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Spanish Validation of the User Reported Measure of Care Coordination Questionnaire for Older People with Complex, Chronic Conditions

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Abstract: Introduction: Older people with complex, chronic conditions often receive insufficient or inefficient care provision. And few instruments are able to measure their perception on care provision. The "User Reported Measure of Care Coordination" instrument has been satisfactorily used to evaluate chronic care provision and integration. The aim of this study is to validate this instrument into Spanish. **Methods:** The questionnaire was adapted and validate in two phases: translation and cultural adaptation of the questionnaire, and psychometric property measurement. Study population were chronic care conditions patients. **Results:** A total of 332 participants completed test re-test as part of the questionnaire validation process. The final version of the questionnaire had 6 domains: *Health and Well-being* (D1), *Health day to day* (D2), *Social Services* (D3), *Planned Care* (D4), *Urgent Care* (D5) and *Hospital Care* (D6). Cronbach's alpha for the overall questionnaire was 0.86, indicating good internal consistency. When analysing each domain, only Planned Care (D4) and Urgent Care (D5) had Cronbach's Alphas slightly lower than 0.7, although this could be related to the low number of items in each domain. A good temporal stability was observed for the distinct subscales and items, with intraclass correlation coefficients varying from 0.412 to 0.929 ($p < 0.05$). **Conclusion:** The adapted version of the "User Reported Measure of Care Coordination" into Spanish proved to be a practical tool for use in our daily practice and an efficient instrument for assessment of care coordination in chronic, complex conditions in older people across services and levels of care.

Keywords: Integrated Care; Social Care; Health Care; Older People; Comorbidity; Person Centered Care

1. INTRODUCTION

Healthcare provision to aging populations in the current economic slowdown represents a considerable challenge for major European countries, especially when readdressing policies to cover new demands related to health and social needs [1]. People with complex, chronic conditions often receive inadequate care due to poor coordination between health and social care providers [2]. This situation is even worse when dealing with people older than 65 years. Inefficient coordination it is a severe limitation when trying to achieve the triple aim of optimizing health system performance: improvement of health outcomes, the patient's experience and care cost-effectiveness [3,4].

Many integrated care initiatives responding to multiple health and social care needs have been introduced in European health systems in a variety of contexts [5,6]. Some countries, such as The Netherlands, Germany or Austria have already worked to improve care coordination since the early 2000's [2]. The United Kingdom, with extensive experience working towards integration of care, has also developed and evaluated different potential plans to improve chronic care [7,8]. In Spain, with numerous actions undertaken and a variety of state-wide and regional strategies targeting different chronic conditions [9,10]. However, the impact of these strategies has hardly been evaluated, with some exceptions, such as the strategy deployed in the Basque Country [11] or the regional implementation carried out in Spain, Norway and Greece in the context of the NEXES project (Integrated Care Services supported by Information Technologies for chronic patients with obstructive pulmonary disease, cardiac failure and/or type II diabetes mellitus [12]).

Despite the implementation of healthcare policies and the great commitment of professionals, there are still significant weaknesses in our healthcare system as it stands: organizational and economic fragmentation between different levels of care, lack of integration between social services and healthcare, lack of coordination with family associations, and long waiting lists for diagnostic and surgical procedures.

In the region of Catalonia, Spain, the Government is already working on a new personalized model based on Person Centered Care called Interdepartmental Plan for Social and Healthcare Interaction (PIAISS) 2017-2020 [13]. This new framework contributes to the development of new strategies to improve care integration. Instruments such as the one developed by Nuño-Solinís et al. [9] have shown very good ease-of-use in daily practice but its application is limited to the organizational level. We need new instruments to measure care coordination across all levels of care, principally when registering the perspectives of the populations [14]. Through this approach, we aim to measure the impact on the health of the population. Moreover, understanding patients' experiences is a good way to determine whether our strategies meet the expectations of populations in care coordination for chronic, complex conditions [15].

The User Reported Measure of Care Coordination questionnaire [16] is a tool developed and validated in the United Kingdom to measure the experiences of patients accessing care across organizational and professional boundaries. This tool has the potential to identify weaknesses with the goal of improving care coordination in line with the expectations of the population. The survey provides some information about how well services support patients and help users to achieve their own life goals. This instrument allows evaluation of the provision of care as well the effectiveness of future interventions for care coordination. The questionnaire consists of 46 items, divided into 7 domains: Health and well-being (D1), Health day to day (D2), Social Services (D3), Planned Care (D4), Urgent access to healthcare (D5), Hospital care (D6), and Self-information (D7). The results are expressed in a single overall numeric variable (0-100) that is expressed as a continuous variable, in which the patients with higher scores have a more positive perception.

The aim of this study is the translation and cross-cultural adaptation of the questionnaire User Reported Measure of Care Coordination, and the analysis of its psychometric properties.

2. METHODS

2.1 Design

Adaptation and validation of the questionnaire were conducted through a descriptive cross-sectional study. This was carried out in two phases: an initial phase in which the translation and cultural adaptation of the questionnaire was performed and a second phase in which the behaviour of its psychometric properties were measured. All research procedures used in this study were established in accordance with the Declaration of Helsinki, participants gave their signed informed consent and the study was approved by the Ethics Committee at Hospital Clinic, Barcelona (HCB /2017/ 0731).

2.2. Translation and cultural adaptation of the questionnaire

Authorization to translate the questionnaire was obtained from the copyright holders. The transcultural adaptation of the questionnaire was performed following the structured procedure described by Beaton et al. [17]. Two translations of the questionnaire from English to Spanish were done by 2 healthcare professionals working separately. A single, consolidated version of both questionnaires was then produced. This version was then back-translated into English by 2 qualified translators. Finally, both versions in English (the original version and the back-translation) were compared and found to contain no significant differences.

Content validity was performed on the pre-final version of the questionnaire by a panel of 8 expert judges, including 2 nurses and 1 physician from a primary care center, 2 social workers from social services and 1 nurse, 1 physician and 1 social worker from a tertiary hospital. Criteria for the selection of the experts were: a) experience in evidence-based judgement and evidence-based decision-making (research, publications and experience); b) availability and motivation to participate, and c) impartiality. Members of the panel of experts were asked to conduct a qualitative evaluation of every item (degree of understanding, agreement with the text), and were also asked to conduct a quantitative assessment of each item following these criteria: 1) competence (items belong to theoretical established factors); 2) clarity (item is easily understood, its semantics and syntactics are suitable); 3) coherence (item is related to the factor being measured), and 4) relevance (item is essential and has to be included). Each point assessed for each item was quantified on a Likert- type scale of 3 points: (1: Agree; 2: Neither agree nor disagree; 3: Disagree). This was done in two rounds by email. In the first round, all suggestions were added to the pre-final version and the second was performed to obtain agreement among all the experts. None of the items was eliminated at this stage. Some items were adapted to our specific context and some response categories were combined from the experts' group discussion. The self-information domain (D7) was removed from the validation process, considering that this was part of the sociodemographic data and it could not be measured. Finally, the remaining 38 items were divided into 6 domains: Health and Well-being (D1) consisting of 6 items, Health Day to Day (D2) consisting of 14 items, Social Services (D3) consisting of 3 items, Planned Care (D4) consisting of 5 items, Urgent Care (D5) consisting of 3 items, and Hospital Care (D6) consisting of 7 items. Scored items were created by converting the individual responses to questions into scores on a scale of 0 to 100, where a score of 100 represents the best possible response and a score of 0 represents the worst possible response. Where response options were provided that do not have any bearing on performance in terms of patient experience (such as the 'Don't know / Can't remember' option), the responses were classified as "not applicable" and no score was given. Questions without answers were not considered too. In order to compute the score for domains, a numeric value (0–100) was also established for each domain. According to this method, at least 2 questions should be answered in the *Social Services* (D3), *Planned Care* (D4) and *Urgent Care* (D5) domains, at least 4 questions in the *Health and Well-being* (D1) and *Hospital Care* (D6) domains and at least 10 questions in the *Health day to day* (D2) domain. Again, higher scores mean better perception.

In order to check viability in daily practice we conducted a pilot test administering the questionnaire to a sample of 18 patients. Patients answered the overall questionnaire and were asked

to review the items, identifying words or concepts they did not understand. No relevant modifications were made.

2.3. Psychometric properties

Sample recruitment was tailored to the characteristics of the original sample used by Crump et al. 2017 in the development and validation of the original questionnaire. In order to ensure a representative sample, registered nurses from across Catalonia were involved in the collection of data. As Catalonia is divided into 9 health management areas, nurses from the different areas were selected pro rata. Participation was voluntary, commitment to complete the recruitment process was required and each nurse had to include a minimum of 5 participants. The final group of 40 experienced registered nurses working in different primary care centers received specific training and guidelines on eligibility criteria, guidelines for clinical tests and instructions for the administration of the questionnaire. Sample size was calculated following the criteria established by Kline et al. 2010 [18], which recommend a ratio of 5–10 subjects per item. The participants were selected for convenience in accordance with the following inclusion and exclusion criteria:

Inclusion criteria: people older than 65 years, multimorbidity according to Complex Chronic Patient (PCC) (Patient with multimorbidity or unique condition difficult to manage) criteria or Advanced Chronic Illness (limited prognosis, palliative orientation, advanced decisions planned), understanding oral and written Spanish, provision of signed informed consent. *Exclusion criteria:* people living in long-term care institutions were excluded.

The registered nurses recruited participants during a routine encounter at the health care centre or during a home visit. All study participants signed informed consent and the implications of participating in the study were explained through an information sheet.

Data analysis was performed using the R statistical software package V.3.5.0 for Windows. Descriptive statistics of the quantitative variables are presented as mean and standard deviation. Categorical variables were described according to their frequency. The descriptive analysis on the scores obtained in each domain is presented with the mean and standard deviation.

The intraclass correlation coefficient (ICC) was used to study test-retest reliability of each item between two similar assessments with an interval of 7–10 days between measurements.

The internal consistency of the questionnaire was evaluated using Cronbach's alpha, which was considered acceptable if the value was greater than 0.7. Correlations between the different items and domains were studied using the Spearman correlation coefficient, assuming that the various domains gather distinct information with moderate-low correlation coefficients. Correlation was considered weak when the r value was less than 0.3, moderate between 0.3 and 0.6, and strong when greater than 0.6. A p value ≤ 0.05 was considered significant.

3. Results

3.1. Patient demographics

A total of 332 patients across Catalonia completed the study. The characteristics of these participants are shown in Table 1. The mean age of the study population was 82.1 ± 8.0 years and 204 (56.4%) participants were women. From the overall sample, 269 (74.3%) participants lived with a family member and 13 (3.6%) with some other carer such as a friend or neighbour. The rest of the participants lived alone. Only 6 participants (1.7%) described their health status as excellent, 75 (20.7%) said it was good, 198 (54.7%) participants defined it as regular and 83 (22.9%) described it as bad. From the overall sample, 247 (68.2%) participants did not have any help or additional assistance from a private service or institution for their daily care. The most prevalent health problems in our study sample were hypertension (79%), cardiac diseases (51.4%), diabetes (45.4%), and arthrosis or arthritis (15.7%).

194

Table 1. Sample characteristics (n = 362).

Variable	
Area	
0	121 (33.4%)
1	21 (5.8%)
2	38 (10.5%)
3	70 (19.3%)
4	20 (5.5%)
5	26 (7.2%)
6	26 (7.2%)
7	40 (11%)
Sex (female)	204 (56.4%)
Who they live with	
Alone	80 (22.1%)
With a family member	269 (74.3%)
Other	13 (3.6%)
Age (years), mean ± SD	82.1 ± 8.0
Person who answered the questionnaire	
The person for whom it is intended	138 (38.1%)
A friend or relative of the person for whom it is intended	86 (23.8%)
The person for whom it is intended and the friend or relative.	79 (21.8%)
The person for whom it is intended with the help of a healthcare professional	59 (16.3%)
Extra help or attention from a private service or institution	
Yes, I pay for other services with my money	76 (21%)
Yes, my family pays for extra help for my care	39 (10.8%)
No	247 (68.2%)
In general, how you describe your state of health	
Excellent	6 (1.7%)
Good	75 (20.7%)
Normal	198 (54.7%)
Poor	83 (22.9%)
Illnesses or health problems	
Hypertension	268 (74%)
Diabetes	164 (45.4%)
Heart failure or other heart problems	186 (51.4%)
Renal failure or other kidney problems	129 (35.6%)
Dementia or cognitive impairment	92 (25.4%)
Others	204 (56.4%)
Osteoarthritis	39 (10.8%)
COPD	36 (9.9%)
Osteoporosis	23 (6.4%)
Hypercholesterolemia	22 (6.1%)

195

The data is shown as a number and a percentage (%) unless otherwise indicated.

196

3.2. Descriptive analysis

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All questions were answered by the patients that participated at the study except those Conditional questions that could be skipped depending on previous answers. *Table 2* shows the frequency distribution of the different questionnaire items. If we look at the non-response pattern for the items answered in the questionnaire, *Health and Well-being* (D1), *Health day to day* (D2) and *Urgent Care* (D5) had practically 99.7% of the items answered. Only in *Health Day to Day* (D2) did we find an item that had a lower score (99.7%), and item (Q8) that was 90.9%. In *Social Services* (D3), *Planned Care* (D4) and *Hospital Care* (D6), there was a lower response rate as participants skipped some questions because they were not receiving this specific care. Therefore, the answer on the perception of Social Services, Planned Care and Hospital Care cannot be described from the population point of view.

Table 2. Frequencies of the categories for the items

Number of item	N	% of responses	1	2	3	4	5	6	7	8	9
D1. Your level of Health, Welfare and Autonomy											
P1 ⁽¹⁾	362	100	102 (28.2%)	50 (13.8%)	65 (18%)	126 (34.8%)	19 (5.2%)				
P2 ⁽²⁾	362	100	103 (28.5%)	125 (34.5%)	129 (35.6%)	5 (1.4%)					
P3 ⁽³⁾	362	100	244 (67.4%)	81 (22.4%)	34 (9.4%)	3 (0.8%)					
P4 ⁽⁴⁾	362	100	102 (28.2%)	168 (46.4%)	82 (22.7%)	10 (2.8%)					
P5 ⁽⁵⁾	362	100	138 (38.1%)	132 (36.5%)	49 (13.5%)	43 (11.9%)					
P6 ⁽⁵⁾	362	100	90 (24.9%)	117 (32.3%)	98 (27.1%)	57 (15.7%)					
D2. Monitoring Your Health											
P7 ⁽⁶⁾	362	100	158 (43.7%)	125 (34.6%)	18 (5.1%)	11 (3.1%)	29 (8%)	77 (21.3%)	10 (2.8%)		
P8 ⁽⁴⁾	329	90.9	206 (62.6%)	107 (32.5%)	14 (4.3%)	2 (0.6%)					
P9 ⁽⁷⁾	361	99.7	259 (71.7%)	78 (21.6%)	18 (5%)	6 (1.7%)					
P10 ⁽⁴⁾	361	99.7	238 (65.9%)	94 (26%)	27 (7.5%)	2 (0.6%)					
P11 ⁽⁸⁾	362	100	45 (12.4%)	261 (72.1%)	56 (15.5%)						
P12 ⁽⁹⁾	362	100	29 (8%)	129 (35.6%)	140 (38.7%)	64 (17.7%)					
P13 ⁽⁵⁾	362	100	179 (49.4%)	134 (37%)	33 (9.1%)	16 (4.4%)					
P14 ⁽¹⁰⁾	362	100	26 (7.2%)	113 (31.2%)	204 (56.4%)	19 (5.2%)					
P15 ⁽⁷⁾	362	100	185 (51.1%)	133 (36.7%)	30 (8.3%)	14 (3.9%)					
P16 ⁽⁴⁾	362	100	167 (46.1%)	155 (42.8%)	32 (8.8%)	8 (2.2%)					
P17 ⁽⁴⁾	362	100	186 (51.4%)	142 (39.2%)	31 (8.6%)	3 (0.8%)					
P18 ⁽¹¹⁾	362	100	253 (69.9%)	64 (17.7%)	21 (5.8%)	9 (2.5%)	14 (3.9%)	1 (0.3%)			
P19 ⁽¹²⁾	361	99.7	141 (39.1%)	117 (32.4%)	42 (11.6%)	29 (8%)	32 (8.9%)				
P20 ⁽⁵⁾	362	100	103 (28.5%)	133 (36.7%)	85 (23.5%)	41 (11.3%)					
D3. Social Services											
P21 ⁽¹³⁾	362	100	118 (32.6%)	244 (67.4%)							
P22 ⁽¹⁴⁾	118	32.6	58 (49.2%)	6 (5.1%)	46 (39%)	8 (6.8%)					
P23 ⁽¹⁵⁾	118	32.6	60 (50.8%)	28 (23.7%)	21 (17.8%)	1 (0.8%)	8 (6.8%)				
D4. Treatment Plan											
P24 ⁽¹⁶⁾	362	100	93 (25.7%)	181 (50%)	88 (24.3%)						
P25 ⁽⁴⁾	93	25.7	48 (51.6%)	40 (43%)	4 (4.3%)	1 (1.1%)					
P26 ⁽⁴⁾	93	25.7	35 (37.6%)	52 (55.9%)	6 (6.5%)						
P27 ⁽⁵⁾	174	48.1	51 (29.3%)	67 (38.5%)	10 (5.7%)	46 (26.4%)					
P28 ⁽⁴⁾	360	99.4	187 (51.9%)	104 (28.9%)	36 (10%)	33 (9.2%)					
D5. Emergency Treatment											
P29 ⁽⁴⁾	362	100	165 (45.6%)	161 (44.5%)	31 (8.6%)	5 (1.4%)					
P30 ⁽⁵⁾	362	100	191 (52.8%)	119 (32.9%)	27 (7.5%)	25 (6.9%)					
P31 ⁽¹⁷⁾	362	100	238 (65.7%)	16 (4.4%)	46 (12.7%)	8 (2.2%)	0	28 (7.7%)	16(4.5%)	6 (1.7%)	4 (1.1%)
D6. Hospital Care											

P32 ⁽¹³⁾	362	100	177 (48.9%)	185 (51.1%)			
P33 ⁽¹⁸⁾	177	48.9	69 (39%)	56 (31.6%)	23 (13%)	18 (10.2%)	11 (6.2%)
P34 ⁽⁴⁾	177	48.9	65 (36.7%)	63 (35.6%)	34 (19.2%)	15 (8.5%)	
P35 ⁽⁴⁾	177	48.9	67 (37.9%)	57 (32.2%)	41 (23.2%)	12 (6.8%)	
P36 ⁽¹⁹⁾	177	48.9	34 (19.2%)	130 (73.4%)	1 (0.6%)	12 (6.8%)	
P37 ⁽²⁰⁾	177	48.9	79 (44.6%)	65 (36.7%)	33 (18.6%)		
P38 ⁽¹⁸⁾	79	21.8	37 (46.8%)	33 (41.8%)	2 (2.5%)	2 (2.5%)	5 (6.3%)

- Some 15% of respondents took question P7 to be a multiple-choice question.
- ¹ 1) Yes, the person who helps me lives with me; 2) Yes, the person who helps me doesn't live with me; 3) Yes, the person who lives with me helps me as much as individuals who don't live with me; 4) I don't need help; 5) I need help, but I don't receive help from anyone.
- ² 1) Yes, I can do all the important tasks for myself; 2) I have some difficulty in carrying out some important tasks; 3) I'm not able to carry out tasks which are important for me; 4) I don't know /I'm not sure .
- ³ 1) I stay in touch as much as I want with the people around me; 2) I have some contact with people, but not enough; 3) I have very little contact and I feel I somewhat lonely; 4) I have no contact with anyone. I feel completely alone.
- ⁴ 1) Yes, totally; 2) Yes, partially; 3) Disagree; 4) Completely disagree.
- ⁵ 1) Totally disagree; 2) Partially agree; 3) Disagree; 4) I'm not sure/ I disagree.
- ⁶ 1) Yes, the Primary Care Physician; 2) Yes, the Primary Care Nurse; 3) Yes, the Primary Care social worker; 4) If another healthcare professional, who?; 5) No, I do it myself; 6) No, a family member or care giver does it; 7) I don't know / I'm not sure .
- ⁷ 1) Yes, completely; 2) Yes, to some degree; 3) No; 4) I don't know / I'm not sure.
- ⁸ 1) Yes; 2) No; 3) I don't know / I'm not sure.
- ⁹ 1) Never work together; 2) They sometimes work together; 3) They always work together; 4) I don't know / I'm not sure .
- ¹⁰ 1) None of my needs have been assessed; 2) Some of my needs have been assessed; 3) All of my needs have been assessed; 4) I don't know / I'm not sure .
- ¹¹ 1) Yes, they are totally involved; 2) Yes, they are quite involved; 3) They are not sufficiently involved; 4) No, not at all involved; 5) There is no family member or care worker involved; 6) I don't want my family or a care worker to be involved.
- ¹² 1) Yes, they receive the help they need; 2) They get help, but not as much as they need; 3) No, they get little or no help; 4) They don't need / want help; 5) There's no family member or care worker involved.
- ¹³ 1) Yes; 2) No.
- ¹⁴ 1) Yes, the right frequency; 2) No, I need fewer visits; 3) No, I need more visits; 4) Not applicable .
- ¹⁵ 1) Yes, they last the right amount of time; 2) No, I need a little more time; 3) No, I need a lot more time; 4) No, I have longer than I need; 5) Not applicable
- ¹⁶ 1) Yes; 2) No; 3) I don't know / I can't remember
- ¹⁷ 1) A family member; 2) A friend or neighbour; 3) Yes, the Primary Care Nurse; 3) Yes, the Primary Care social worker; 4) Yes, another healthcare professional; 5) No, the Primary Care worker; 6) The emergency services (061); 7) Another healthcare professional (not on this list) who?; 8) Another person (not on this list); 9) I don't contact anyone

¹⁸ 1) Yes, totally; 2) Yes, partially; 3) Disagree; 4) Totally disagree; 5) I don't know

¹⁹ 1) Not sufficiently; 2) Sufficiently; 3) Too much; 4) They didn't provide me with any information

²⁰ 1) Yes; 2) No; 3) I don't know / I'm not sure

3.3. Psychometric properties

When calculating the scores, we left out 6 items (Q1, Q7, Q21, Q24, Q31 and Q32) because they were considered additional information questions only and could not be measured. Once these items were excluded from the analysis, the Cronbach's alpha for the overall questionnaire remained at 0.86, indicating good internal consistency. When analysing each domain, only Planned Care (D4) and Urgent Care (D5) had Cronbach's alphas slightly lower than 0.7, although this could be related to the low number of items in each domain. Furthermore, for Planned Care (D4), the Cronbach's alpha value suggested eliminating item Q28, moving internal consistency from 0.35 to 0.58. The internal consistency of each domain and correlations across domains are presented in *Table 3*. The scores calculated in each domain indicated moderate correlations between Health and Well-being (D1) and Health Day to Day (D2) with the subtraction of the domains. The remaining 4 domains were clearly divided into two blocks: Social Services (D3) with Planned Care (D4), and Urgent Care (D5) with Hospital Care (D6). Social Services (D3) and Planned Care (D4) were poorly correlated with Urgent Care (D5) and with Hospital Care (D6). *Table 4* represents the intraclass correlation coefficient (ICC) values for test-retest results. A good temporal stability was observed for the distinct subscales and items, with intraclass correlation coefficients varying from 0.412 to 0.929 ($p < 0.05$).

Table 3. Intercorrelation and internal consistency.

Dimensions	Dimensions						N	Mean (SD)	Cronbach's Alfa
	D1	D2	D3	D4	D5	D6			
Your level of Health, Welfare and Autonomy (D1)	1						342	62.4 (23.3)	0.73
Monitoring Your Health (D2)	0.528*	1					334	76.1 (16.6)	0.78
Social Services (D3)	0.312*	0.056	1				109	59.9 (42.0)	0.83
Treatment Plan (D4)	0.454*	0.283*	0.360*	1			91	74.7 (17.9)	0.58
Emergency Care (D5)	0.360*	0.462*	0.108	0.184	1		337	76.5 (23.8)	0.62
Hospital Care (D6)	0.347*	0.368*	-0.052	0.088	0.404*	1	174	67.6 (26.3)	0.77

In total, 9 items were excluded when calculating the scores for different dimensions. Items P1, P7, P21, P24, P31 and P32 were excluded as they were not considered appropriate for a score. The aforementioned questions did not evaluate performance, but rather the context or background information. Item P38 was also excluded due to a low response rate (21.8%) as well as item P8 since it directly depended on item 7 which was also excluded due to a low response rate. Finally, "Cronbach's Alpha if item deleted" suggested removing item P28, raising the score for internal consistency from 0.35 to 0.58. * Spearman correlation coefficients statistically significant at the 0.05 level. SD: Standard Deviation. Mean (SD) - TOTAL: 71.1 (16.3) Cronbach's Alfa (TOTAL) = 0.86. 24 items achieved one or more positive correlations greater than 0.4 with other items in the survey

Table 4. Test-retest reliability.

Item Number	N	ICC _{2,1}	P-value*
Your level of Health, Welfare and Autonomy			
P2	332	0.823	<0.001
P3	332	0.805	<0.001
P4	332	0.810	<0.001
P5	332	0.789	<0.001
P6	332	0.733	<0.001
Monitoring Your Health			
P9	330	0.778	<0.001
P10	330	0.622	<0.001

P11	332	0.698	<0.001
P12	332	0.635	<0.001
P13	332	0.655	<0.001
P14	332	0.412	<0.001
P15	332	0.751	<0.001
P16	332	0.750	<0.001
P17	332	0.758	<0.001
P18	332	0.644	<0.001
P19	331	0.741	<0.001
P20	332	0.691	<0.001
Social Services			
P22	97	0.910	<0.001
P23	97	0.913	<0.001
Treatment Plan			
P25	68	0.929	<0.001
P26	68	0.878	<0.001
P27	131	0.743	<0.001
Emergency Care			
P29	332	0.763	<0.001
P30	332	0.616	<0.001
Hospital care			
P33	153	0.734	<0.001
P34	153	0.821	<0.001
P35	153	0.841	<0.001
P36	153	0.803	<0.001
P37	151	0.829	<0.001

ICC_{2,1}: Intraclass Correlation Coefficient* A value of $p < 0.05$ indicates the temporal stability between two consecutive evaluations.

4. Discussion

In this study, we translated and validated the *User Reported Measured of Care Coordination* questionnaire into Spanish. This tool aims to capture the perceptions of older people with chronic complex conditions accessing care across organizational and professional boundaries, to identify facilitators and barriers to care coordination activities in our context.

Correlation analysis indicated, in one hand, moderate correlations between Health and Well-being (D1) and Health Day to Day (D2) with other domains and in the other hand, Social Services (D3) moderately correlated with Planned Care (D4) and Urgent Care (D5) moderately correlated with Hospital Care (D6). However, a high non-response rate was found in 3 specific domains; Social Services (D3), Planned Care (D4) and Hospital Care (D6), as these services had not recently been used by many participants in our study. The non-use of Hospital Care (D6) may be due to the health-related circumstances of each individual but access to Social Services (D3) or Planned Care (D4), considering their specific complexity very much influenced by the characteristics of healthcare and social care systems. Poor access to social services, mostly due to economic issues and system fragmentation, could directly affect the health status of the population [18]. A high percentage of the population are not aware of the existence of care planning [19]. The care plan should be a right of the population so that they can cope better with their chronic complex conditions and this could be ensured through a formal agreement with our patients [20]. Again, there was a high percentage of missing data when studying the temporal stability in Social Services (D3), Planned Care (D4) and Hospital Care (D6) domains, as described in the original article [16].

This instrument is adapted to our Spanish context following current policies to improve health and social care coordination with a variety of specific strategies across the country. Only a few European countries (e.g., Denmark, Portugal and Ireland) enjoy a system that integrates social and health care horizontally. In most countries (Austria, Belgium, Spain, Italy, United Kingdom, among

others), horizontal fragmentation between the social and health sectors accompanies a vertical division of responsibilities in which three levels of administration (national, regional and local) with different allocation of power [19, 20]. Thus, it is important to develop instruments to measure and improve coordination for each specific context [21]. Access, suitability and financial sustainability as measurement indicators related to care provision are available in most countries. The quality of care coordination in chronic, complex conditions, however, is a multidimensional phenomenon that is difficult to measure; sometimes the available data are only numeric measurements, and these do not cover the quality of care from population's point of view. It is, therefore, almost impossible to make comparisons between countries [22].

In terms of the care coordination process, the following factors appear to be important design features. At a personal level, a holistic focus that allows service users and carers to become more functional, independent and resilient, and to live well by managing conditions in the home environment. At a service level, it is important to encourage multiple referrals to a single-entry point where care coordination can be supported. At a community level, the role of members of the local community should be seen as integral to the caregiving process. At a functional level, effective communication between members of the multidisciplinary team is essential. At an organizational level, effective targeting of service users is required to prioritize care provision. At a system level, integrated health and social care commissioning can support longer-term strategies and provide a greater degree of stability. So, a political narrative that supports person-centered care coordination provides credibility when developing new ways of working [23, 24].

Although the need for care coordination is clear, we have seen there are obstacles within most health care systems [25, 26]. This must be overcome and has to be considered a priority. Health care systems remain disjointed and processes vary among and between primary care sites and specialty sites [27]. Patients are often unclear about why they are being referred from primary care to a specialist, and what to do after specialist visits. Referral staff deal with many different processes and lost information, which means that care is less efficient.

Addressing patient health from a broader perspective includes addressing the social determinants that influence health outcomes, and engaging patients as a collaborative partner in their own wellness. Health systems are beginning to recognize this dynamic interplay between an individual's social needs, healthy lifestyles and behaviors, and their corresponding health status. [25, 26]

Previous strategies gave us some recommendations to improve care coordination strategies: Ensure patient- and family - centeredness by identifying family needs and goals that can be supported by a care coordinator [25]. Ensure open lines of communication with the designated care coordinator [28]. Develop a shared understanding of community services and local supports for patients and families. Support interprofessional team training on implementing and measuring care coordination initiatives [29]. Use tools and measures to assess the added value of care coordination for patients and families, including patient/family experience as an outcome measure [25, 30].

Our study has some limitations. The results on internal consistency should be interpreted with caution as assessing the internal consistency required omitting conditional items or self-information items. Finally, we believe it would have been preferable to determine the correlation with another tool specifically validated for measuring population perception of care coordination. However, this was impossible, since no other tool was available in the Spanish language. Also, although the sample was selected from the whole of Catalonia, there was a particular health management area that could not perform data collection due to a new, recently implemented research intervention.

5. Conclusion

Successful deployment of care-coordination is a big challenge that should benefit of tools capturing the experiences of patients as they access care across organizational and professional boundaries. The adapted version of the "User Reported Measure of Care Coordination" into Spanish

proved to be a practical tool for use in our daily practice and an efficient instrument for the evaluation of care coordination in chronic, complex conditions in older people across services and levels of care.

Further research is required to assess the extent to which survey data offer information that providers and purchasers can use to make specific changes to improve the quality of their services.

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