Continuity of Care as a Customer Service Quality Indicator in Health Sector

Iga Rudawska[1]

Abstract:

Purpose: *The aim of this article is an assessment of the psychometric properties of a scale measuring customer service quality in health care networks. Continuity of care has been considered as a main construct describing the service quality*

Design/Methodology/Approach: *Regional study involved 320 chronically ill patients of the Polish ambulatory system. They completed proposed questionnaire, measuring continuity of care. The scale has been validated using confirmation factor analysis (CFA) and Larcker-Fornell index.*

Findings: *The analysis showed that the values of factor loadings (correlation between a questionnaire item and a factor) for almost all test items are high. They exceed the accepted threshold of 0.5 in absolute value. The proposed patient service quality rating scale has a unidimensional structure. It is a relevant assessment tool.*

Practical Implications: *The proposed instrument can be used in health care settings to assess the quality of the service process. It can be helpful in decision making process as far as the quality improvements are concerned. The scale can be especially eligible for health care networks, caring for chronically ill patients.*

Originality/Value: *The study presented a unique tool to assess continuity of care in health sector. The scale proved to accurately measure the quality of service perceived by chronically ill patients.*

Keywords: *Quality measurement, psychometric properties, customer service, health sector.*

Paper Type: *Research paper.*

JEL codes: *I11, H44.*

[1]Prof. Institute of Economics and Finance, University of Szczecin, Poland,
e-mail: iga.rudawska@usz.edu.pl;

1. Introduction

Quality in health care is defined by the American Institute of Medicine as "the extent to which health services for individual patients and populations increase the likelihood of desired health outcomes and are consistent with current medical knowledge" (Baylina and Moreira, 2011). The WHO interpretation is that quality is "an integrated bundle of activities, planned on the basis of explicitly defined objectives and evaluation of actions. It involves all levels of care, oriented towards continuous improvement of health services" (The World Health Report, 2000).

The UK Department of Health, NHS, defines quality very broadly as "doing the right things right from the start, aimed at the right people at the right time in the right place at the lowest cost" (Baylina and Moreira, 2011). The latter definition strongly emphasizes the economic dimension, raising the issue of the cost of improvement activities. This motif also appears in the general definition of the concept of quality according to E. Deming. According to him, quality is the expected degree of uniformity and reliability, at possibly low costs and meeting the market requirements (Detyna and Detyna, 2011). The economic motif is also emphasized by the pioneer of quality management - P.B. Crosby.

Measuring quality in health care is a complex problem. There are many dimensions that could be taken into consideration. It seems to be even more complicated in the environment of integrated health care delivery. The main feature that is considered to be of a key importance in health sector is continuity of care. It makes all the service processes go smoothly and offer patients so called seamless care. Determining the suitability of a measurement tool under new conditions (e.g., health care network), requires testing its psychometric properties. They inform to what extent the test results reflect the true value of the trait under study, and to what extent this measurement is distorted by measurement error from different sources.

In the presented study we are aiming at assessing of the psychometric properties of a scale measuring customer service quality in health care networks. What distinguishes out study is that the construct "continuity of care" has been treated a central concept, describing quality of care from the perspective of chronicity ill patients. The paper is structured as follows: first, the literature review has been performed in order to reveal different understanding of the continuity of care. Next, the research methods have been highlighted. The study has been based on the quantitative approach. Finally, the research results have been presented and discussed.

2. Literature Review

The term continuity of patient care has emerged in many discussions as a fundamental objective for integrating health service delivery in Europe (Antunes and Moreira, 2011). Patient satisfaction with services, in turn, is derived from perceived

problems arising during the service process. Gaps in coordination, both between providers and between patients and providers, can therefore be seen as threats to continuity of care, which has implications for patient outcomes (Weinberg *et al.*, 2007). However, the term continuity of care is not in itself an innovative attribute that can only be attributed to patient care in integrated healthcare. The first signs of interest in it in health care date back to the 1950s, initially as part of surrounding the patient with the care of the family doctor (as a synonym for being treated by the same doctor), and then in the 1970s focusing on the relativity of past and present in patient care (one being linked to the other). The 1980s brought interest in measuring this construct, in the form of the continuity of care index, the number of providers serving a given patient, the sequential continuity index, and the statistical provider index (Uijen *et al.*, 2012) . The weakness of these indices is their one-dimensional approach to the phenomenon under study.

In the context of managing service quality in health care, continuity of care is understood as a qualitative dimension in terms of the smoothness of the patient care process. Importantly, a legacy of the 1990s is the perception of continuity of care from the patient's perspective, as their experience of a coordinated and smooth progression/development of care (Cowie *et al.*, 2009). Continuity of care therefore does not refer to the attitude of service providers, but to the perception of patients when experiencing the coordination and integration of services (Rodrigez and Riveres-Pigeon, 2007).

Contemporary researchers use multidimensional models to describe the concept in question. One of these is Haggerty's interpretation of continuity of care as a nexus of (Haggerty *et al.*, 2003):

> ➢ informational continuity - patients' perception of the ability of the provider to make informed decisions based on sufficient information about the patient's medical history;
> ➢ managerial continuity - patients' perception of the ability of the provider/network of providers to develop a coherent care management plan;
> ➢ relational continuity - patients' perception of the ability of the provider/network of providers to continue their care by professionals they know.

What is most important in this interpretation from the point of view of further considerations is that continuity is equipped with the attribute of long-term relationships and focus on the individual patient, his or her needs. However, a comment should be made regarding the understanding of relational continuity in the context of the progressive specialization of medicine. It is therefore not only about the interpersonal relationship between patient and medical professional, but about the quality of teamwork, the degree of compatibility and coordination between the different members of the therapeutic group. The focus on the individual patient, on the other hand, is close to the idea of client-centered care, and more broadly of

person-centered care (Kodner, 2003). Patient-Client Orientation is becoming one of the key characteristics of modern health care systems, one of the most important areas of quality, and the measurement of patient experience is thus growing into an important component of the evaluation of health care services. Shaping health care through the optics of patient-client needs and preferences increases patient satisfaction and improves treatment outcomes, and thus promotes increased efficiency of the system operating in this way. These conclusions are based on the observation of the British health care system, in which improvements have been introduced that are recommendations of the report "Crossing the Quality Chasm". Key among these are better co-ordination and integration of care, health information and education, safeguards to ensure patients' physical comfort during treatment, and emotional support for informal care providers (Madhok, 2002).

Moreover, managerial continuity (also understood as organizational continuity) and informational continuity refer to the process of healthcare delivery, while relational continuity refers more to the patient's experience of care (Naithani *et al.*, 2006). The latter theme is strongly emphasized in another multidimensional concept of continuity by the team of G.K. Freeman, who distinguished experienced continuity, understood as the experience of a coordinated and fluid sequence of health services. In order to achieve it, the health care system should be characterized by (Naithani *et al.*, 2006):

➢ continuity of information (ensuring the transfer of information that accompanies the patient's journey through the system),
➢ cross-boundary and team continuity (ensuring effective communication between professionals and organizations and the patient),
➢ flexible continuity - ensuring adaptation to patient needs over time,
➢ longitudinal continuity - to ensure that the number of doctors treating a given patient in a given healthcare unit (such as a GP practice) is minimized
➢ relational continuity - ensuring the identification of one or more persons (for example, in the form of the case manager discussed in chapter 3) with whom the patient can establish and develop a relationship during the treatment process.

From the accepted perspective of integrated health care, one more interpretation of continuity deserves to be taken up. This is the definition of the American Academy of Family Physicians (AAFP), in which the emphasis is on long-term cooperation between physicians and patients oriented towards care management, the aim of which is to achieve high quality and, at the same time, cost-effectiveness of such care (Naithani *et al*., 2006). Patient-provider collaboration is therefore, according to the interpretation proposed by the AAFP, a prerequisite for maintaining continuity of care. The exposure of this element seems very important in the perspective of the concept of self-management of the disease and supporting, involving and inspiring patients to take responsibility for their own health. Both messages are strongly emphasized in the Wagner Model (Wagner, 2004), which is the theoretical

foundation of this discussion. It is not about treating the patient as a passive recipient of educational and health-promoting activities, but as an active co-creator of their own health. In such an approach, the patient has not only the right to health care, but also the responsibilities resulting from the responsibility for his/her own health.

As a result, he/she becomes a co-creator of the health care - understood holistically - as creating conditions for staying in good health and improving it, also through personal behavior. Such an understanding of the patient's role is close to the marketing idea of the prosumer, but also to the idea of patient empowerment in the health care system (European Commission, 2011). The importance of this phenomenon cannot be overestimated, especially in the context of health care integration.

Supporting patients to self-manage their illness has traditionally been the role of the GP. However, the vertical integration of health care, especially addressed to chronically ill patients, has demonstrated the need for effective coordination of care between different members of the therapeutic team. The family doctor, as a member of this team, can play the role of case manager, a kind of coordinator of the patient care process. Continuity of care can therefore be treated as a determinant of the quality of patient care, which permeates other elements of the evaluation of the performance of the health care system using the concept of integrated health care.

In the above perspective, continuity of care becomes an element encompassing the entire service process, understood in integrated healthcare not as a single service episode, but as a complex chain of interrelated services, carried out in a network of cooperating entities. Thus, patient care goes beyond a single act of exchange (transaction) carried out during the meeting of the service recipient with the service provider, and includes the entirety of relations established by the patient with the network of cooperating healthcare organizations. The proposed relational approach to patient care is therefore closer to the concept of integrated health care, as it corresponds to its specificity.

3. Material and Methods

The assessment of psychometric properties of the scale measuring the quality of patient care was based on the results of a field study involving a sample of 320 chronically ill patients. The sample selection for the study was quota and stratified. The stratified selection was made in cross-sections of the number of chronic disease units (one chronic disease, two or three chronic diseases, more than three chronic diseases). Within strata, control variables were introduced in the form of gender and age of patients. The selection of amounts for the research sample concerning the values of demographic distributions in the West Pomeranian Voivodship, was based on the Statistical Yearbook of the West Pomeranian Voivodship (Rocznik statystyczny, 2017). In turn, the selection of the sample size was based on the formula for the minimum sample size for the structure index, assuming a confidence

coefficient of 0.95 and a maximum acceptable estimation error of 0.05. The study was carried out in outpatient health care clinics located in the West Pomeranian Voivodship.

The sample consisted of 53.13% of women and 46.87% of men. More than 45% of the surveyed patients meeting the initial criterion of suffering from at least one chronic disease were seniors (65+). 43.75% of respondents suffered from one chronic disease, 34.06% from two or three such diseases, and 21.56% are patients were suffering from more than three chronic diseases. The most represented education in the patient sample was secondary education (44.06%), followed by vocational education (23.75%). Just over a third of the respondents subjectively assessed their health as average (36.56%), 38.13% as good, 10.63% as very good, and 13.13% as poor or very poor (1.55%). Detailed characteristics of the study patient population are included in Table 1.

Table 1. Characteristics of the research sample

Characteristics	Divisions	In%
Age	Up to 35 years old	10.31
	36-50 years old	11.56
	51-65 years old	32.50
	over 65 years old	45.63
Gender	Female	53.13
	Male	46.87
Education	Primary	15.63
	Vocational	23.75
	Secondary	44.06
	Higher	16.56
Number of chronic conditions	One chronic condition	43.75
	2-3 chronic conditions	34.06
	Over 3 chronic conditions	21.56
Subjective health condition	Very good	10.63
	Rather good	38.13
	Average	36.56
	Poor	13.13
	Very poor	1.56

Source: *Own study.*

4. Research Results

Sets of indicator variables can be interpreted in terms of a test construct if they identify one common phenomenon (Nowak, 1985). Thus, in order to verify whether the indicator variables can be "aggregated" into a single indicator, a confirmation factor analysis (CFA) was used. It allows us to assess the quality of the proposed measurement model for a phenomenon that is not directly observable. It provides an answer to the question of whether all dimensions of a latent phenomenon can be

integrated by assessing the adequacy (internal accuracy) of the set of indicator variables used.

Confirmatory factor analysis based on the generalized least squares method with the use of the AMOS 17 statistical package was carried out on the data set obtained through quantitative research (N=320), assuming that the scale items form one coherent factor. The resulting confirmatory factor analysis model was found to fit the data very well in terms of $\chi^2/\mathrm{d}f$ and RMSEA criteria, where: $\chi^2/\mathrm{d}f$=1.527; RMSEA=0.038; P(RMSEA<0.05) = 0.997. The goodness-of-fit measures GFI and AGFI also reached the desired values (Byrne, 2010) , indicating a good fit of the model, where GFI=0.829; AGFI=0.765. All factor loadings are significant at the p<0.001 level.

The item analysis showed that the standardized values of factor loadings for almost all test items are high (Table 2). Only six of the 32 scale items achieved values below 0.70, and for fifteen items the standardized values of the factor loadings exceeded 0.80. The lowest value of the factor loadings was obtained for item 27f ("I have access to information about the services offered and the waiting time for them (e.g., by telephone, on the institution's website"). However, due to the key role of this indicator in the assessment of the "Flexible continuity" area, it was decided to keep it.

Table 2. *Analysis of the validity of the scale*

Code	Sub-scales	Scale items	Standardised values of factor loadings	Statictic t	Larcker-Fornell Index
A	Patient empowement	1a	0,842	13,48	0,741
		2a	0,731	11,03	
		3a	0,754	11,82	
		4a	0,702	10,73	
		5a	0,870	14,51	
		6a	0,883	15,12	
B	Informational continuity	7b	0,692	10,36	0,656
		8b	0,891	15,08	
		9b	0,707	10,62	
		10b	0,884	14,91	
		11b	0,676	10,17	
C	Relational continuity	12c	0,873	15,01	0,713
		13c	0,881	14,98	
		14c	0,742	11,39	
		15c	0,890	15,08	
D	Managerial continuity	16d	0,649	9,52	0,699
		17d	0,765	12,17	
		18d	0,772	12,48	
		19d	0,812	13,06	

E	Cross-boundary and team continuity	20e	0,803	11,97	0,624
		21e	0,633	9,83	
		22e	0,769	12,77	
		23e	0,884	15,01	
		24e	0,822	13,47	
F	Flexible continuity	25f	0,767	12,36	0,635
		26f	0,888	15,04	
		27f	0,582	8,61	
		28f	0,855	13,65	
G	Longitudinal continuity	29g	0,773	12,59	0,611
		30g	0,642	10,03	
		31g	0,851	14,26	
		32g	0,732	11,47	

Source: *Own study.*

Additionally, the Larcker-Fornell index was calculated, which estimates the extracted variance for individual seven areas of the scale. It ranges from 0.611 to 0, 741, which indicates that individual subscales are characterized by good reliability and accuracy, according to the creators of this index its value should exceed 0.50 (Fornell and Larcker, 1981). The above empirical findings allow us to conclude that the constructed tool to measure the quality of customer service, built from 32 test items, has a one-dimensional structure. The used set of indicator variables allows to "aggregate" the dimensions of the examined latent phenomenon, i.e., the quality of service of chronically ill patients.

Finally, it is worth pointing out that patients, fairly homogeneously, perceive the importance of the different areas of care for obtaining high quality service. When asked to distribute 100 points across the seven areas (A-G), respondents did not significantly distinguish any of them in terms of their importance for perceived high quality of service (Table 3). According to the positional measure - mode, only areas A and C scored higher.

Table 3. Evaluation of individual areas of patient service quality according to the mode

Code	Sub-scale	Mode	Mode count	Mean	Standard deviation
A	Patient empowement	20	131	16,64	5,92
B	Informational continuity	10	146	14,13	4,95
C	Relational continuity	20	123	17,06	5,53
D	Managerial continuity	10	161	12,59	4,13
E	Cross-boundary and team continuity	10	107	14,94	6,00
F	Flexible continuity	10	179	12,15	4,23
G	Longitudinal continuity	10	197	12,44	4,86

Source: *Own study.*

5. Conclusions

The above empirical findings allow us to conclude that the proposed scale for assessing the quality of patient service - after rejecting items that do not meet the assumed criteria - constitutes a homogeneous (homogenous) set of statements, highly correlated with each other. Therefore, the proposed scale is characterized by high internal consistency. Thus it can be considered as a tool for measurement of the quality of service of a chronically ill patient.

The proposed instrument can be used in health care settings to assess the quality of the service process. It can be helpful in decision making process as far as the quality improvements are concerned. The scale can be especially eligible for health care networks, caring for chronically ill patients.

References:

Antunes, V., Moreira, J.P. 2011. Approaches to developing integrated care in Europe: a systematic literature review. Journal of Management & Marketing in Healthcare, 4 (2), 129-135. doi.org/10.1179/175330311X13016677137743.

Baylina, P., Moreira, P. 2011. Challenging healthcare- associated infections: a review of healthcare quality management issues. Journal of Management & Marketing in Healthcare, 4 (4), 254-264. https://doi.org/10.1179/175330311X13016677137770.

Byrne, B.M. 2010. Structural equation modeling with AMOS. Basic concept: applications, and programming. Routledge Academic, London.

Cowie, L., Morgan, M., White, P., Gulliford, M. 2009. Experience of continuity of care of patients with multiple long-term conditions in Englad. Journal of Health Services Research & Policy, 14 (2), 82-7. doi:10.1258/jhsrp.2009.008111.

Detyna, B, Detyna, J. 2011. Jakość usług medycznych. Ocena statystyczna. Podstawy metodyczne, Difin, Warszawa.

European Commission. 2011. Consumer empowerment – Report. Special Eurobarometer No. 342. European Commission, Brussels.

Rocznik statystyczny województwa zachodniopolskiego: Regiony, Powiaty, Gminy. 2017. Główny Urząd Statystyczny, Szczecin.

Haggerty, J.L., Reid, R.J., Freeman, G.K., Starfield, B.H., Adair, C.E., McKendry, R. 2003. Continuity of care: A multidisciplinary review. British Medical Journal, 327, 1219-1221. doi: 10.1136/bmj.327.7425.1219.

Kodner, D. 2003. Consumer-directed services: lessons and implications for integrated system of care. International Journal of Integrated Care, 3 (2), e21. doi: http://doi.org/10.5334/ijic.80.

Madhok, R. 2002. Crossing the Quality Chasm: lessons from health care quality improvement efforts in England. Proceedings Baylor University Medical Center, 15 (1), 77-83. doi: 10.1080/08998280.2002.11927816.

Naithani, S., Gulliford, M., Morgan, M. 2006. Patients' perceptions and experiences of continuity of care in diabetes. Health Expectations, 9 (2), 118-29. doi: 10.1111/j.1369-7625.2006.00379.x.

Nowak, S. 1985. Metodologia badań społecznych, PWN, Warszawa.

Rodrigez, C., Riveres-Pigeon, C. 2007. A literature review on integrated perinatal care. International Journal of Integrated Care, 7, e28. doi: 10.5334/ijic.202.

The World Health Report. 2000. Health systems: improving performance, World Health Organization, Geneva.

Uijen, A.A., Schers, H.J., Schellevis, F.G., Van de Bosch, W.J. 2012. How unique is continuity of care? A review of continuity and related concepts. Family Practice, 29 (3), 264-271. doi: 10.1093/fampra/cmr104.

Wagner, E. 2004. Improving Chronic Illness Care, Chronic Care Model. MacColl Institute for Health Care Innovation.

Weinberg, D.B., Gittell, J.H., Lusenhop, R.W., Kautz, C.M., Wright, J. 2007. Beyond our walls: Impact of patient and provider coordination across the continuum on surgical outcomes. Health Services Research, 42 (1), 7-24. doi: 10.1111/j.1475-6773.2006.00653.x.