

# The excellence of patient-centred healthcare: investigating the links between satisfaction, co-creation and empowerment

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## Abstract

*Purpose.* Nowadays, international healthcare agendas are focused on patient centeredness. Each policy is aimed at improving different dimensions, the main ones are patient satisfaction, patient empowerment and value co-creation. The aim of this paper is to investigate the links between these dimensions and analyse their correlation.

*Methodology.* Through a literature review on patient satisfaction, empowerment and value co-creation, their links are theoretically outlined and it is constructed a questionnaire administered to 246 chronic patients. The results are analysed with the Pearson correlation.

*Findings.* The results show that the variables investigated positively influence each other. Therefore, in order to increase patient satisfaction, it is necessary to stimulate patient empowerment which in turn has a positive influence on the patient's ability to contribute to value creation and vice versa.

*Practical implications.* To practitioners, the study provides suggestions how to achieve a patient-centred healthcare by improving patient satisfaction, knowledge, participation and responsibility in care and his/her involvement in the value creation process.

*Originality/value.* Over the last decade, healthcare management literature has shifted focus from healthcare organizations to patients. Contributions to patient satisfaction, empowerment, and co-creation exponentially increased, however, these dimensions are often studied separately. This work provides a first useful input to investigate the links between these dimensions and to test them with an empirical analysis.

## Keywords

value co-creation; patient empowerment; patient satisfaction; healthcare quality; empirical analysis

## 1. Introduction

Currently, the strategic guidelines prevailing in healthcare management are focused on the patient centeredness with a view to increasing the degree of individual responsibility and the promotion of prevention and self-management of pathologies. Behind these policies there are social motivations, such as improving the health and well-being of citizens, but also economic goals such as cost reduction, a more efficient use of resources and better performances of healthcare organizations.

The change of perspective in healthcare management reflects the development of new logics in marketing and management disciplines, based on the transformation of the customer role from a destructor of a value created by the enterprise to a co-creator of a value derived from the exchange of knowledge, skills and resources with the providers. These perspectives were introduced by the Service-Dominant (S-D) logic (Vargo and Lusch, 2004; 2006), which defines value co-creation as the joint, collaborative, concurrent, peer-like process of producing new value, both materially and symbolically. Another theory that contributed to the spread of the value co-creation concept in healthcare management is Service Science (Maglio and Spohrer, 2008), which claims that it is possible to create a smarter healthcare through technology platforms and the latest ICT solutions, able to facilitate value-creation processes by improving the interaction and information sharing between the actors.

Patient participation, responsibility and education -usually identified with the concept of “patient empowerment”- are issues that are gaining more and more importance in the healthcare sector. The World Health Organization (WHO) set patient empowerment as the primary goal to achieve in the “2020 health program”, recognizing it as a key element in improving health outcomes, increasing user satisfaction, improving communication between healthcare professionals and patients, improving compliance with therapeutic plans and optimizing the use of resources and the cost of healthcare.

Recognizing the patient as a co-creator of the “health value” and considering his/her empowerment as an important element for improving results, means stating that the patient plays an active role in enhancing healthcare quality, which is generally measured in terms of patient satisfaction. Therefore, none of these variables referred to the patient should be ignored in the strategies of healthcare organizations and policy makers.

The aim of this work is to investigate how these variables are interrelated and influence each other and identify the efficient pathways to reach the excellence in a patient-centred healthcare.

After a literature review about value co-creation in healthcare, patient empowerment and patient satisfaction, the links between these dimensions are theoretically outlined and then tested through an empirical analysis; based on the results, conclusions and practical implications are presented.

## 2. Conceptual background

### 2.1. Value co-creation in healthcare

Contributions about value-co-creation in healthcare start from 2006 and they are principally based on the theoretical frameworks of S-D logic and Service Science. According to Zanetti and Taylor (2016), value co-creation represents an opportunity to improve the results for patients while reducing costs. However, Nordgren (2009) points out that healthcare service productivity should not be assessed only in terms of results and costs but also by values for the patient such as health, quality of life, accessibility, trust, communication, and avoidable suffering. Patient thus becomes an active part of value creation and it is suggested

to replace the term "patient", more suited to a passivity condition, with the term "client", which is more suited to an active participation image (Nordgren, 2008). Nowadays, patients have developed a new knowledge and social consciousness, gaining awareness and actively and personally participating in the information action (McColl-Kennedy et al., 2009; 2012). Many authors emphasize the importance of platforms and online communities that represent an important source of information for patients and a new form of interaction that makes the service available in a continuous manner, making possible forms of value that would not be available in a traditional healthcare system based on sporadic meetings between operators and patients (Loane and Webster, 2014; Rantala e Karjaluoto, 2016; Van Oerle et al., 2016; Buranarach et al., 2011). Hence, patients play an important role having basic resources to create value such as information (Zainuddin et al., 2013), but many authors also point out the strategic role of providers who have the responsibility to effectively educate and manage patients, gather and analyse the necessary information they have, capture and interpret their judgments, feedback and complaints (Gill et al., 2011; Elg et al., 2012; Olsson, 2016). Not all the works focus on the co-creation with patients; some authors consider the process of co-creation within the supply chain of the healthcare organizations essential to better performances (Chakraborty and Dobrzykowski, 2013; 2014).

Contributions based on Service Science, instead, analyse the fundamental role of the new technologies that, by facilitating the value co-creation process, can create a smarter, more connected healthcare system able to provide better assistance with fewer errors, anticipate and prevent illness and allow people to make better and more responsible choices (Maglio e Spohrer, 2008; Carrubbo et al., 2015; Gkoulalas-Divanis et al., 2014).

## *2.2. Patient empowerment as a multidimensional construct*

Literature provides numerous definitions of patient empowerment but they can be summarised as follow: patient empowerment is a communicative process developed between healthcare professionals and patients (Aujoulat et al., 2007; Small et al., 2013), through a model of partnership (Rodwell, 1996; Boudioni et al., 2012), collaboration (Shearer et al., 2007; Wentzer and Bygholm, 2013) and patient-centered care (Jerofke, 2013), based on a relationship that should be egalitarian and equitable (McWilliam, 2009). This relational process should be guided by the exchange of information and consists in sharing knowledge and skills (Fotoukian et al., 2014; Aujoulat et al. 2008), action strategies (Bulsara et al., 2006), including motivational elements (Bann et al., 2010; Fumagalli et al., 2015).

For some authors, the result of the empowerment process is the occurrence of transformations in patient conditions (Aujoulat et al., 2007; Shearer et al., 2007); for others, the ultimate goal is achieving self-management (Bann et al., 2010; Shearer et al., 2007), self-efficacy (McAllister et al., 2012; Small et al., 2013), self-care (Fotoukian et al., 2014), control over the health status (Anderson and Funnell, 2010; Aslani, 2013; McWilliam, 2009), participation at the decision-making process (Anderson et al. 2010; Rodwell, 1996; Wentzer and Bygholm, 2013) and a power position in the relationship with the operators (Fumagalli et al., 2015).

All the authors describe empowerment as a multidimensional construct and each one identifies different dimensions that can be grouped into the four dimensions of patient empowerment recognized by the European Community within the SUSTAINS project (Ünver and Atzori; 2013):

- Health literacy: it can be defined as a person's capacity to obtain, process and understand basic health information and to use such information in ways that enhance health (Ouschan et al. 2000; Aujoulat et al. 2008; Small et al. 2013).

- Shared decision-making: it is a collaborative process that allows patients and their providers to make healthcare decisions together (Small et al. 2013; Fotoukian et al. 2014; Salmon et al. 2004).
- Patients' control over their treatment: it consists in patient's ability to control and manage his/her health conditions (Oh et al., 2012; Salmon et al., 2004; Aghili et al., 2013).
- Communication with healthcare professionals: it is a reciprocal, interactive process involving patient and professionals in which they need to ensure that the message or information is received and understood (Aujoulat et al., 2007; Small et al., 2013; Fotoukian et al., 2014).

### 2.3. Patient satisfaction as quality indicator

Patient satisfaction is a function of the magnitude and direction of the difference between perceived service and expected service (Grönroos, 1984). If the disconfirmation is positive (that is, the perceived service is greater than the expected one) satisfaction is generated, otherwise - negative disconfirmation - dissatisfaction is generated (Oliver, 1981).

Patient satisfaction is an important and commonly used indicator for measuring the quality in healthcare (Prakash, 2010; Reichheld, 2003); Donabedian (1988) states that it is useless to discuss its validity as a measure of quality.

The measurement of satisfaction is a strategic tool for the quality improvement process (Barton, 2003; Quinn et al., 2004) because satisfied patients are more likely to receive health care and comply with prescribed treatment regimens (Weisman and Koch, 1989). Secondly, by identifying the source of dissatisfaction, healthcare administrators are able to identify the weaknesses of the system, thus improving their services (Dansky and Miles, 1997). Thirdly, satisfied patients are more likely to develop a deeper and lasting relationship with their healthcare providers with results such as continuity of care, and better health outcomes (Larsen and Rootman, 1976; Pascoe, 1983; Stelfox et al., 2005), while low patient satisfaction is associated with less confidence in practitioners, greater chances for medical change, and less continuity of care (Keating et al., 2002). In addition, several researches have shown that patient satisfaction (or dissatisfaction) can be useful as a predictor of other customer behaviors such as the choice of professionals or programs, exclusion or use of services, complaints and negligence (Ware, 1987). Therefore, measuring patient satisfaction should be a strategic goal for all health organizations (Stavins, 2006).

## 3. Theoretical links and research hypotheses

### 3.1. Value co-creation and patient empowerment

The analysis of healthcare relationships through the adoption of a service-based logic (S-D logic), described in the previous paragraph, reflects the complex role of the patient and the importance of his/her participation as an "operating" resource in the value-creation process.

According to the definition of value co-creation provided by S-D logic as "integration of resources and application of competences during the interactions among providers and customers" (Vargo et al., 2008), it seems clear that patients, in order to co-create value with healthcare professionals, must have resources to integrate with them and competences to apply in the interaction. The greater the resources and the competences that patient possesses, the greater the contribution of the patient to the creation of value.

Starting from the definition of patient empowerment as "*the process of people obtaining the knowledge and skills that enables them to become active partners with professionals in making informed decisions and choices about their own treatment and care*" (Boudioni et al.,

2012; Fumagalli et al., 2015) ... and mobilize the necessary resources in order to feel in control of their own lives (Rodwell, 1996)” we can state that empowerment provides patients the right resources and competences to co-create value with the operators. Therefore, patient empowerment seems to be an enabler of value co-creation which in turn empowers patients through the participation and the exchange of resources and competences with professionals.

Based on these considerations, the first research hypothesis is:

- *H1: the empowerment level of patients and their participation to the value co-creation process are positively and significantly correlated.*

### 3.2. Value co-creation and patient satisfaction

The value co-creation process is accompanied by customers’ feelings of pride due to their direct participation in the creation of a value (Franke and Schreier, 2010). Franke et al. (2010, p. 125) define this concept as the “I designed it myself” effect, referring to the value enhancement that customers attribute to a self-designed product/service derived solely by the fact that they feel like the creator of such product/service. This is consistent with the concept of decision satisfaction (Heitmann et al., 2007), which postulates that clients experience satisfaction or dissatisfaction not only with the service purchased but also with the purchasing decision process in itself. The satisfaction with the decision is associated with the service development process and, therefore, goes beyond the satisfaction with the result.

When the service is co-created and adapts to customer needs, the effort put in the co-creation process is perceived as positive and it integrates with the personal value of the service; this is because the efforts made in the co-creation process are perceived as a rewarding experience that goes beyond the self-evaluation of the service value (Franke and Schreier, 2010). Therefore, customers evaluate the process of co-creation based on the degree to which they are satisfied with their performance during co-creation, as well as satisfaction for participation in the provision of services (Bendapudi and Leone, 2003).

Stating that value co-creation enhances patient satisfaction which in turn stimulates the participation in the co-creation process, the second research hypothesis is:

- *H2: the satisfaction level of patients and their participation to the value co-creation process are positively and significantly correlated.*

### 3.3. Patient empowerment and patient satisfaction

As observed in a previous work (Polese et al., 2016), the links between patient empowerment and healthcare quality are many. By analyzing the four main dimensions of patient empowerment described above, it emerges that each of them has several positive effects on the quality of the healthcare results and, consequently, on patient satisfaction as its indicator.

For example, health literacy allows to achieve results in terms of more appropriate and effective use of healthcare resources, lower use of drugs, less treatment errors and an increased use of preventive services, thus improving quality. Moreover, patients with a greater health literacy have less unrealistic expectations on the outcomes of the treatment and this could have a positive influence on their satisfaction.

Patients who are empowered to make decisions about their health have greater satisfaction because the chosen treatment or screening option better reflects their personal preferences, needs and values.

Additionally, patients able to have control over their treatment are less dependent from the doctors and health services in their disease management with significant benefits on their well-being and quality of life.

Finally, a good communication between patients and healthcare professionals may facilitate the identification of the correct diagnosis in a shorter time, reduce the risk of

medical errors, prevent failures of treatment, reduce the patient's anxiety and increase his/her confidence in the physicians. Moreover, patient satisfaction increases when members of the healthcare team took the problem seriously, explained information clearly, tried to understand the patient's experience and provided viable options.

Satisfied patients feel a greater sense of responsibility and they have more incentive to actively participate in the management of their own health thereby increasing their level of empowerment. Therefore, the third research hypothesis is:

- *H3: The empowerment level of patients and their level of satisfaction are positively and significantly correlated.*

#### 4. Methodology

To test the research hypotheses, an empirical investigation was conducted. It was created a questionnaire composed by three measurement scales described in Table 1.

*Table 1. Questionnaire structure*

Measurement scale	Subscales	N. items	Source
Value co-creation	- Patient Participation Behavior (PPB) - Patient Citizenship Behavior (PCB)	29	Yi and Gong, (2013)
Patient Satisfaction	- Satisfaction with Interactions with Professionals (SIP) - Satisfaction with Healthcare Service (SHS)	17	Ware et al., (1984); Marshall et al., (1993); Greenfield and Attkisson, (1989)
Patient Empowerment	- Health Literacy (HL) - Patient Participation (PP) - Patient Control (PC) - Communication with Healthcare Professionals (CHP)	57	Ishikawa et al., (2008); Hibbard et al., (2004); Small et al., (2013); Faulkner, (2001); Kim et al., (2001)

Source: Authors' elaboration

To operationalize the domains in Table 1, an item pool for each scale was constructed by selecting questions from existing instruments showing internal consistency reliability, construct validity, and psychometrical validity.

For the value co-creation measurement, the “Customer value co-creation behavior scale” (Yi and Gong, 2013) was selected and adapted to the healthcare context with the collaboration of two physicians. This scale conforms to a third-order factor model that ties customer value co-creation behavior to two distinct dimensions: participation and citizenship. Each of these dimensions comprises four sub-dimensions: information seeking, information sharing, responsible behavior, and personal interaction in the case of customer participation, and feedback, advocacy, helping, and tolerance with respect to customer citizenship.

For the development of the scale measuring patient empowerment a series of models were carefully chosen from literature (Ishikawa et al., 2008; Hibbard et al., 2004; Small et al., 2013; Faulkner, 2001; Kim et al., 2001), and the items representing one of the four dimensions of patient empowerment (Ünver and Atzori; 2013) were selected from each one.

The scale for patient satisfaction was created by selecting the items related to the satisfaction with interaction with professionals and the satisfaction with healthcare service from several scales (Ware et al., 1984; Marshall et al., 1993; Greenfield e Attkisson, 1989). The items related to the satisfaction with the tangible aspects of healthcare service *-facilities, number and appearance of personnel, tools or equipment used to provide service*

(Parasuraman et al., 1988)- were not considered in this study because not depending from the patient's variables investigated in this work.

Four experts (two physicians and two researchers with experience performing psychological studies on patients) examined the content validity of the questionnaire and it was carried out a pre-test in which ten people living with chronic illnesses evaluated the items clarity and readability.

The questionnaire was administered to 246 chronic patients directly by their physicians, pharmacists or nurses in the Local Health Units of the Province of Caserta and Frosinone between September 2016-January 2017. Participants responded to each item using a 5-point Likert scale.

To test the validity of each scale an Exploratory Factor Analysis was conducted. To determine unidimensionality of the subscales, interitem correlations were calculated and Principal Components Analysis (PCA) was used to explore the structure of the questionnaire. Internal consistency reliability was tested by the use of the Cronbach's alpha coefficient. Finally, to test the correlations between the variables, the Pearson correlation coefficient between each subscale was calculated.

## 5. Data analysis and hypotheses testing

Respondents ranged in age from 25 to 88 and reported a wide range of chronic conditions; their characteristics are summarized in Table 2.

Table 2. Sample characteristics

Age		Levels of education		Chronic diseases	
25-35	18%	Primary education	15%	Arthritis	11%
36-45	20%	Lower secondary education	6%	Arthrosis	13%
46-55	11%	Upper secondary education	35%	Diabetes	16%
56-65	27%	First stage of tertiary education	32%	Hypertension	18%
66-75	15%	Second stage of tertiary education	12%	Chronic Respiratory diseases	5%
75-88	9%			Cardiac decompensation	11%
				Others	26%

Source: Authors' elaboration

According to the results of factor analysis (Table 3), Kaiser-Meyer-Olkin score (.677<KMO<.801) and Bartlett's test of sphericity ( $p < 0.001$ ) show the adequacy of the sample size for each subscale and satisfy the requirements for carrying out a PCA (Hair et al., 2005).

Table 3. Factor analysis

		Value co-creation		Patient Satisfaction		Patient Empowerment			
		PPB	PCB	SIP	SHS	HL	PP	PC	CHP
Kaiser-Meyer-Olkin of sampling adequacy (KMO)		.763	.708	.776	.783	.677	.801	.750	.740
Bartlett's Test of Sphericity	Approx. Chi-square	529,439	269,249	183,361	227,138	320,189	319,826	308,226	363,544
	Df	120	78	28	36	91	105	91	78
	Sig.	.000	.000	.000	.000	.000	.000	.000	.000

A principal components analysis was used to identify an empirically derived set of subscales. The factor structure was then rotated using the Varimax method. Factor loadings (the correlations of items with the factors) >0.50 were considered significant and were used to define factors. From the analysis, it emerged that ten items presented variance below 0.50 (2 for the HL subscale, 2 for PP, 3 for PC, 1 for PPB and 1 for PCB); therefore, these items were not considered in the analysis.

In terms of reliability analysis results, Cronbach's Alpha values range from 0,772 to 0,916 which are acceptable and show a high reliability of the factors (Table 4).

Table 4. Reliability analysis

	Value co-creation		Patient Satisfaction		Patient Empowerment			
	PPB	PCB	SIP	SHS	HL	PP	PC	CHP
N. Items	15	11	8	9	12	13	11	13
<b>Cronbach's alpha</b>	,916	,772	,856	,859	,814	,881	,863	,894
Cronbach's alpha based on standardized items	,916	,765	,855	,859	,814	,881	,863	,894

As shown in Table 5, calculating the Pearson Correlation coefficient, it emerged a high correlation ( $|R|>0.7$ ) between the two dimensions of value co-creation (Patient Participation Behavior and Patient Citizenship Behavior) and the dimensions "Patient Control" and "Communication with Healthcare Professionals" of patient empowerment; while the other dimensions (Health Literacy and Patient Control) are moderately correlated ( $0.3<|R|<0.7$ ) with value co-creation. A moderate correlation emerged between all the dimensions of value co-creation and patient satisfaction and between "Patient Control" and "Patient Participation" and patient satisfaction; indeed, "Health Literacy" seem to be not correlated ( $|R|<0.3$ ) to the patient satisfaction and "Communication with Healthcare Professionals" appear to be correlated only with the "Satisfaction with Interactions with Professionals".

Table 5. Pearson correlation

		Correlations							
		PPB	PCB	HL	PP	PC	CHP	SIP	SHS
PPB	Pearson correlation	1	,754**	,483**	,515**	,732**	,728**	,482**	,287*
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,030
PCB	Pearson correlation	,754**	1	,432**	,478**	,619**	,694**	,583**	,378**
	Sig. (2-tailed)	,000		,001	,000	,000	,000	,000	,004
HL	Pearson correlation	,483**	,432**	1	,521**	,502**	,461**	,168	,202
	Sig. (2-tailed)	,000	,001		,000	,000	,000	,211	,132
PP	Pearson correlation	,515**	,478**	,521**	1	,577**	,543**	,347**	,371**
	Sig. (2-tailed)	,000	,000	,000		,000	,000	,008	,004
PC	Pearson correlation	,732**	,619**	,502**	,577**	1	,684**	,432**	,313*
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,001	,018
CHP	Pearson correlation	,728**	,694**	,461**	,543**	,684**	1	,333*	,201
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,011	,134
SIP	Pearson correlation	,482**	,583**	,168	,347**	,432**	,333*	1	,711**
	Sig. (2-tailed)	,000	,000	,211	,008	,001	,011		,000
SHS	Pearson correlation	,287*	,378**	,202	,371**	,313*	,201	,711**	1
	Sig. (2-tailed)	,030	,004	,132	,004	,018	,134	,000	
**. Correlation is significant at the 0,01 level (2-tailed).									
*. Correlation is significant at the 0,05 level (2-tailed).									



Table 5. Hypotheses test

<b>H1-</b> <i>the empowerment level of a patient and his/her participation to the value co-creation process are positively and significantly correlated.</i>	<b>Confirmed</b>	The analysis shows a positive and significant correlation between all the dimensions of patient empowerment and value co-creation.
<b>H2-</b> <i>the satisfaction level of a patient and his/her participation to the value co-creation process are positively and significantly correlated.</i>	<b>Confirmed</b>	The analysis shows a positive and significant correlation between all the dimensions of patient satisfaction and value co-creation.
<b>H3-</b> <i>The empowerment level of a patient and his/her level of satisfaction are positively and significantly correlated.</i>	<b>Partially confirmed</b>	The analysis shows a positive and significant correlation between two dimensions of empowerment (PC and PP) and patient satisfaction. HL does not show significant correlation with satisfaction while CHP is only related to SIP and is not related to SHS.

## 6. Conclusions and practical implications

Recent challenges, such as the rise of complex multiple diseases in the population and the economic crisis with the consequent cut-off mechanism of public funding, stimulates healthcare companies to look for new sources of competitive advantage. Strategies are often focused on the "patient-centered" healthcare but without a clear indication of its variables. In some health programs, the objective of empowerment is set, in others the increase in patient satisfaction, but the results of this work show that they are not independent. Patient empowerment, satisfaction and the participation in the value co-creation process are variables that affect each other, hence they should not be considered separately. This implies, for example, that in investigating healthcare quality, the questionnaires currently used by administrators to measure patient satisfaction are not complete because they ignore other important variables of the patients that affect their perceptions of quality. Quality, in fact, does not depend uniquely on the tangible and intangible aspects of the service (facilities, equipment, waiting times, staff, etc.), but also on a range of health competences and resources that patient has and applies in participating with operators to the creation of the final service. This paper shows that patient participation in the co-creation of the "health" value through the empowerment of his/her resources and competences should have a positive impact on the improvement of the healthcare service quality expressed by patient satisfaction. From a managerial point of view, this implies that health organizations and governments should adopt policies aimed at encouraging the active participation of citizens in health, although this requires an economic and cultural effort in terms of re-training both healthcare professionals and patients to a logic of access to information, participation and resources sharing. Creating value with patients means that healthcare professionals need to understand the patient's needs and goals and adopt a holistic approach to create positive experiences and boost patient confidence in consultations. The interactions between suppliers and patients are therefore crucial moments during which both are jointly responsible for the success of the service and the creation of a positive value for all stakeholders. The moment of interaction influences the perceived experience of the patient and his/her satisfaction rating. Particularly, the ability of the patient to communicate in an efficacy way with professionals increases the satisfaction with interactions with professionals although it does not seem to affect the satisfaction with health services in general.

Finally, from the analysis it emerged that patient health literacy does not show significant correlation with satisfaction. It would be interesting to investigate the causes but it could be

assumed that the more the patient is aware and knows the health processes, the more he can critically analyze the service and recognize areas of inefficiency.

## References

- Aghili R., Khamseh M.E., Malek M., Banikarimi A.S., Baradaran H.R., Ebrahim Valojerdi A. (2013). "Development and validation of diabetes empowerment questionnaire in Iranian people with type 2 diabetes". *Int Nurs Rev.*, 60(2): 267-73.
- Anderson R.M., Funnell M.M. (2010). "Patient empowerment: myths and misconceptions", *Patient Educ Couns.*, 79(3): 277-82.
- Aslani P. (2013). "Patient empowerment and informed decision-making", *Int J Pharm Pract.*, 21(6): 347-8.
- Aujoulat I., D'Hoore W., Deccache A. (2007). "Patient empowerment in theory and practice: polysemy or cacophony?", *Patient Educ Couns.*, 66(1): 13-20.
- Aujoulat I., Deccache A., Marcolongo R., Bonadiman L. (2008). "Reconsidering patient empowerment in chronic illness: A critique of models of self-efficacy and bodily control", *Soc Sci Med.*, 66(5): 1228-39.
- Bann C.M., Sirois F.M., Walsh EG. (2010). "Provider support in complementary and alternative medicine: exploring the role of patient empowerment", *J Altern Complement Med.*, 16(7): 745-52.
- Barton P.L. (2003). *Understanding the U.S. health services system: Second edition.* Washington, D.C.: AUPHA.
- Bendapudi N., Leone R.P. (2003). "Psychological Implications of Customer Participation in Co-Production", *Journal of Marketing*, 67(1): 14-28.
- Boudioni M., McLaren S.M., Lister G. (2012). "Cross-national diagnostic analysis of patient empowerment in England and Greece", *Int J Caring Sci.*, 5(3): 246-64.
- Bulsara C., Styles I., Ward M., Bulsara M. (2006). "The psychometrics of developing the patient empowerment scale", *J Psychosoc Oncol.*, 24(1): 1-16.
- Buranarach M., Thatphithakkul N., Kawtrakul A., Wongrochananan S., Kulnawan N., Jiamjarasrangi W. (2011). "Development of service systems to support diabetes patient self-management using a personalized service framework", *Proceedings - 2011 Annual SRII Global Conference*, SRII 2011: 363-370.
- Carrubbo L., Bruni R., Cavacece Y., Moretta Tartaglione A. (2015). "Service System Platforms to Improve Value Co-Creation: insights for Translational Medicine", in Gummesson, E., Mele, C., Polese, F. (Eds.) (2015), *Service Dominant Logic, Network and Systems Theory and Service Science: Integrating three Perspectives for a New Service Agenda.*
- Chakraborty S., Dobrzykowski D. (2013). "Supply Chain Practices for Complexity in Healthcare: A Service-Dominant Logic View", *The IUP Journal of Supply Chain Management*, 10(3): 53-75.
- Chakraborty S., Dobrzykowski D. (2014), "Linking service-dominant logic and healthcare supply chain", in *24th Annual Pom Conference Denver*, Colorado, Usa.
- Dansky K.H., Miles J. (1997). "Patient satisfaction with ambulatory health care services: waiting time and filling time", *Hosp Health Serv Admin*, 42(2): 165 – 77.
- Donabedian A. (1988). "The quality of care: How can it be assessed?", *Journal of the American Medical Association*, 260: 1743–1748.
- Elg M., Engström J., Witell L., Poksinska B. (2012). "Co-creation and learning in health-care service development", *Journal of Service Management*, 23(3): 328-343.

- Faulkner M. (2001). "A measure of patient empowerment in hospital environments catering for older people", *J Adv Nurs*. 34: 676–686.
- Fotoukian Z., Shahboulaghi F.M., Khoshknab M.F., Mohammadi E. (2004). "Concept analysis of empowerment in old people with chronic diseases using a hybrid model", *Asian Nurs Res.*, 8(2): 118-27.
- Franke N., Schreier M. (2010). "Why Customers Value Self-Designed Products: The Importance of Process Effort and Enjoyment", *Journal of Product Innovation Management*, 27: 1020–1031.
- Franke N., Schreier M., Kaiser U. (2010). "The "I Designed It Myself" Effect in Mass Customization", *Management Science*, 56(1): 125-140.
- Fumagalli L., Radaelli G., Emanuele L., Bertele' P., Masella C. (2015). "Patient empowerment and its neighbours: clarifying the boundaries and their mutual relationships", *Health Policy*, 119(3): 384-94.
- Gill L., White L., Cameron I.D. (2011). "Service co-creation in community-based aged healthcare", *Managing Service Quality: An International Journal*, 21(2): 152-177.
- Gkoulalas-Divanis A., Loukides G., Sun J. (2011). "Toward smarter healthcare: Anonymizing medical data to support research studies", *IBM Journal of Research and Development*, 58(1): 9-11.
- Greenfield T.K., Attkisson C.C. (1989). "Steps toward a multifactorial satisfaction scale for primary care and mental health services", *Evaluation and Programme Planning*, 12: 271-278.
- Gronroos C. (1984). "A service quality model and its marketing implications", *European Journal of Marketing*, 18(4): 36-44.
- Hair J., Babin B., Money A., Samouel P. (2005). *Fundamentos de métodos de pesquisa em administração*. Bookman Companhia Ed.
- Heitmann M., Lehmann D.R., Herrmann A. (2007). "Choice Goal Attainment and Decision and Consumption Satisfaction", *Journal of Marketing Research*, 44 (2): 234-250.
- Hibbard J.H., Stockard J., Mahoney E.R., Tusler M. (2004). "Development of the Patient Activation Measure (PAM): conceptualizing and measuring activation in patients and consumers", *Health Serv Res.* 39: 1005–1026.
- Ishikawa H., Takeuchi T., Yano E. (2008). "Measuring Functional, Communicative, and Critical Health Literacy Among Diabetic Patients", *Diabetes Care*, 31(5): 874-879.
- Jerofke T.A. (2013). "Concept analysis of empowerment from survivor and nurse perspectives within the context of cancer survivorship", *Res Theory Nurs Pr.*, 27(3): 157-72.
- Keating N.L., Green D.C., Kao A.C., Gazmararian J.A., Wu V.Y, Cleary P.D. (2002). "How are patients' specific ambulatory care experiences related to trust, satisfaction, and considering changing physicians?", *Journal of General Internal Medicine*, 17 (1): 29-39.
- Kim S.C., Boren D., Solem S.L. (2001). "The Kim Alliance Scale: development and preliminary testing". *Clin Nurs Res.*, 10: 314–331.
- Larsen D.E., Rootman I. (1976). "Physician role performance and patient satisfaction", *Soc Sci Med* (10): 29 – 32.
- Loane S.S., Webster C.M. (2014). "Consumer-to-consumer value within social networks", *The Marketing Review*, 14(4): 447-462.
- Maglio P.P., Spohrer J. (2008), "Fundamentals of service science", *Journal of the Academy of Marketing Science*, 36(1): 18-20.
- Marshall et al. (1993), The structure of Patient Satisfaction with Outpatient medical care. *Psychological assessment*, 5(4): 477-483.

- McAllister M., Dunn G., Payne K., Davies L., Todd C. (2012). "Patient empowerment: The need to consider it as a measurable patient-reported outcome for chronic conditions", *BMC Health Serv Res.* 12: 157.
- McCull-Kennedy J.R., Vargo S.L., Dagger T.S., Sweeney J.C, van Kasteren Y. (2012). "Health Care Customer Value Cocreation Practice Styles", *Journal of Service Research*, 15(4): 370-389.
- McCull-Kennedy J.R., Vargo S.L., Dagger T.S., Sweeney J.C. (2009). "Customers as Resource Integrators: Styles of Customer Co-creation", in Gummesson, E., Mele, C., Polese, F. (eds), *Service Science, S-D logic and network theory*, Giannini Editore, Napoli.
- McWilliam C.L. (2009). "Patients, persons or partners? Involving those with chronic disease in their care". *Chronic Illn.*, 5(4): 277-92.
- Nordgren L. (2008). "The performativity of the service management discourse: "Value creating customers" in health care", *Journal of Health Organization and Management*, 22(5): 510-528.
- Nordgren L. (2009). "Value creation in health care services – developing service productivity: Experiences from Sweden", *International Journal of Public Sector Management*, 22(2): 114-127.
- Oh H.J., Lee B. (2012). "The Effect of computer-mediated social support in online communities on patient empowerment and doctor-patient communication", *Health Commun.*, 27(1): 30-41.
- Oliver R.L. (1981). "Measurement and evaluation of satisfaction process in retail settings", *Journal of Retailing*, 75(3): 25 – 48.
- Olsson E.M. (2016). "Interpersonal complaints regarding cancer care through a gender lens", *International Journal of Health Care Quality Assurance*, 29(6): 687-702.
- Ouschan R., Sweeney J.C., Johnson L.W. (2000). "Dimensions of patient empowerment: implications for professional services marketing", *Heal Mark Q.*, 18(1-2): 99-114.
- Parasuraman A., Zeithaml V.A., Berry L.L. (1988). "SERVQUAL: A multi-item scale for measuring consumer perceptions of service quality", *Journal of Retailing*, 64: 21-40.
- Pascoe G.C. (1983). "Patient satisfaction in primary health care, a literature review and analysis", *Evaluation and program planning*. 6(3/4): 185 – 97.
- Polese F., Moretta Tartaglione A., Cavacece Y. (2016). "Patient empowerment for healthcare service quality improvements: a value co-creation view", in *proceedings 19th Toulon-Verona International Conference Excellence in Services*, University of Huelva (Spain), 5-6 September.
- Prakash B. (2010). "Patient Satisfaction", *Journal of Cutaneous and Aesthetic Surgery*, 3(3): 151-155.
- Quinn G.P., Jacobsen P.B., Albrecht T.L., Ellison B.A., Newman N.W., Bell M., Ruckdeschel, J.C. (2004). "Real-time patient satisfaction survey and improvement process", *Hospital Topics*. 82(3): 26-32.
- Rantala K., Karjaluoto H. (2016). "Co-creation in health care: Insights into the transformation from value creation to value co-creation through digitization", *Proceedings of the 20th International Academic Mindtrek Conference*, pp. 34-41
- Reichheld, F.F. (2003). "The one number you need to grow", *Harvard Business Review*, 81(12): 46-54.
- Rodwell CM. (1996). "An analysis of the concept of empowerment", *J Adv Nurs.*, 23(2): 305-13.
- Salmon P., Hall G.M. (2004). "Patient empowerment or the emperor's new clothes". *J R Med.*, 97(2): 53-6.
- Shearer N., Cisar N., Greenberg EA. (2007). "A telephone-delivered empowerment intervention with patients diagnosed with heart failure", *Hearung*, 36(3): 159-69.

- Small N., Bower P., Chew-Graham C., Whalley D., Protheroe J. (2013). "Patient empowerment in long-term conditions: development and preliminary testing of a new measure", *BMC Heal Serv Res.*; 13:263.
- Stavins, C.L. (2006). *Developing employee participation in the patient satisfaction process*. ACHE: Fellowship Case Reports.
- Stelfox H.T., Gandhi T.K., Orav E.J., Gustafson M.L. (2005). "The relation of patient satisfaction with complaints against physicians and malpractice lawsuits", *Am J Med.*, 118(10): 1126-1133.
- Ünver Ö., Atzori, W. (2013). *Document D3.2 – Questionnaire for Patient Empowerment Measurement Version 1.0*. ICT PSP – Empowering patients.
- Van Oerle S., Mahr D., Lievens A. (2016). "Coordinating online health communities for cognitive and affective value creation", *Journal of Service Management*, 27(4): 481-506.
- Vargo S.L., Lusch R.F. (2004). "Evolving to a new dominant logic for marketing", *Journal of marketing*, 68(1): 1-17.
- Vargo S.L., Maglio P.P., Akaka M.A. (2008). "On value and value co-creation: A service systems and service logic perspective", *European Management Journal*, 26(1): 145-52.
- Vargo S.L., Lusch R.F. (2006). "Service dominant logic: what it is, what it is not, and what it might be", in Lusch, R.F. and Vargo, S.L. (eds), *The Service-Dominant Logic of Marketing: Dialog, Debate and Directions*, Armonk: M. E. Sharpe, pp. 43-56.
- Ware J.E., Snyder M.K., Wright W.R. (1984). "Defining and measuring patient satisfaction with medi-cal care", *Eval Program Plan*, 6: 247–263.
- Ware J.E. (1987). "Measuring the quality of care: The patient satisfaction component", *National Conference on Quality Assurance in Ambulatory Health Care*, Chicago.
- Weisman E., Koch J. (1989). "Progress notes: Special patient satisfaction issue", *Quality Review Bulletin*, 15: 166–167.
- Wentzer H.S., Bygholm A. (2013). "Narratives of empowerment and compliance: studies of communication in online patient support groups", *Int J Med Inform.*, 82(12): 386-94.
- World Health Organization. Regional Office for Europe. *Health 2020 policy framework and strategy document* [Internet]. Geneva: WHO; 2012.
- Yi Y., Gong T. (2013). "Customer value co-creation behavior: scale development and validation", *Journal of Business Research*, 66(9): 1279-1284.
- Zainuddin N., Russell-Bennett R., Previte J. (2013). "The value of health and wellbeing: an empirical model of value creation in social marketing", *European Journal of Marketing*, 47(9): 1504-1524.
- Zanetti C.A., Taylor N. (2016)., "Value co-creation in healthcare through positive deviance", *Healthcare*, 4(4): 277-281.

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