

the humanistic qualities and communication skills is valid, reliable, and feasible to apply.

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We declare we have no affiliations with or involvement in any organization or entity with any financial interest in the subject discussed in this manuscript.

Conflicts of interest

We have no conflicts of interest to disclose.

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Questionnaire 1: Questionnaire used as 360° assessment tool, created with Google Drive platform (in English)

11/4/2019

360-degree assessment

360-degree assessment

*Obligatorio

1. **DATE ***

Ejemplo: 15 de diciembre de 2012

2. **Evaluated Resident (Name) ***

Marca solo un óvalo.

..

3. **Postgraduate Year ***

Marca solo un óvalo.

PGY-1

PGY-2

PGY-3

PGY-4

Chief Residents

How would you rate resident's performance?

1. Below expectations for the year of post-graduate training
2. Meets expectations for the year of post-graduate training
3. Above expectations for the year of post-graduate training
4. Unable to evaluate

GOOD CLINICAL CARE

4. **1. Gathering information from the clinical record and physical examination ***

Marca solo un óvalo.

1

2

3

4

5. **2. Ability to diagnose patient problems ***

Marca solo un óvalo.

1

2

3

4

11/4/2019

360-degree assessment

6. 3. Ability to formulate appropriate management plans *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

7. 4. Technical skills (appropriate to current practice) *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

8. 5. Ability to prioritize according to the magnitude of the problem *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

MAINTAINING GOOD MEDICAL PRACTICE

9. 6. Awareness of his/her own limitations *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

10. 7. Ability to manage time effectively *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

11. 8. Willing to ask for help *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

11/4/2019

360-degree assessment

12. 9. Ability to work and resolve adequately under pressure *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

13. 10. Appropriate utilization of resources *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

RELATIONSHIP WITH PATIENTS

14. 11. Respect for patients and their right to confidentiality *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

15. 12. Is accessible and available to resolve any concerns *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

16. 13. Ability to communicate the problem to the patient and family *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

17. 14. Efficiently addresses conflictive situations *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

11/4/2019

360-degree assessment

WORKING WITH COLLEAGUES

18. 15. Adequate verbal and written communication *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

19. 16. Ability to listen. Recognize and value the contribution of others *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

20. 17. Takes initiative and has leadership skills *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

21. 18. Willingness and effectiveness when teaching/training colleagues. *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

GLOBAL CALIFICATION

22. 19. Overall impression of the resident's performance *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

Con la tecnología de
 Google Forms

Questionnaire 2: Questionnaire used as 360° assessment tool, created with Google Drive platform (in Spanish)

11/4/2019

Evaluación en 360°

Evaluación en 360°

*Obligatorio

1. FECHA *

Ejemplo: 15 de diciembre de 2012

2. Apellido y Nombre del Residente *

Marca solo un óvalo.

....

3. Año de residencia *

Marca solo un óvalo.

R1

R2

R3

R4

JDR

Como lo califica en su desempeño:

1. Debajo de las expectativas para la etapa de entrenamiento.
2. Cumple con las expectativas para la etapa de entrenamiento
3. Supera las expectativas para la etapa de entrenamiento
4. No se observó

PRÁCTICA CLÍNICA

4. 1. Recopilar información de la Historia clínica y el examen físico *

Marca solo un óvalo.

1

2

3

4

5. 2. Habilidad para diagnosticar el problema del paciente *

Marca solo un óvalo.

1

2

3

4

11/4/2019

Evaluación en 360°

6. 3. Formular planes de manejo adecuados *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

7. 4. Destrezas técnicas para realizar procedimientos *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

8. 5. Sabe priorizar de acuerdo a la gravedad del problema *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

DESEMPEÑO EN LA PRÁCTICA MÉDICA

9. 6. Conciencia de sus propias limitaciones *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

10. 7. Maneja eficazmente el tiempo *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

11. 8. Dispuesto a solicitar ayuda *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

11/4/2019

Evaluación en 360°

12. 9. Trabaja y resuelve de manera adecuada bajo presión *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

13. 10. Implementa apropiadamente los recursos *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

COMUNICACIÓN CON PACIENTES

14. 11. Tiene respeto por el paciente y su derecho a la confidencialidad *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

15. 12. Es accesible y está disponible para resolver inquietudes *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

16. 13. Es eficaz para transmitir el problema al paciente y los familiares *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

17. 14. Aborda situaciones conflictivas eficientemente *

Marca solo un óvalo.

- 1
- 2
- 3
- 4

11/4/2019

Evaluación en 360°

TRABAJANDO CON COLEGAS

18. **15. Adecuada comunicación verbal y escrita ***

Marca solo un óvalo.

- 1
 2
 3
 4

19. **16. Capacidad de escucha. Reconoce y valora aportes de los otros ***

Marca solo un óvalo.

- 1
 2
 3
 4

20. **17. Toma iniciativa y tiene habilidades de liderazgo ***

Marca solo un óvalo.

- 1
 2
 3
 4

21. **18. Disposición para enseñar a otros miembros del equipo de salud ***

Marca solo un óvalo.

- 1
 2
 3
 4

CALIFICACION GLOBAL

22. **19. Impresión global del desempeño del residente ***

Marca solo un óvalo.

- 1
 2
 3
 4

Con la tecnología de
 Google Forms