<div align="right">

ORIGINAL ARTICLE

</div>

Development and validation of continuity measures for inpatients receiving rehabilitation care

Silvana L. Oliveira-Sousa*[1], Francesc Medina-Mirapeix[2], Pilar Escolar-Reina[2], Sean M. Collins[3], M. Carmen Lillo-Navarro[1]

[1]Centre for Translational Research in Physiotherapy, Department of Pathology and Surgery, Miguel Hernández University (Elche), Alicante, Spain
[2]Department of Physiotherapy, University of Murcia, Spain
[3]Department of Physical Therapy, Plymouth State University, NH, United States

ABSTRACT

Objective: The main goal of this study was to exemplify the development of a measure of continuity of care (COC) from inpatients' perspective. This measure is focused on several aspects related to physiotherapy.

Methods: A cross-sectional self-report based psychometric study was carried out in a public hospital in southeast Spain. One hundred and fifty two patients with neurological and orthopaedic disorders who received rehabilitation care during stay at hospital were included in the study. A self-report questionnaire was used to examine experiences of patients related to the three types of COC, relational, management and informational continuity. The questionnaire also includes questions about sociodemographic characteristics, patient/therapist affiliation and trust with therapist. To examine reliability were used test-retest and internal consistency. For validation analysis, there were used convergent and known group strategies.

Results: Of the 19 indicators included, 13 were selected to demonstrate adequate reliability and validity. From these indicators were generated three composite measures (Relational, management and COC index) and one individual measure (Informational continuity). Test-retest reliability indicated excellent agreement (intraclass correlation coefficient [ICC] > 0.75) for the three indexes. The range of Cronbach's α value was from 0.60 to 0.73. Total scores of all the indexes were moderately correlated with the satisfaction scale ($r > 0.30$). Regarding the known groups, all indexes scores were similar for men and woman. However, significant differences were found for management index and for relational index, based on trust with therapist and patient/therapist affiliation, respectively.

Conclusions: The continuity self-reported measures is a valid and reliable method to assessing the COC in hospitalized patients receiving physiotherapy.

Key Words: Continuity of care, Measurement, Validity, Reliability

1. INTRODUCTION

Early exposure to comprehensive rehabilitation is widely accepted as necessary to optimize outcomes in patients after an acute injury or illness.[1] In many hospitals of America and Europe, the early rehabilitation team begins the rehabilitation within the few days of patient admission and continues them until patient discharge.[2] Early rehabilitation require intensive management including a high degree of coordination among multiple providers and services, especially rehabilitation physician, nurses and physiotherapists.[1, 2]

*Correspondence: Silvana L. Oliveira-Sousa; Email: soliveira@umh.es; Address: Departamento de Patología y Cirugía, Universidad Miguel Hernández (UMH), Campus Sant Joan D'Alacant, Ctra, Alicante-Valencia, Nº 332, 03550, Spain.

Despite the recent policy focus on maintain and enhance continuity of care (COC) within hospital care,[3] rehabilitation research reports that there is limited communication, transfers delays and administrative barriers between rehabilitation team and other services.[1,4,5] Inpatients receiving physiotherapy report a lack of transfer of information and consistency of care between professionals. These concerns are related to content, synchronization, or sequence of the physiotherapy activities.[6] As a consequence, rehabilitation outcomes such on functional independence,[7] length of stay[2,8] and patients' satisfaction may be affected.[9–12]

While consequences of inadequate COC in rehabilitation care have been studied, the knowledge about evaluations and/or improvements of continuity of rehabilitation care is still limited, especially from patients' perspective. The majority of measures used for continuity of rehabilitation care within hospitals have been based on professional perspectives. These measures have examined features of the chronology of sequential care or transfers delays.[2,4,5,7,8,13,14] Likely, continuity from patient's perspective is not often evaluated because of the lack of an agreed definition and suitable measurement tools.

In an exhaustive review of the literature, carried out by Reid et al., the concept of continuity has been clarified and has provided a theoretical basis for the development of new measures. In this review, COC is defined as the patient's experience of receiving their treatment in a connected and coherent manner. Additionally, they describe three components of COC: informational, management and relational continuity.[15] Informational continuity refers to the use of information from previous events to provide adequate care to the patient. Management continuity is the provision of complementary services within a shared management. Relational continuity is the ongoing relation between a patient and ≥ 1 health providers.[15]

When developing clinical measures tailored to COC one can rely on one aspect of health team (e.g. nursing care) involved in a health care situation or rely on all health team.[15] On the other hand, since there are different components of continuity and different aspects within them, multiple measures are required to capture the experience of continuity as a whole.[16]

The purpose of this study was to exemplify the development of a questionnaire to measure COC of physiotherapy care from the inpatients' perspective. The specific objectives were: (1) to identify candidate individual indicators that address the three types of continuity defined by the cited review[15] and to examine their validity and reliability, (2) to develop valid and reliable indexes of continuity for making

comparison between hospitals and for monitoring trends over time.

2. METHODS

The present study was carried out in two phases: (1) items construction and (2) validation process. Each phase of the development and/or testing process is presented separately to preserve the temporal sequence.

2.1 Participants

Participants were drawn from an acute care hospital in southeast Spain. Ethics approval for this study was obtained by the Research Ethics Board at the hospital (P1EMCA06/12). Patients were included if they were adult (> 18 years), with orthopaedic or neurologic clinical conditions and if they received a physiotherapy program during stay at hospital. Patients were required to speak, read, and understand Spanish. Exclusion criteria were: (1) inability to understand simple instructions required for filling in the questionnaire, and (2) severe visual defects. An informed consent form was obtained from all participants.

2.2 Phase 1: Items construction

2.2.1 *Identification of potential continuity indicators*

A qualitative study was conducted using semi-structured interviews to identify experiences and perceptions of patients concerning to COC. Patients were recruited during their stay at hospital and interviewed 15 days after discharge, as describe in a previous study.[6] Patients' perceptions and experiences related to the three types of continuity were identified. For informational continuity, experiences related to transference of information among care providers were relevant. For relational continuity, the significant aspects were the consistency of provider and established patient-therapist relationships. Finally, the two important aspects for management continuity were consistency of care between providers and involvement of the patient in the management plan.

2.2.2 *Item-writing*

The precise wording of the items was based on patients' comments in the qualitative study[6] and modified through a process of discussion and consensus among the members of the study team.[17]

Most items used dichotomous "yes"/"no" scale as response format. The response format was chosen because we wanted to know whether or not certain processes and events occurred during the course of patients' stay in hospital.[18–20] Only two items used a rating five-point scale: "trust with therapist", with response categories of none, low, moderate, high and very high (Code from 1 to 5); and "quality of relationships

with usual therapist" with response categories of poor, fair, good, very good, excellent (Code from 1 to 5).

2.2.3 Cognitive testing

The questionnaire was pretested for clarity and adequacy of content[21] with 10 patients and 6 health care providers (2 physiotherapists, 2 physicians and 2 nurses). Both professionals and participants were asked to report on the relevance and understanding of each item. An item was reworded or eliminated if less than 80% of either participants or professionals rated the item as being comprehensible and adequate.

2.2.4 Phase 2: Validation process

A booklet questionnaire was used in the validation process. The questionnaire included: (1) The items of COC remained of the cognitive testing, (2) Five questions pertaining to patients' characteristics (age, sex, education, marital status, diagnosis), and (3) An item of patient's satisfaction with physiotherapy program on a 10-point scale[22] (being value of 10 points "very satisfied" and 1 point "very dissatisfied"). This last scale was used for testing validity of items and indexes of COC. A cover letter explained the purpose of the study, and a stamped addressed envelope was included.

This questionnaire was handled to 269 patients by the research assistant at the time of hospital discharge. An informed consent form was signed by all participants. Patients were asked to return the questionnaire by post into next 10-15 days. We used this time windows because it do not affect recall bias and patients are less confuse than immediately after discharge.[23] Additionally, we send a second questionnaire to 35 consecutives respondents 2 weeks after we received their first response for examination of test-retest reliability.

Finally, we also extracted information of all patients from their clinical records about clinical condition (neurologic or orthopaedic), the length of stay and the duration of patient/physiotherapist affiliation. These two latter items were coded into categories as show in Table 1. Duration of patient/physiotherapist affiliation examines the length of time from initial to final encounter between patient and usual provider.[24]

2.3 Analyses

Prior to analysis, each item was coded with a dichotomous score, indicating either the presence or the absence of a problem. A problem is defined as an aspect of health care that could, from patient' perspective, affect negatively the COC.[20] Response options that were considered problems varied according worded and response options scale. Thus, the response "yes" was considered to represent the absence of a problem in direct items. On the other hand, for quality of relationships with usual therapist item, the categories con-

sidered problems were "poor" and "fair" and for trust with usual therapist item were "none" and "low". All analyses were performed with the SPSS statistical software program (SPSS v.15; IBM SPSS, Chicago, Illinois).

Initially, reliability and validity of items were analysed. Validity of items was assessed by examining differences in the total satisfaction score among known groups of patients who perceived problem or not in each item. Independent Student t-tests were conducted to determine the mean difference between groups. The criterion established of elimination of items was mean difference is not statistically significant ($p > .05$).

Items reliability was examined by analysis of reproducibility of response in test-retest using the kappa coefficient or, alternatively, the concordance general index. The latter was used when the prevalence or proportion of cases with event was lesser to 15% or higher than 85% of the total of sample studied.[25] The criterion established of elimination of items was either kappa coefficient < 0.40 or concordance general index < 0.95.[26] We estimated 22 as the minimum number of subjects required to detect a moderate Kappa coefficient (0.60) as statistical significant ($p < .05$) with 80% power and assuming the null hypothesis as 0.00.[27]

Reliable and valid items were grouped by their face validity to create several indexes of COC. We created a COC index and one specific index for each type of continuity. Each index was scored from 0 (no problem) to 100 (every item coded as a problem). Thus, high scores are associated with poor continuity.

Reliability of indexes was also examined by reproducibility of responses in the test-retest using the intraclass correlation coefficient (ICC).[28] The values found in the ICC were classified according to literature as poor agreement (ICC < 0.40), moderate agreement (ICC between 0.40 and 0.75), and excellent agreement (ICC > 0.75).[29] We estimated that the true reliability would be 0.85 for these composite measures. Thus, we considered 23 as the minimum sample size required to detect a value above 0.70 using a 95% confidence interval.[30] Additionally we made a supplementary analysis of internal consistency by Cronbach's Alpha coefficient.[31] Values greater than or equal 0.7 were considered indicative of acceptable internal consistency.[29]

Validity of indexes was examined using two strategies, known-groups validity and convergent validity. We defined known groups by three variables: sex, patient/therapist affiliation (short/long) and trust with physiotherapist (high/low). A priori hypotheses were as following: four indexes scores (informational, relational, management and COC) would be similar for men and woman;[32] while informational and

management would be significantly different among patients with low and high trust with physiotherapist; and relational index would be significantly different among patients with large and short affiliation.[33] These hypotheses were tested using Independent Student *t*-tests. Convergent validity was evaluated by testing for hypothesized associations between scores of COC and patient satisfaction scale.[11, 12] Pearson's correlation coefficient was used. We hypothesized that all indexes of questionnaire should correlate moderately with the satisfaction scale. A moderate correlation was considered to be values ranging from 0.3 to 0.7.[30] The normality of distributions was analyzed for both Student and Pearson test of significance.

3. RESULTS

3.1 Preliminary items construction

From the qualitative study data, a core set of 21 items was chosen. Core items included patients' experiences or perceptions related to management continuity (14 items), relational continuity (3 items), and informational continuity (4 items). As result of the cognitive testing, 10 items were reworded and 2 items of informational continuity were eliminated. The 19 remaining items were given in the form of a self-administered questionnaire to patients in the validation process.

3.2 Participants' characteristics in validation process

Totally 56.5% (152/269) questionnaires were returned by respondents of which 98 (64.5%) respondents were female. The mean age of the patients was 68.3 (SD = 14.7) years. The mean length-of-stay was 13.1 (SD = 12.2) days. Twenty-two patients implied in the study of test retest reliability returned the second questionnaire for test-retest analysis. The demographics and clinical characteristics of participants are shown in Table 1. Twelve (7.9%) and nine (5.9%) subjects did not answer the question relating to education level and marital status respectively. On the other hand, information on the patient/physiotherapist affiliation of 29 patients was not available. Additionally, responders and non-responders did not significantly differ with respect to sex (p = .339), age (p = .353), clinical conditions (p = .078), duration of patient/physiotherapist affiliation (p = .092) and length of stay (p = .065).

3.3 Item reduction

All items, except three had acceptable validity. These three items were in the areas of management continuity ("Waited more than two days to receive first physiotherapy session" and "Received information about time to start of follow up post-discharge") and informational continuity ("Physiotherapist gave a report to deliver in the follow-up center"). In the other 16 items, the score satisfaction was significantly

lower for patients with "problem" than for patients with "no-problem".

Table 1. Demographic characteristics of the participants in the pilot testing (n = 152)

Characteristic	*n*	%
Age (Mean and *SD*)	152	68.3 (14.7)
• ≤ 68 years	54	35.5
• > 68 years	98	64.5
Gender		
• Female	98	64.5
• Male	54	35.5
Education level		
• Read and write	80	57.1
• Elementary studies	40	28.6
• Secondary and University	20	14.3
Marital status		
• Single	10	7.0
• Married	86	60.1
• Other	47	32.9
Clinical condition		
• Knee replacement	63	41.1
• Hip replacement	26	17.2
• Fracture	28	18.4
• Stroke	23	15.1
• Other	12	7.9
Length of stay		
• ≤ 10 days	89	58.6
• > 10 days	63	41.4
Duration of patient/physiotherapist affiliation		
• ≤ 6 days	58	47.1
• > 6 days	65	53.0

In the reliability study, the kappa coefficient was used for 17 items and concordance general index for 2 items. The two items evaluated with concordance general index showed excellent agreement (> 0.90). Nine items that were assessed by Kappa coefficient had moderate agreement or above. Eight items showed a fair agreement, of which six had a coefficient < 0.40, all of to the management continuity.

In total 6 items were removed due to poor validity, low reliability or both, remaining 13 items in the final questionnaire. Table 2 shows results of reliability test-retest and discriminant validity of all items included in pilot testing.

3.4 Reliability and validity of the combined measures (indexes)

Of the thirteen items that remained after the reduction phase, twelve of them were grouped into three indexes: relational continuity index (R-COCI), management continuity index

(M-COCI) and continuity of care index (COCI). We could not create an index for the informational continuity because only one item achieved acceptable results of validity and reliability. Therefore, the reliability and validity results of the informational continuity, represented by an item, were previously described.

Test-retest reliability indicated excellent agreement (ICC > 0.75) for the three indexes. Cronbach's α value for internal consistency was 0.73 for COCI, 0.67 for relational index, and 0.61 for management index. Reliability results of the three indexes created are shown in Table 3.

Table 2. Reliability test-retest and discriminant validity of items included in pilot testing

Items	Reliability	Validity	
	Kappa or CGI[†]	Mean difference satisfaction[‡]	p value[§]
Relational Continuity			
Knew the name of the physiotherapist	0.881	1.31	.00
Quality of relationship with therapist	0.578	1.64	.00
Trust degree with the physiotherapist	0.463	1.51	.00
Management Continuity			
Waited more than two days to receive first physiotherapy session[*]	0.233	1.26	.08
Received contradictory information from providers	100[†]	1.80	.03
Missed a session of physiotherapy	0.679	1.16	.01
Received information about physiotherapist visiting hours	0.578	1.09	.02
Explained exercises during the stay	0.492	2.25	.00
Explained about harmful postures during the stay[*]	0.296	0.90	.04
Explained about the difficult activities at home[*]	0.258	1.78	.00
Explained exercises to do at home	0.897	1.70	.00
Explained about harmful postures at home[*]	0.238	1.24	.00
Family received information on exercises for home	0.690	1.97	.00
Received information about follow up sessions post-discharge	100[†]	2.93	.00
Received information about follow up centre post-discharge	0.650	1.19	.01
Received help to request follow up post-discharge	0.679	1.96	.00
Received information about time to start of follow up post-discharge[*]	0.386	0.85	.13
Informational Continuity			
Felt that the therapist did not have any information	0.400	1.66	.00
Physiotherapist gave a report to deliver in the follow-up center[*]	0.308	1.35	.06

Note. [*]: Items deleted; [†]CGI: concordance global index; [‡]: Mean difference on satisfaction score (ranged 1-10) between patients with "problem" and "non-problem" in each item; [§]: Using Student's *t*-test

Table 3. Reliability of indexes

Indexes of continuity	Number of items included	Internal consistency	Test-retest reproductibility
		α[*]	ICC[†]
Informational continuity	1	—	0.400[‡]
Relational continuity (R-COCI)	3	0.698	0.770
Management continuity (M-COCI)	9	0.610	0.791
Continuity of care index (COCI)	13	0.738	0.896

Note. [*]α: Cronbach; [†]ICC: Intra-class correlation; [‡] Kappa Coeficient

Patterns of scores for known groups were as expected in our prior hypotheses. Thus, no significant differences were observed in the mean scores of the three indexes between men and woman. On the other hand, significant differences were found in the mean scores of the M-COCI among subgroups of patients with lower or higher trust with physiotherapist. Similarly, significant differences were observed in the mean scores between those patients with short and high physio-

therapist/patient affiliation for the R-COCI. No differences were found between the physiotherapist/patient affiliation subgroups for M-COCI and COCI. Results of known groups are show in Table 4. The hypotheses on the correlations with the satisfaction scale were also confirmed for the indexes. Correlations for the indexes were as follows: relational (-0.34; $p < .01$); management (-0.45; $p < .01$); and combined continuity index (-0.50; $p < .01$).

Table 4. Score of indexes in Know groups

Variables	Continuity of care indexes scores					
	n	R-COCI	n	M-COCI	n	COCI
Sex						
• Male	43	59.6	54	34.1	54	40.4
• Female	81	54.9	98	35.0	98	39.7
p value	–	.51	–	.84	–	.87
Trust						
• Lower	–	NA*	79	39.0	–	NA*
• Higher	–	NA*	45	23.9	–	NA*
p value	–	–	–	.00	–	–
Patient/physiotherapist affiliation						
• Short (< 6 days)	72	63.6	84	35.7	84	42.7
• Long (> 6 days)	38	45.6	39	35.4	39	37.9
p value	–	.01	–	.94	–	.28

Note. NA*: Not applicable because "trust" item included on relational and combined indexes

4. DISCUSSION

We have illustrated it is possible to develop measures of continuity on an aspect of rehabilitation care (physiotherapy) based on the patient' perspective. The measures developed include individual (informational continuity) and composite measures (management and relational indexes) of COC to detect potential problems that occur during a patient's hospital stay. This study also provides insights relevant for development of other continuity measures for other aspects of rehabilitation team (e.g. speech or nursing care) and/or based on other contexts of rehabilitation care (e.g. postacute care in outpatient facilities).

Unfortunately, we have not succeeded to create a composite measure for information continuity. Although participants in qualitative study[6] regarded that the use by provider of information from previous events was relevant for COC, the most of the items related to this aspect did not present adequate validity and reliability. Thus, the informational continuity is represented in the questionnaire as an individual measure. The difficulty to find valid and reliable informational continuity items has been reported by other authors. The authors affirmed that the experiences in informational continuity are

often difficult to be experienced by the patients because they happen behind the scenes.[3] Nevertheless, this difficulty is not contradictory with the relevance of informational continuity. In fact, our study reinforces its relevance because participants in qualitative study[6] regarded that the use by provider of information from previous events to provide adequate care was relevant for their experience of care over time.

The questionnaire items are based on specific experiences of the patients with their care, rather than measuring patients' perceptions. There is evidence that patients are reluctant to report negative perceptions regarding the quality of health services.[34] For example, the questionnaires about patients' satisfaction provide an optimistic picture of performance. Patients can even describe high levels of satisfaction at the same time as they describe experiences that are suboptimal.[35] Therefore, the questionnaires of patients' experiences self-reported are seen as being more useful than evaluative questionnaires to help providers to determine what action to take to address quality improvements.[18]

The methodology used for our composite measures (indexes) was based on the signalling perspective. This way due to the

fact that our primary intent was to guide decision-making in terms of where to allocate resources to improve COC.[36] Like other experiences for developing composite measures on multiple individual indicators,[18, 36] we did not use a psychometric perspective, which seeks to capture an underlying construct of the multiple indicators. From the signalling perspective, the items of individual indicators are not expected to be correlated with each other and, therefore, it is not appropriate to use the indices of homogeneity (such as coefficient α or the item-total correlations) for their development; nor to use statistics that are based on the assumption of homogeneity, such as factor analysis.[30]

Both individual as composite measures were evaluating by two criteria: reliability and construct validity. For reliability criterion, we used reproducibility test-retest rather internal consistency as primary criterion because, as cited in the previous paragraph, homogeneity was not relevant.[30] Fortunately, all these indexes had CCI values greater than 0.75 indicating good stability in test-retest.[27] For construct validity criterion, we examined the relationship between our continuity measures and patient satisfaction with delivery of physiotherapy. There is evidence that overall COC and specific components of continuity have effect on patient satisfaction.[11, 12] Known-groups strategy served to add validity to our measures, and moreover it served to indicate potential factors that may be associated with experiences of continuity. Accordingly, we observed that COC is associated to patient/therapist affiliation and trust with therapist. Fortunately, we also observed that COC is not dependent of sex because the overall scores were very similar for men and women.

Limitations of study

Despite what we consider that this study provides insights to measure the COC in Physiotherapy, several limitations should be noted. First, it was no possible to develop composite measure of informational continuity. Most of the items showed low reliability and validity. Therefore, it is necessary to continue trying to develop items being able to capture these patients' experiences in rehabilitation care.

Second, we limited the validity of our continuity measures to their relationship with satisfaction scale. However, other outcomes such as functional outcomes or cost-effectiveness should be used in next processes of development and validation. The pursuit of experienced continuity is not an end in itself, and therefore, the aspects of continuity actually relevant are those elements with greater patient satisfaction or other outcomes.[16]

Third, we limited our study to the development of continuity measures for physiotherapy discipline and therefore these measures are not valid to other rehabilitation disciplines. However, we believe that our process of development of the measure can be generalized to other rehabilitation disciplines and health contexts. Development of continuity indicators for these disciplines and contexts involves many of the same challenges associated with the development of continuity indicators for the physiotherapy. These challenges include the need to carefully define indicators, establish validity and reliability and overcome challenges of implementation and use of the measures.

5. CONCLUSIONS

Our self-reported measure is a valid and reliable method to assessing the COC in hospitalized patients receiving physiotherapy. It represents a step forward for the operationalization and future implementation of the concept of continuity of rehabilitation care. These measures may be of value for identifying problems of continuity and to conduct performance improvement and outcomes monitoring.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare they have no conflicts of interest.

REFERENCES

[1] Martínez-Velilla N, Cadore L, Casas-Herreo Á, et al. Physical activity and early rehabilitation in hospitalized elderly medical patients: systematic review of randomized clinical trial. J Nutr Health Aging. 2016; 20(7): 738-51. PMid: 27499308. https://doi.org/10.1007/s12603-016-0683-4

[2] Sirois M, Lavoie A, Dionne CE. Impact of transfer delays to rehabilitation in patients with severe trauma. Arch Phys Med Rehabil. 2004; 85(2): 184-91. PMid: 14966701. https://doi.org/10.1016/j.apmr.2003.06.009

[3] Krogstad U, Hofoss D, Hjortdahl P. Continuity of hospital care: beyond the question of personal contact. BMJ. 2002; 324(7328): 36-8. PMid: 11777807. https://doi.org/10.1136/bmj.324.7328.36

[4] Hamilton S, Mills B, McRae S, et al. Evidence to service gap: cardiac rehabilitation and secondary prevention in rural and remote Western Australia. BMC Health Serv Res. 2018; 18(1): 64. PMid: 29382343. https://doi.org/10.1186/s12913-018-2873-8

[5] Kable A, Pond D, Baker A, et al. Evaluation of discharge documentation after hospitalization for stroke patients discharge home in Australia: A cross-sectional, pilot study. Nurs Health Sci. 2018; 20(1): 24-30. PMid: 28851120. https://doi.org/10.1111/nhs.12368

[6] Medina-Mirapeix F, Oliveira-Sousa SL, Escolar-Reina P, et al. Continuity of care in hospital rehabilitation services: a qualitative insight

from inpatients' experiences. Braz J Phys Ther. 2017; 21(2): 85-91. PMid: 28460715. https://doi.org/10.1016/j.bjpt.2017.03.002

[7] Cowen TD, Meythaler JM, DeVivo MJ, et al. Influence of early variables in traumatic brain injury on functional independence measure scores and rehabilitation length of stay and charges. Arch Phys Med Rehabil. 1995; 76(9): 797-803. https://doi.org/10.1016/S0003-9993(95)80542-7

[8] Crilly J, Chaboyer W, Wallis M. Continuity of care for acutely unwell older adults from nursing homes. Scand J Caring Sci. 2006; 20(2): 122-34. PMid: 16756517. https://doi.org/10.1111/j.1471-6712.2006.00388.x

[9] Fan VS, Burman M, McDonell MB, et al. Continuity of Care and Other Determinants of Patient Satisfaction with Primary Care. J Gen Intern Med. 2005; 20(3): 226-33. PMid: 15836525. https://doi.org/10.1111/j.1525-1497.2005.40135.x

[10] Beattie P, Dowda M, Turner C, et al. Longitudinal continuity of care is associated with high patient satisfaction with physical therapy. Phys Ther. 2005; 85(10): 1046-52. PMid: 16180953.

[11] Adler R, Vasiliadis A, Bickell N. The relationship between continuity and patient satisfaction: a systematic review. Fam Pract. 2010; 27(2): 171-8. PMid: 20053674. https://doi.org/10.1093/fampra/cmp099

[12] Guilliford MD, Naithani S, Morgan M. Continuity of care and intermediate outcomes of type 2 diabetes mellitus. Fam Pract. 2007; 24(3): 245-51. PMid: 17493954. https://doi.org/10.1093/fampra/cmm014

[13] Murie-Fernández M, Irimia P, Martínez-Vila E, et al. Neurorrehabilitación tras el ictus. Neurología. 2010; 25(3): 189-96. https://doi.org/10.1016/S0213-4853(10)70008-6

[14] Spires MC, Bowden ML, Ahrns KS, et al. Impact of an inpatient rehabilitation facility of functional outcome and length of stay of burn survivors. J Burn Care Rehabil. 2005; 26(6): 532-8. PMid: 16278571. https://doi.org/10.1097/01.bcr.0000185397.39029.0a

[15] Haggerty JL, Reid RJ, Freeman GK, et al. Continuity of care: a multidisciplinary review. BMJ. 2003; 327(7425): 1219-21. PMid: 14630762. https://doi.org/10.1136/bmj.327.7425.1219

[16] Reid R, Haggerty JJ, Mckendry R. Defusing the confusion: Concepts and measures of continuity of healthcare. Final report. Vancouver (CA): Canadian Health Services research Foundation, the Canadian Institute for Health Information, and the Advisory Committee on Health Services of the Federal/Provincial/Territorial Deputy Ministers of Health. 2002 Mar. Available from: http://www.chsrf.ca/Migrated/PDF/ResearchReports/CommissionedResearch/cr_contcare_e.pdf

[17] Gulliford MC, Naithani S, Morgan M. Measuring continuity of care in diabetes mellitus: an experience-based measure. Ann Fam Med. 2006; 4(6): 548-55. PMid: 17148634. https://doi.org/10.1370/afm.578

[18] Jenkinson C, Coulter A, Bruster S. The Picker Patient Experience Questionnaire: development and validation using data from in-patient survey in five countries. Int J Qual Health Care. 2002; 14(5): 352-8. https://doi.org/10.1093/intqhc/14.5.353

[19] Pettersen KI, Veenstra M, Guldvog B, et al. The patient experiences questionnaire: development, validity and reliability. Int J Qual Health Care. 2004; 16(6): 453-63. PMid: 15557355. https://doi.org/10.1093/intqhc/mzh074

[20] Jenkinson C, Coulter A, Gyll R, et al. Measuring the experiences of health care for patients with musculoskeletal disorders (MSD): development of the Picker MSD questionnaire. Scand J Caring Sci. 2002 Sep; 16(3): 329-33. PMid: 12191046. https://doi.org/10.1046/j.1471-6712.2002.00088.x

[21] Wills GB. Cognitive interviewing. A tool for improving questionnaire design. United States: Sage publications, 2005. https://doi.org/10.4135/9781412983655

[22] Westbrook RA. A rating scale of measuring product/service satisfaction. Journal of Marketing. 1980; 44(4): 68-72. https://doi.org/10.2307/1251232

[23] De Oliveira Sousa SL. Continuidad de cuidados implicada en la fisioterapia del paciente hospitalizado: magnitud, factores asociados e impacto sobre la salud y satisfacción. PhD Thesis. Murcia: Universidad de Murcia; 2009.

[24] Baker D, Stevens C, Brook R. Regular source of ambulatory care and medical care utilization by patients presenting to a public health emergency department. JAMA. 1994; 271(24): 1909. PMid: 8201734. https://doi.org/10.1001/jama.1994.03510480033030

[25] Tooth LR, Ottenbacher KJ. The statistic in rehabilitation research: an examination. Arch Phys Med Rehabil. 2004; 85: 1371-6. PMid: 15295769. https://doi.org/10.1016/j.apmr.2003.12.002

[26] Landis JR, Koch GG. The measurement of observer agreement for categorical data. Biometrics. 1977; 33(1): 159-74. https://doi.org/10.2307/2529310

[27] Sim J, Wright CC. The Kappa Statistic in Reliability Studies: Use, Interpretation, and Sample Size Requirements. Phys Ther. 2005; 85(3): 257-268. PMid: 15733050.

[28] Fleiss JL. Statistical Methods for Rates and Proportions. 2nd ed. New York: John Wiley; 1981.

[29] Nunnally JC, Bernstein IH. Psychometric theory. 3rd ed. New York: McGraw Hill Inc., 1994.

[30] Streiner DL, Norman GR. Health measurement scales a practical guide to their development and use. 3rd ed. New York: Oxford University Press; 2003.

[31] Cronbach LJ. Coefficient alpha and the internal structure of tests. Psychometrika. 1951; 16(3): 297-335. https://doi.org/10.1007/BF02310555

[32] Riley DL, Stewart DE, Grace SL. Continuity of cardiac care: cardiac rehabilitation participation and other correlates. Int J Cardiol. 2007; 119(3): 326-33. PMid: 17258332. https://doi.org/10.1016/j.ijcard.2006.07.158

[33] Keating NL, Green DC, Kao AC, et al. How are patients' specific ambulatory care experiences related to trust, satisfaction, and considering changing physicians? J Gen Intern Med. 2002; 17(1): 29-39. PMid: 11903773. https://doi.org/10.1046/j.1525-1497.2002.10209.x

[34] Fitzpatrick R. Capturing what matters to patients when they evaluate their hospital care. Qual Saf Health Care. 2002; 11: 306. PMid: 12468687. https://doi.org/10.1136/qhc.11.4.306

[35] Mirapeix F, Jimeno-Serrano FJ, Escolar-Reina P, et al. Is patient satisfaction and perceived service quality with musculoskeletal rehabilitation determined by patient experiences? Clin Rehabil. 2013; 27: 555-564. PMid: 23258933. https://doi.org/10.1177/0269215512468142

[36] Agency for Healthcare Research and Quality. [cited 2010 Sept 2]. Available from: http://www.ahrq.gov