International Journal of Healthcare and Medical Sciences
ISSN(e): 2414-2999, ISSN(p): 2415-5233
Vol. 4, Issue. 5, pp: 54-59, 2018
URL: http://arpgweb.com/?ic=journal&journal=13&info=aims

Academic Research Publishing Group

Original Research Open Access

An Empirical Study of the Co-Creation of Values of Healthcare Consumers – The Perspective of Service Dominant Logic

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Abstract

Background: The major goal of this research is to fill in the gap of articles with insufficient theoretical support regarding the SDL and strategy of co-creation of values provided by medical and healthcare organizations. Approaching from the perspective of healthcare consumers, it examines relationships among interaction, willingness, competence, and value co-creation. **Methods:** The research is a cross-sectional study, with people seeking healthcare services in major hospitals in Taiwan as objects, Questionnaires were used as method for investigation and data collection. **Results:** The affecting factors of the co-creation of healthcare are education, occupation, with or without commercial insurance, willingness, competence, and interaction, reaching significant statistic standard ($p < 0.05$). **Conclusion:** The co-creation of values cannot only rely on the efforts of the medical professionals, it also requires the cooperation and efforts of patients and their families.

Keywords: Willingness; Competence; Interaction.

1. Introduction

The new strategy for medical institutions is to pursue the highest values for patients and regard the final medical effects as the major goal of the co-creation of values [1]. Medical care institutions have already entered the service oriented era. They need to input resources actively in offering differentiated and custom services to win competitive advantages. The Service Dominant Logic (SDL) emphasizing the co-creation of values with customers has received much attention with current strategy and marketing theory. In the domain of the studies of medical healthcare, it has gained attention gradually in recent years [2-6].

From the perspective of SDL, the present medical model is very different from that in the past. It is no longer one-sided therapy provided by the doctor. Instead, it emphasizes patient's active participation in addition to the professional knowledge and competence of the doctor. With the interactions, it provides the therapeutic models satisfactory to both the doctor and patient to achieve the co-creation of values in medicine and healthcare [3, 6]. The most active implication of SDL is to allow patients and medical services to provide better understanding of the "input, process, and output" in medical services and find the link of the co-creation of values. Likewise, they can provide complete clinical practices for illnesses, helping promote the quality of medical services [3, 6, 7].

More and more scholars emphasize the viewpoints of co-creation and interaction [3, 8-10]. The co-creation of value can only be achieved with the cooperation between both parties and the input all production sources [3, 11-13]. As consumers can decide the parts and degrees of active participation, it blurs the boundary between consumers and producers [14]. According to this concept, consumers can actively participate in the production process, no longer receivers to end products and services only [15, 16]. As a result, both parties participate to co-create values [17]. According to the new paradigm of sales/service dominated logic, medical consumers have already engaged in the co-creation and medical process. Paradigm shift has happened, including the idea of the shift from the possession of personal values and the co-creation of values [16]. In other words, the core theory of SDL, the co-creation of values, has changed from the review of literature concerning the one-way relationship between doctors and patients to studies oriented on the implications of the new and more theoretical practices [6, 18-20].

Therefore, the major goal of this research is to fill in the gap of articles with insufficient theoretical support regarding the SDL and strategy of co-creation of values provided by medical and healthcare organizations. Approaching from the perspective of healthcare consumers, it examines relationships among interaction, willingness, competence, and value co-creation. To patch this gap in research, this study proposes the viewpoint of the "co-creation" of value, suggesting patients and doctors can be complimentary and interact with each other with their competences. Both parties are willing to participate in the "input, process, and output" of medical services with final goal of promoting the effects and satisfaction of healthcare services to achieve the goal of the co-creation of value. The medical and healthcare organizations can also achieve the goal of minimizing medical bills with the "co-creation" of values. Regarding the contributions of this paper on academic studies, it aims to provide a theoretical

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framework with the co-creation of value as the core to clarify its implications. It can also enrich the literature on the SDL and co-creation of value on the medical and healthcare organizations in Taiwan. The findings of this paper can provide a macro-view for the references of the interested parties, such as the government, medical and healthcare organization managers when making policies on the co-creation of value.

2. Materials and Methods

2.1. Study Design and Subjects

The research is a cross-sectional study, with people seeking healthcare services in major hospitals in Taiwan as objects, Questionnaires were used as method for investigation and data collection. Each of the interviewees was explained thoroughly regarding the project's contents by the principal investigator and co-principal investigator. Questionnaires were collected anonymously, without any contact information or links to personal information. Data were collected in the manner of structured questionnaires, whose contents were finalized with references to local and international literature, with the review and approval of hospital managers regarding its validity. This study began to send out questionnaire from March to June in 2017. A total of 854 valid questionnaires was received. The design of this study was reviewed and approved by the Joint Institutional Review Board (IRB 1031108), and consents forms were signed by the testes.

2.2. Research Tools

The questionnaire designed by researchers includes the following items: the testee's background, interaction, willingness, competence, and co-creation of value. The questionnaire uses Likert 5-point scale for measurement. The score of 5 points represents strongly agree; four points, agree; 3 points, neutral; 2 points, disagree; 1 point, strongly disagree. Regarding the reliability and validity of the questionnaire, the research data are collected with cross-sectional study. The reliability is reviewed with Cronbach's α for its internal consistency. Regarding the collection of the questionnaires, the dimensions of the questions and Cronbach's α value are as follow: there are 11 questions on interaction, with the α value=0.939; willingness, 5 questions with theα value=0.851; competence, 3 questions with the α value=0.877; co-creation of value, 11 questions with the α value=0.947. Regarding the analysis of the reliability of the empirical data, the Cronbach's α value is 0.971 (as shown in Table 1).

2.3. Analytical Methods

This questionnaire was retrieved after sending. The data obtained from the contents of the questionnaire were analyzed by the statistic software SPSS 22.0. The method used includes reliability analysis, descriptive statistics analysis, correlation analysis, and regression analysis. According to the research design mentioned above, questionnaires were sent out and invalid questionnaires were filtered. The retrieval of valid questionnaires were analyzed and calculated with appropriate research method to obtain results.

3. Results

3.1. Personal Property Distributions

In this research, there were 854 valid samples. Regarding the gender of the samples, 525 were female (61.47%); and male, 329 (38.53%). Their age ranged from 31-50, numbered 520 (60.89%); younger than 30, 246 (28.81%); and older than 51, 246 (10.3%). About their education, most were at the level of high school, numbered 375 (43.91%); then, college, 308 (36.07%). Regarding their marital status, most were married, occupying 466 (54.57%). As to their occupation, most worked in private enterprises, totaled 396 (46.37%); then, civil servant, 230, (26.93%). There were 709 (83.02%) people that had purchased commercial insurance. Most of their salaries were less than NT$ 30,000, totaled 511, (59.84%). Analyzing them with Chi-square test, about the age ($p=0.753$); education, ($p<0.01$); marital status, ($p=0.942$); occupation, ($p<0.002$); commercial insurance, ($p<0.05$); and salary, ($p<0.001$), as shown in Table 2.

3.2. Analysis of Interaction, Willingness, Competence, and Co-Creation of Value

This research compared the influence of interaction, willingness, and competence on the co-creation of value further. Regarding the problem of the creation of collinearity of control variable and independent variable when conducting regression analysis, this research had already conducted variance inflation factor testing of the related variables (VIF<10) and conditional indicator (CI<10) to avoid the problem of collinearity. The testing result of regression and differential analysis of the co-creation of healthcare, the F statistics is 64.313($p <0.001$). From the regression pattern of Table 3, it indicates that the affecting factors of the co-creation of healthcare are education, occupation, with or without commercial insurance, willingness, competence, and interaction, reaching significant statistic standard ($p <0.05$). Among them, the affecting factors of the co-creation value of healthcare, from the perspective of education, college and graduate school, were shown to have negative relationship. It indicates that the lower the education level, the less the co-creation of healthcare. Then, people working in private enterprises with commercial insurance were shown to have positive relationship in price and the result of co-creation.

4. Conclusions

The relationship between doctors and patients should be diverse with different backgrounds in different times. Doctors and patients have their own roles, and they have expectations on each other. Whether such kind of interaction builds good doctor-patient relations depends on their personalities and their expectations of the roles they play. The purpose of this study examines the influence of interaction, willingness, and competence on the co-creation of values. The implications and conclusions of this research are delineated as follow:

This research discovered that interaction, willingness, and competence show to have positive and significant influence on the co-creation of values in healthcare. Simply put, the first logic of the co-creation of value is "if both of them can co-create values, they must have mutual competence." Patients are no longer bound by their healthcare plan. In addition, they have more information to control their own destiny. They are able to take more responsibilities in their medical care and health. Patients have changed from their roles to become active customers. They can participate and manage their health and competence in collecting and searching for related information actively in order to choose therapy and responsible for their own behavior [21].

In addition, the study of Wagner and Buko [22] discovered that interaction is a key factor for the cooperation between partners. The major reason is that interaction promotes partnership and the tacit transfer of knowledge between them to construct the foundation of collaboration [23]. Patients that are willing to participate will be helpful to healthcare providers to collaborate in promoting the effects of healthcare services [24]. The study of Zeithaml [25] also discovered that if we want to achieve excellent quality and satisfactory result, there is the necessity for customers to participate willingly. For example, during the medical consultation (including body check, pressure diagnosis, weight control, diet plan etc.,), it needs patients to participate actively and willingly, and provide information required by the medicine provider and self-supervision and effort in order to achieve positive medical results. When patients participate willingly, it can reduce the uncertainty of medical healthcare and increase the output of medical healthcare. This research also discovered that education, occupation, the purchase of commercial insurance, and pricing show to have positive relation with the co-creation of value. It represents that the personality of part of the patients will affect the result of the co-creation of value.

Finally, the relationship between doctors and patients are different from other businesses. On the one hand, the foundations of doctors' knowledge is scientific, objective, and professional. On the other, for individuals suffered from physical and mental illness, the role between them also include the execution of medical technology, in addition to the exchange and communication of medical information. Targeting an individual patient, a medical team can list different therapeutic means, using different tools, with the help of photos, models, and the use of internet and multimedia clips to explain the advantages and disadvantages of different therapeutic means. They can also encourage the patient to express the degree of understanding of his or her own disease. After explanations, the medical team can invite the patient to explicate their understanding to ensure that they fully understand the process and possible outcomes of different therapeutic means. The co-creation of values cannot only rely on the efforts of the medical professionals, it also requires the cooperation and efforts of patients and their families. In other words, medical teams can encourage patients to express their views, ask questions, and discuss fully to allow them to make the final decisions with the most benefits to them in order to achieve the co-creation of value. In sum, the issue of the co-creation of value will have further room for discussion in the future. It is expected that this research can bring different thinking for problem solving and provide broader perspectives in research thinking.

Acknowledgments

We appreciate the Tainan Municipal Hospital (Managed by Show Chwan Medical Care Corporation) Research Fund and the participating pharmacists' assistance in completing the questionnaires so that the study can be completed successfully.

Conflict of interest

The author's declare that there are no conflict of interest.

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Appendix

Table-1. Validity and average variable extracted

Construct	Mean	SD	Cronbach's α	CR	AVE
Interaction	4.432	0.441	0.939	0.914	0.492
Willingness	4.341	0.477	0.851	0.761	0.399
Ability	4.370	0.519	0.877	0.791	0.558
Value co-creation	4.340	0.491	0.947	0.905	0.465

Table-2. Baseline Characteristics (n=854)

Measure		Female	%	Male	%	X^2
Age						0.753
	<30 Years	156	18.33	90	10.58	
	31-50Years	315	37.02	205	24.09	
	>51Years	54	6.35	34	4.00	
Education level						0.010
	Junior high school	30	3.53	16	1.87	
	High school	217	25.50	158	18.50	
	Junior college	48	5.64	30	3.51	
	College	209	24.56	99	11.59	
	Graduate school	21	2.47	26	3.04	
Marital status						*0.942*
	Unmarried	202	23.74	124		
	Married	286	33.61	180		
	Other	37	4.35	25		
Occupation						0.002
	Civil servant	147	17.27	83		
	Worked in private enterprises	42	4.94	53		
	Student	247	29.02	149		
	Other	89	10.46	44		
Purchased commercial insurance						0.039
	Yes	426	50.06	283		
	No	99	11.63	46		
Salary						0.001
	<NT$29,999	338	39.72	173	*0.942*	
	NT$30,000-$49,999	139	16.33	86	10.07	
	>NT$50,000	48	5.64	70	8.20	

Table-3. Regression model

Measure / **Control variable**		**Value co-creation**
Sex (Reference group: Female)		1.323
Shift system (Reference group: No)		-1.784*
Age (Reference group:31-50 Years)		
	<30 Years	.171
	>50 Years	1.293
Education level (Reference group: High school)		
	Junior high school	.747
	Junior college	-.168
	College	-2.169**
	Graduate school	-1.957*
Marital status (Reference group: Married)		
	Unmarried	-1.095
	Other	.178
Occupation (Reference group: Worked in private enterprises)		
	Civil servant	1.388
	Student	3.364***
	Other	-.459
Salary (Reference group: <NT$ 30,000)		
	NT$ 30,000~49,999	-.459
	>NT$50,000	.503
Purchased commercial insurance (Reference group: No)		2.048**
Independent variable		
Interaction		3.419***
Willingness		9.953***
Ability		10.765***
R^2		.582
Adj. R^2		.572
F values		64.313
P values		0.001***

Note: *** p<0.01, ** p<0.05, *p<0.1