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Research and Theory

Development of a questionnaire to assess interprofessional collaboration between two different care levels

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Abstract

Introduction: This paper reports the development and validation of a questionnaire to assess collaboration between clinical professionals from two different care levels (primary and specialised care), according to the clinicians' own perceptions. This questionnaire has been elaborated to be used as part of the monitoring and evaluation process of the integrated care pilots in the public Basque Health Service.

Methods: The process was carried out in four phases: development of the first version of the questionnaire, validation of the content, pre-testing, and evaluation of its construct validity and homogeneity in a sample of doctors and nurses. This last phase involved confirmatory factor analysis, as well as the calculation of Cronbach's α and various correlation coefficients.

Results: The process demonstrated that the theoretical content of the questionnaire was appropriate, and also that its items were clear, relevant and intelligible. The fit indices for the confirmatory factor analysis were: χ^2 of 45.51 ($p=0.089$), RMSEA of 0.043, RMR of 0.046, GFI of 0.92 and CFI of 0.99.

Discussion: The statistics indicate a good fit between the data and a conceptual two-factor structure, in which both personal relationships between professionals and characteristics of the organisational environment are understood to underlie interprofessional collaboration.

Conclusion: The end-product is a new instrument with good validity to assess the degree of interprofessional collaboration between clinicians working at two different levels of care.

Keywords

health services research, interprofessional relations, questionnaires, validation studies

Introduction

In recent years, a range of initiatives of integration have been launched within the Basque Health Service (Osakidetza), in response to new policies for transforming the system towards better prevention and care for chronic diseases. These policies are set out in a strategic document entitled “A Strategy to Tackle the Challenge of Chronicity in the Basque Country” [1], published by the Department of Health and Consumer Affairs of the Basque Government in July 2010. In this document, the Basque health authorities highlighted the need to improve the integration and continuity of care for patients with chronic diseases, as one of five priority areas for action to address the challenge of chronicity.

Since then, a number of integration initiatives have sprung up in the public Basque Health Service, which can be broadly classified into three main types. On the one hand, there are initiatives of organisational integration, particularly the creation of new integrated delivery organisations. These organisations merge previously separated healthcare settings—generally a regional hospital (specialised care level) and the health centres (primary care level) of the area around the hospital—under a single management structure and a common contracting and financial framework, which would jointly serve the population under their responsibility. On the other hand, a range of initiatives that can be broadly defined as disease management programmes have been emerging across the Basque health service, aiming at integrating care processes, while respecting the organisational separation between care levels. This type of initiatives focuses on specific conditions and groups of patients. Several of these initiatives include the use of tele-monitoring tools and the roles of case managers and link nurses. For example, in a project called PROMIC, a multidisciplinary team including primary and specialised care professionals working in different organisations, has been established, and case managers introduced, to coordinate and control care of high-risk patients with heart failure and co-morbidities, for whom a common care pathway has been agreed. Finally, a third type of integration initiatives, which could be defined as shared care models for patients with multiple conditions and complex needs, can be distinguished. In the Basque case, initiatives targeting these patients at the top of the Kaiser pyramid [2], include the identification of a team or a specialist of reference for the primary care team and the complex patient at the hospital, and often involve the use of case managers. All these different types of integration initiatives are mostly still in the pilot phase, having had until now an impact on only a limited number of healthcare settings and certain specific units

and services. All of them require collaboration between professionals from different care levels and specialties, most often working in different healthcare settings and/or organisations.

Due to the interest on monitoring and assessing the results of these integration initiatives, an overarching evaluation framework for integrated care pilots in the public Basque Health Service was developed (and published elsewhere [3]). Within this broader evaluation framework, a culture that favours interprofessional collaboration between different care levels and settings was considered a key element for improving coordination of services and continuity of care [4, 5], and as such, identified as an important dimension to be monitored. So, it was deemed necessary to identify a measure of how interprofessional collaboration, as a core factor for integrated care [6], changed with time and with the development of the different types of integration initiatives in place.

The objective of this article is to describe the process of development and validation of a questionnaire that was produced in response to this need to evaluate interprofessional collaboration between different care levels. This questionnaire, which is based on the perceptions by the clinicians concerned (and initially validated in a group of doctors and nurses), is currently being used as part of the broader monitoring and evaluation process of several of the healthcare integration pilots in the Basque Health Service [3].

Methods

The process of developing and validating the questionnaire was carried out in four phases: 1) development of the first version of the questionnaire, 2) validation of the content, 3) pre-testing, and 4) evaluation of its construct validity and homogeneity. Figure 1 illustrates the different parts of the process.

Development of the first version of the questionnaire

A first important step was choosing the theoretical framework of reference as regards interprofessional collaboration between different care levels and healthcare settings/organisations. A previous literature review was used for the identification of the most complete conceptual frameworks of interprofessional collaboration in the health field, according to the criteria established by the authors of the review [7]. From this literature review, three frameworks were pre-selected: the models by Sicotte et al. [6], West et al. [8], and D'Amour et al. [9]. All these three models fulfilled the criteria of being based both on empirical data and on

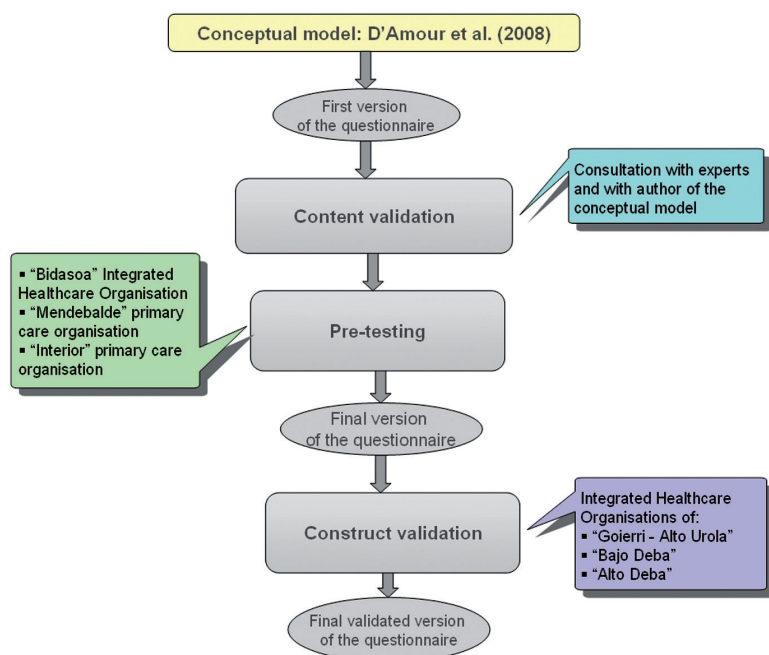


Figure 1. Process of designing and validating the questionnaire.

an explicit theory, and were examined by the authors. Finally, a choice was made for the model by D'Amour et al. [9, 10], as the one best suited to the objectives of the evaluation and the organisational context in the Basque health service. In fact, this was the only among the three pre-selected models that focused on interorganisational collaboration, which adjusted to the interest of the authors on interprofessional collaboration across care levels and between different healthcare settings. It also made an explicit link between interorganisational collaboration and continuity of care for patients, what accommodated the authors' concern about interprofessional collaboration as an intermediate outcome on the achievement of further objectives of integrated care, such as better coordination and continuity of care for patients [3].

The D'Amour model is inspired by the concept of collective action in organisational sociology, in particular, strategic analysis as in Crozier and Friedberg [11] and the organisational approach proposed by Friedberg [12]. According to D'Amour, collaboration is the structuring of collective action through the sharing of information and decision-making in clinical processes. The model identifies four dimensions that characterise the processes of interprofessional collaboration, two related to relationships between individuals (shared goals and vision; and internalisation) and two related to the organisational setting (governance; and formalisation) (Figure 2). All these dimensions are interrelated and present in all collective action. The intensity and impact of each, however, depends on the specific

situation and context. D'Amour also recognises that other external and structural factors may influence interprofessional collaboration.

This model has been operationalised by D'Amour and colleagues [13] through the identification of ten indicators, validated in Québec (Canada), of the collaboration between professionals in different healthcare organisations. These indicators are listed in Table 1 for each of the four dimensions.

Taking these four dimensions and ten indicators (as defined in D'Amour et al. [13]) as a point of departure, a first version of the questionnaire was drawn. It included ten items, one for each of the aforementioned

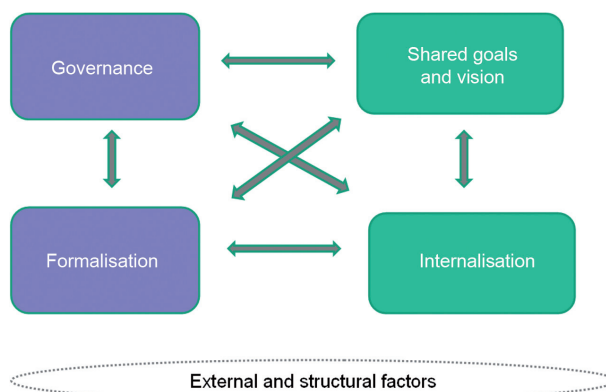


Figure 2. D'Amour's dimensions of collaboration between health professionals and organisations [13].

Table 1. Dimensions and corresponding indicators of the conceptual model used as a basis for the questionnaire.

	Dimensions	Indicators
Interpersonal relationships	Shared goals and vision	Shared goals
	Internalisation	Patient-centred orientation
		Mutual acquaintanceship
Organisational setting	Governance	Trust
		Centrality
		Leadership
	Formalisation	Support for innovation
		Connectivity
		Formalisation tools
		Information exchange

indicators. Response options for each item consisted of a 5-point Likert scale, where one corresponded to none and five to a high degree of development. Initially only these extreme ratings were anchored by descriptive phrases.

Validation of the content

The initial version of the questionnaire was sent for consultation to five Spanish experts in care integration identified by consensus among the authors, as well as to the developer of the conceptual model behind it, the Canadian Danielle D'Amour. Their comments led to modifications both in content and format, though the 10-item structure and the 5-point Likert scale were maintained. Specifically, the wording of the items and of the response options was changed, in order to more clearly limit the scope of each item to a single aspect of interprofessional collaboration. Moreover, a description of the degree of development corresponding to the mid-point of the scale (3 on the Likert scale) was added.

Pre-testing

The following phase was to pre-test the questionnaire in three healthcare organisations in the Basque health service, with the purpose of assessing its intelligibility, clarity and relevance, as well as the time required to complete it. A total of 24 clinical professionals (doctors and nurses) gave their opinion on the intelligibility, clarity, and relevance of the items and the response options, some in a face-to-face meeting and others in writing. Their views enabled the authors to fine-tune the instrument: 1) the wording of the second item was slightly changed; 2) implied value judgements, which could potentially bias responses, were eliminated from the items and response options; 3) extra descriptions were added for response options so that, in the end, descriptive phrases for all five points on the Likert scale were provided; and 4) modifications were made to move, as far as possible, towards a uniform style for all items and

response options. As a result, a new—final—version of the questionnaire was elaborated, which is provided in the [Appendix](#) (original version in Spanish). For an international audience, a direct translation of the questionnaire into English is also included in [Appendix](#).

Evaluation of the construct validity and homogeneity

The last phase of the process consisted on assessing the construct validity and homogeneity of the items in the final version of the instrument.

Sample

The sample comprised 187 clinical professionals (doctors and nurses) working in three integrated healthcare organisations in the Basque Health Service ('Goierri-Alto Urola', 'Alto Deba' and 'Bajo Deba'). Regarding the characteristics of the professionals in the sample: 43% were primary care nurses, 31% primary care doctors (GP or paediatrician), 18.5% hospital specialists and 6% hospital nurses; their average age was 45 years (standard deviation: 8); and 23% were men.

Data collection

A link to an electronic version of the questionnaire was sent by e-mail, via the managerial team of each of the three integrated healthcare organisations involved in the validation, to all the doctors and nurses in their organisations (this included a total of 1166 professionals, of which 564 doctors and 602 nurses). This version was created using 'Google Docs' and could be completed online or directly from email. Responses were collected during February and March 2012.

Data analysis

On the one hand, to assess the construct validity of the Spanish version of the instrument, a first exploratory and then confirmatory factor analysis were conducted, with SPSS 15.0 and LISREL 8.80 software, respectively. Exploratory analysis was carried out using principal component analysis with a Promax type oblique rotation. Potential factors were assessed in the light of common objectives, namely that eigenvalues were >1 and explained more than 5% of the variance [14, 15]. The confirmatory factor analysis then served to assess the goodness-of-fit of the proposed conceptual structure, considering the data from the exploratory analysis and the original model. Given the ordinal nature of the data, this analysis was conducted using polychoric correlation and asymptotic variance-covariance matrices [16–19]. The goodness-of-fit was assessed using a weighted least squares approach, as suggested by Jöreskog for ordinal data [18]. The overall fit to the conceptual model was assessed using a set of indices [20, 21].

These indices are listed in Table 2, along with the corresponding threshold levels for a good fit.

On the other hand, to assess the reliability of the instrument, the homogeneity of the items was explored. For this, Cronbach’s α coefficient was calculated for the items comprising each factor as well as for all the items in the questionnaire. Further, adjusted item total score correlation coefficients were calculated. All this analysis was performed with SPSS 15.0 software.

Results

Both the Kaiser-Meyer-Olkin measure of sampling adequacy (0.916) and Bartlett’s test of sphericity ($p < 0.001$) confirmed a strong enough relationship between the items in the correlation matrix to justify factor analysis.

First, the exploratory analysis identified a component that explained 49.9% of the variance and provided evidence to support the idea that the instrument would be best represented by a two-factor structure. The eigenvalue of the second component was slightly less than but close to 1 (0.938) and explained 9.38% of the variance. The rotation to facilitate interpretation of the results was carried out with all items, given that the contribution of each of them to the instrument, as well as the loading, was higher than 0.4, in all factors [22]. After rotation, none of the items was eliminated, given that the differences in saturation between factors was higher than |0, 10| in all cases. Table 3 reports the final results after rotation.

Taking into account that the conceptual model underlying the instrument holds that there are two major dimensions within the concept of collaboration (personal relationships and the organisational setting), a confirmatory factor analysis was performed to test the two-factor structure of this theoretical model against the data.

The confirmatory factor analysis of the two-factor structure yielded values of 0.61 to 0.82 for the parameters, indicating the link between each item and its corresponding factor. The estimated values for each of the parameters and the corresponding standard errors

Table 2. Fit indices.

Fit indices		Threshold for a good fit	Values obtained
Pearson’s Chi-square	χ^2	$p > 0.05$	$p = 0.089$
Root mean square error of approximation	RMSEA	< 0.08	0.043
Standardized root mean square residual	SRMR	< 0.08	0.046
Goodness of fit index	GFI	> 0.90	0.92
Comparative fit index	CFI	> 0.90	0.99

Table 3. Matrix with final exploratory factor analysis.

Items	Factor 1	Factor 2
Item 1. Shared goals	0.566	0.257
Item 2. Patient-centered approach	0.876	-0.104
Item 3. Mutual knowledge	0.811	0.006
Item 4. Trust	0.882	-0.132
Item 5. Strategic guidelines	0.260	0.610
Item 6. Shared leadership	0.141	0.605
Item 7. Support for innovation	-0.260	0.944
Item 8. Forums for meeting	0.323	0.453
Item 9. Protocolisation	-0.010	0.795
Item 10. Information systems	0.462	0.309

(between 0.33 and 0.63) are shown on Figure 3 for each of the ten items on the questionnaire. The results of the confirmatory factor analysis also show that the coefficients of determination (R^2) for all 10 items vary in a range between 0.37 and 0.67. These coefficients represent the percentage of the systemic variance of each item explained by the model.

As shown in Figure 3, there is high correlation (88% of the maximum possible correlation) between the two factors of the model.

Regarding internal consistency, a Cronbach’s α coefficient of 0.866 for the 10 items was obtained, and, per factor, of 0.813 for the personal relationships dimension and 0.825 for the organisational setting dimension. The adjusted item total score correlation coefficients

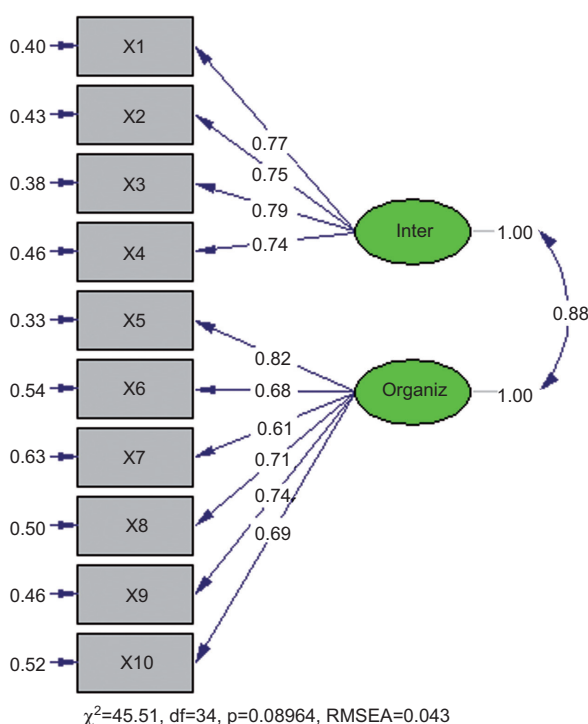


Figure 3. Results of the confirmatory factor analysis.

ranged from 0.548 to 0.676. Table 4 reports the results of this analysis in more detail.

Discussion

Having first selected a theoretical model to conceptualise the phenomenon of collaboration between professionals at different levels of care and converted the ten indicators proposed by the developer of the model [13] into items, the validation of the content and pre-test of the questionnaire were carried out. Fine tuning of the questionnaire was based on feedback from a group of experts, including the developer of the conceptual model, and from a group of clinical professionals who assessed the first version, as for the suitability of the content from a theoretical point of view, as well as the clarity, relevance and intelligibility of the items that make up the questionnaire.

Results of the analysis of the construct validity, during the validation phase, indicate that there is a good match between the instrument and the underlying conceptual model. Specifically, confirmatory factor analysis, following exploratory analysis to identify potential factors, shows that the questionnaire developed has a two-factor structure, reflecting the conceptual model on which it was based. The fit indices support this assertion. This conceptual structure proposes that there are two aspects or main dimensions of collaboration: one related to interpersonal relationships between professionals and the other to characteristics of the organisational environment. The personal relationships dimension is related to the existence of shared goals, a patient-centred focus, mutual knowledge and trust, while the organisational setting dimension refers to the degree of centrality, leadership, connectivity, support for innovation, formalisation tools and information exchange. Five of the ten estimated parameters for the items had significance values of <0.05 and the other five values <0.10, reflecting the strength of the association between the items and the corresponding dimension.

Table 4. Adjusted item-total score correlation coefficients.

	Adjusted item-total score correlation coefficients
Shared goals	0.612
Patient-centred approach	0.648
Mutual knowledge	0.651
Trust	0.625
Strategic guidelines	0.676
Shared leadership	0.569
Support for innovation	0.548
Forums for meeting	0.572
Protocolisation	0.648
Information systems	0.562

The fact that, on the one hand, the indices show an adequate adjustment to the bi-factorial structure, and on the other hand, there is a conceptual meaning to the two main factors (an interpersonal and an organisational dimension), has been decisive for keeping the two factors, despite the high correlation between them.

Further, the results indicate that the questionnaire has good homogeneity. In particular, the Cronbach α coefficients were over 0.80, exceeding the threshold of 0.70 proposed by Nunnally [23]. On the basis of these values, it can be stated that 88.6% of the variance is systematic, that is, this percentage of the variance represents the actual differences between individuals in terms of their perception of the degree of collaboration, while the rest (11.4%) is attributable to random variations [14, 24, 25].

As for the adjusted item-total score correlation coefficients, reflecting the contribution of each item to the total score, the values were considerably over the 0.3 threshold established by Ebel and Frisbie for this type of correlation [26]. Specifically, the coefficients were higher than 0.5 for all of the items, more than half of them (6/10) being higher than 0.6.

It should be noted, that the reliability of a measure is not a property of an instrument itself, but rather of an instrument administered in a specific sample under certain conditions [25], in our case, a group of doctors and nurses in three integrated healthcare organisations in the public Basque Health Service. Accordingly, it is proposed that the two-factor structure is further tested in other studies using different samples. Further, to be able to generalise the results, it would be interesting for the overall psychometric properties of the instrument to be assessed using samples from other groups of healthcare professionals and organisational contexts. In addition, it would be interesting to validate a translated version of this Spanish questionnaire.

Among the methodological limitations of this analysis, one could mention the fact that the same data set was used both for the exploratory and for the confirmatory factor analysis. In addition, this study analysed the internal consistency and homogeneity of the developed instrument, but other psychometric properties, such as stability (through, for example, a test-retest) or convergent validity, were not tested.

Conclusion

As the end-product of this project, a Spanish version of a questionnaire to measure interprofessional collaboration between clinical professionals at different levels of care (primary and specialised care), based on

the conceptual model developed by D'Amour and colleagues [27], has been produced. This questionnaire can be considered to have good validity to measure degree of collaboration between clinical professionals from different care levels. The various types of analysis undertaken indicate that the instrument has a two-factor structure, in which collaboration is understood to involve characteristics of the interpersonal relationships between professionals and of organisations themselves. The questionnaire has also been shown to have good internal consistency and homogeneity in the group of doctors and nurses from three integrated healthcare organisations of the Basque health service, where it was administered.

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Appendix

Appendix 1: Questionnaire—Spanish version

Cuestionario de valoración de la colaboración entre profesionales clínicos de distintos niveles de atención

	1	2	3	4	5
1. OBJETIVOS COMUNES. La existencia de objetivos comunes explícitos facilita la colaboración y coordinación entre Atención Primaria y Especializada. Valora del 1 al 5 la situación de este aspecto en tu organización con respecto al otro nivel asistencial de referencia:	Ausencia de objetivos comunes	Existencia de escasos objetivos comunes	Existencia de algunos objetivos comunes	Existencia de bastantes objetivos comunes	Objetivos comunes y consensuados que abarcan de forma amplia todos los aspectos asistenciales
2. ORIENTACIÓN AL PACIENTE. Una consideración prioritaria y explícita de los intereses y preferencias de los pacientes en las interrelaciones entre niveles asistenciales, favorece la colaboración y coordinación entre los profesionales de dichos niveles. Puntúa del 1 al 5 la situación en este aspecto:	Los intereses y preferencias de los pacientes no se tienen en cuenta en las interrelaciones entre niveles asistenciales	Los intereses y preferencias de los pacientes se tienen en cuenta poco en las interrelaciones entre niveles asistenciales	Los intereses y preferencias de los pacientes se tienen en cuenta a veces en las interrelaciones entre niveles asistenciales	Los intereses y preferencias de los pacientes se tienen en cuenta siempre en las interrelaciones entre niveles asistenciales	Los intereses y preferencias de los pacientes se tienen en cuenta siempre en las interrelaciones entre niveles asistenciales
3. CONOCIMIENTO MUTUO. El conocimiento profesional mutuo acerca del enfoque asistencial, de los valores y las competencias específicas, así como del medio en el que cada profesional desarrolla su trabajo influye a la hora de poder desarrollar un espíritu de equipo y un trabajo colaborativo. El conocimiento personal también resulta de ayuda. Valora del 1 al 5 la situación de este aspecto en tu organización con respecto al otro nivel asistencial de referencia:	Ausencia de conocimiento del otro nivel asistencial	Escaso conocimiento del otro nivel asistencial	Algún conocimiento del otro nivel asistencial	Buen conocimiento del otro nivel asistencial	Excelente conocimiento del otro nivel asistencial
4. CONFIANZA. La confianza mutua permite la colaboración interprofesional, reduce la incertidumbre y contribuye a la generación de redes de profesionales multidisciplinarios orientadas a las necesidades del paciente. Puntúa del 1 al 5 la situación de este aspecto en tu organización con respecto al otro nivel asistencial de referencia:	Ausencia de confianza	El nivel de confianza es bajo	El nivel de confianza es medio	El nivel de confianza es alto	El nivel de confianza es muy alto
5. DIRECTRICES ESTRATÉGICAS. En el ámbito de la coordinación y colaboración entre profesionales de uno y otro nivel influye el que desde la Autoridad Sanitaria correspondiente se transmitan directrices que fomenten el trabajo colaborativo entre los profesionales de los dos niveles. Puntúa del 1 al 5 la situación en este aspecto:	Ausencia de directrices orientadas a la colaboración entre niveles	Escasas directrices orientadas a la colaboración entre niveles	Algunas directrices orientadas a la colaboración entre niveles	Bastantes directrices orientadas a la colaboración entre niveles	Directrices y estrategias explícitas favorecedoras de la colaboración en todos los ámbitos

(Appendix 1 Continued)

<p>6. LIDERAZGO COMPARTIDO. El liderazgo compartido por gestores y clínicos a nivel local permite desarrollar la colaboración interprofesional y entre organizaciones. Puntúa del 1 al 5 la situación de este aspecto en tu organización:</p>	1	Ausencia de liderazgo compartido	2	Escasos ámbitos de liderazgo compartido	3	Algunos ámbitos de liderazgo compartido	4	Bastantes ámbitos de liderazgo compartido	5	Liderazgo compartido y que impulsa la colaboración en todos los ámbitos
	1	Nulo apoyo a la innovación	2	Poco apoyo a la innovación	3	Existe algo de apoyo a la innovación	4	Existe bastante apoyo a la innovación	5	Existe mucho apoyo a la innovación
<p>7. APOYO A LA INNOVACIÓN. La colaboración supone cambios en la práctica clínica y en el reparto de responsabilidades tanto para los profesionales de Atención Primaria como los de Atención Especializada. Estos cambios implican innovaciones que pueden ser o no apoyadas por tu organización. Puntúa del 1 al 5 la situación de este aspecto en tu organización:</p>	1	Profesionales aislados sin espacios de encuentro	2	Escasos espacios para el encuentro	3	Algunos espacios para el encuentro	4	Bastantes espacios para el encuentro	5	Muchos espacios para el encuentro
	1	Ausencia de mecanismos	2	Pocos mecanismos	3	Algunos mecanismos	4	Bastantes mecanismos	5	Existencia de una sistemática de generación de acuerdos
<p>8. ESPACIOS DE ENCUENTRO. Para que los profesionales de AP y especializada puedan colaborar, se necesitan espacios, canales y actuaciones que permitan el contacto, el debate y el establecimiento de vínculos y compromisos entre ellos. Puntúa del 1 al 5 la situación en este aspecto:</p>	1	No se dispone de la información relevante procedente del otro nivel.	2	Se dispone de escasa información relevante del otro nivel.	3	Se dispone de alguna información relevante del otro nivel.	4	Se dispone de bastante información relevante del otro nivel.	5	Se dispone de toda la información relevante del otro nivel.
	1	No se dispone de la información relevante procedente del otro nivel.	2	Se dispone de escasa información relevante del otro nivel.	3	Se dispone de alguna información relevante del otro nivel.	4	Se dispone de bastante información relevante del otro nivel.	5	Se dispone de toda la información relevante del otro nivel.
<p>9. PROTOCOLIZACIÓN. La protocolización permite clarificar las responsabilidades de cada profesional y negociar el reparto de dichas responsabilidades. Existen muchos mecanismos para formalizar los acuerdos y pactos entre los profesionales de uno y otro nivel: protocolos, rutas asistenciales, sistemas de información, acuerdos interorganizaciones o entre unidades, etc. Valora del 1 al 5 si existen estos mecanismos:</p>	1	No se dispone de la información relevante procedente del otro nivel.	2	Se dispone de escasa información relevante del otro nivel.	3	Se dispone de alguna información relevante del otro nivel.	4	Se dispone de bastante información relevante del otro nivel.	5	Se dispone de toda la información relevante del otro nivel.
	1	No se dispone de la información relevante procedente del otro nivel.	2	Se dispone de escasa información relevante del otro nivel.	3	Se dispone de alguna información relevante del otro nivel.	4	Se dispone de bastante información relevante del otro nivel.	5	Se dispone de toda la información relevante del otro nivel.
<p>10. SISTEMA DE INFORMACIÓN. El intercambio efectivo de información de calidad entre profesionales es un elemento que facilita la colaboración y permite una mejor atención. Puntúa del 1 al 5 la situación de este aspecto en tu organización:</p>	1	No se dispone de la información relevante procedente del otro nivel.	2	Se dispone de escasa información relevante del otro nivel.	3	Se dispone de alguna información relevante del otro nivel.	4	Se dispone de bastante información relevante del otro nivel.	5	Se dispone de toda la información relevante del otro nivel.
	1	No se dispone de la información relevante procedente del otro nivel.	2	Se dispone de escasa información relevante del otro nivel.	3	Se dispone de alguna información relevante del otro nivel.	4	Se dispone de bastante información relevante del otro nivel.	5	Se dispone de toda la información relevante del otro nivel.

Appendix 2: Questionnaire—English translation

Questionnaire to assess interprofessional collaboration between two different care levels

	1	2	3	4	5
1. SHARED GOALS. The existence of explicit shared goals facilitates collaboration and coordination between primary and specialised care. Please rate the current situation in your organisation with respect to the other level of care on a scale of 1 to 5.	Lack of shared goals	Few shared goals	Some shared goals	A considerable number of shared goals	All aspects of care are covered by shared and consensual goals
	1	2	3	4	5
2. PATIENT-CENTRED APPROACH. Explicitly giving priority to the interests and preferences of patients in the interaction between levels of care favours collaboration and coordination between professionals working in the different levels. Please rate the current situation on a scale of 1 to 5.	In the interaction between levels of care, the interests and preferences of patients are not taken into account	In the interaction between levels of care, the interests and preferences of patients are taken into account on few occasions	In the interaction between levels of care, the interests and preferences of patients are sometimes taken into account	In the interaction between levels of care, the interests and preferences of patients are often taken into account	In the interaction between levels of care, the interests and preferences of patients are always taken into account
	1	2	3	4	5
3. MUTUAL KNOWLEDGE. Knowledge between professionals of each other's values, specific competences and focus with respect to care, as well as of the environment in which each other work, has an impact on the development of team spirit and collaborative work. Knowing colleagues personally is also helpful. Please rate the current situation in your organisation with respect to the other level of care on a scale of 1 to 5.	Lack of knowledge of the other level of care	Little knowledge of the other level of care	Moderate knowledge of the other level of care	Good knowledge of the other level of care	Excellent knowledge of the other level of care
	1	2	3	4	5
4. TRUST. Mutual trust makes interprofessional collaboration possible, reduces uncertainty and contributes to the formation of networks of multidisciplinary professionals focused on the needs of patients. Please rate the current situation in your organisation with respect to the other level of care on a scale of 1 to 5.	Lack of trust	Low level of trust	Moderate level of trust	High level of trust	Very high level of trust
	1	2	3	4	5
5. STRATEGIC GUIDELINES. The existence of guidelines, issued by the corresponding Health Authority, that promote collaborative work between professionals from different levels of care, influences on the coordination and collaboration between professionals of both care levels. Please rate the current situation on a scale of 1 to 5.	Lack of guidelines related to collaboration between levels of care	Few guidelines related to collaboration between levels of care	Some guidelines related to collaboration between levels of care	A considerable number of guidelines related to collaboration between levels of care	Explicit guidelines and strategies promote collaboration in all areas
	1	2	3	4	5
6. SHARED LEADERSHIP. Shared leadership between managers and clinicians at a local level allows for the development of collaboration between professionals and organisations. Please rate the current situation in your organisation on a scale of 1 to 5.	No shared leadership	Leadership is shared in few areas	Leadership is shared in some areas	Leadership is shared in a considerable number of areas	Leadership is extensively shared and promotes collaboration in all areas
	1	2	3	4	5

(Appendix 2 Continued)

7. SUPPORT FOR INNOVATION. Collaboration requires changes in clinical practice and in the distribution of responsibilities for both primary and specialised care professionals. Such changes require innovation that may or may not be supported by your organisation. Please rate the current situation in your organisation on a scale of 1 to 5:	1	2	3	4	5
	No support for innovation	Little support for innovation	Some support for innovation	A considerable level of support for innovation	Strong support for innovation
8. FORUMS FOR MEETING. For professionals of primary and specialised care to collaborate, they need forums, channels of communication and activities that enable them to come into contact with one another, discuss shared issues and establish links and agreements. Please rate the current situation on a scale of 1 to 5:	1	2	3	4	5
	Professionals are isolated and there are no forums for meeting	Few forums for meeting	Some forums for meeting	A considerable number of forums for meeting	Many forums for meeting
9. PROTOCOLISATION. The preparation and establishment of protocols clarifies and makes it possible to negotiate how to share the responsibilities of each professional. Indeed, there are many mechanisms to formalise agreements and understandings between professionals in the two levels: care pathways, information systems, agreements between organisations or units, etc., as well as protocols. Please rate the current use of such mechanisms on a scale of 1 to 5:	1	2	3	4	5
	Lack of mechanisms in place	Few mechanisms in place	Some mechanisms in place	A considerable number of mechanisms in place	A systematic process is in place for establishing agreements
10. INFORMATION SYSTEMS. The effective exchange of high quality information between professionals is an element that facilitates collaboration and makes it possible to provide better care to patients. Please rate the current situation in your organisation on a scale of 1 to 5:	1	2	3	4	5
	Relevant information from the other level of care is not available	Little relevant information from the other level of care is available	Some relevant information from the other level of care is available	A considerable amount of relevant information from the other level of care is available	All the relevant information from the other level of care is available