

A Study of the Relation between the Quality Perceived by Medical Tourists and Costumer Satisfaction

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Abstract: The aim of this study is to investigate the relation between the quality perceived by medical tourist and costumer satisfaction. This model consists of independent variables: perceived quality of medical care and perceived quality of service and an intervening dependent variable: costumer satisfaction. The research method is descriptive/survey. The sampling method is random-stratified sampling. Cochran formula was used to determine the size of sample. To gather data, a closed questionnaire with likert scale values was administered among 384 Iraqi medical tourists who attended Imam Reza Medical Center in Kermanshah, Iran. Path analysis method was used to test the hypothesis and AMOS Software was utilized for statistical analysis of data. The results demonstrate a positive significant relation between variables.

Key words: Perceived quality of medical care, perceived quality of service, costumer satisfaction, Iraqi medical tourists in Imam Reza Medical Center, AMOS, sample

INTRODUCTION

Functional quality is about situations in which the costumer is provided with a service. Considering the difficulty in measuring the technical quality, It is the functional quality that usually influences the costumer's perception of the service and is adopted as a basis for evaluation (Donabedian, 1980). The quality of services is one of the most important factors influencing the costumer's behavior and it is extensively been studied. A higher level of service quality causes higher levels of sales revenue and productivity. Service quality is commonly defined as the costumer's judgement on the superiority or the general superiority of the service. The quality of a service is a stable criteria which shows to what extent the delivered services is in conformity with the costumer's expectations (Abari *et al.*, 2011). The evaluation of the mere performance of services could lead to inaccurate evaluation of the perceived quality of the service. Evaluating the service quality is much more complex than evaluating the product quality (Akbaba, 2006). The costumer satisfaction is of two aspects: the perceived quality and the expectations. The agreed upon definition of the costumer satisfaction is as follows: costumer satisfaction is a result of the comparison done by the costumer between the expected performance with the actual perceived performance and the cost (Beerli *et al.*, 2002). The traditional theories in the

past mostly emphasized the commercial activities such as proper purchases, careful warehousing and accurate pricing while today the retailers concentrate on the activities closely related to the costumers (Chen-Yu and Kincade, 2001). A research conducted in India highlights that the growth of tourism market in India up to 2.2 billion \$ in 2013 and the government's commitment to improving this market was an incentive for private investments so that the private funds of US together with the investors in India, invested more than 4 million \$ in the health care industry of India. Notwithstanding Iran's great potential of medical tourism, it is confronted with numerous challenges. Factors such as noncooperation between the custodian organizations of medical tourism, lack of expert work committees in Ministry of Health and Medial Education and the Cultural Heritage Organization of Iran, lack of a comprehensive system for collection data related to the medical tourists travelling Iran, inefficiency of the mass notification system in promoting the capacities of medical tourism in Iran, lack of necessary infrastructures and legal gaps for developing this industry has deprived the medical tourism industry of Iran of its righteous place. Furthermore, by considering the advantages and the improvable points and investing on the advantages and introducing them as its unique capabilities, Iran is able to increase its role in this industry. Regarding the improvable points, It is possible to bridge the gaps by different studies and researches. Therefore, studies in this new field is essential.

Main aim: Studying the relation between the perceived quality of the services by medical tourists and their satisfaction (medical tourists from Iraq in the Imam-Reza Medical Center).

Specific goals:

- Determining the relation between the perceived quality of medical care with the costumer satisfaction
- Determining the relation between the perceived quality of the services with the costumer satisfaction

Main hypothesis: There is a positive significant relation between the perceived quality by medical tourists and their satisfaction.

Sub-hypothesis

First hypothesis: There is a positive significant relation between the perceived quality of medical care with the costumer satisfaction.

Second hypothesis: There is a positive significant relation between the perceived quality of the services with the costumer satisfaction.

Definition of the concepts

Perceived quality of the medical care: The quality of healthcare deliveries is defined as the degree of the services provided to individuals and communities which increase the probability of favorable consequences and are in conformity with the cutting-edge science. Philip Crosby, a theoretician and practitioner of quality management says: “It is much less expensive to prevent errors than to rework, scrap or service them” (i.e., the quality is free, what is costly is low quality) quality is something determined by the costumers of an organization and not the organization itself. The concept of quality is originated in the works of industrial experts. The importance of quality was recognized since 1950. The preliminary attempts were focused on the manufacturing sector and but later the service sector was included (Crozier and Baylis, 2010).

Perceived quality of the service: Quality of the service is the set of the features of a product or service which is a determining factor for responding to the explicit and implicit pre-determined needs of the costumers. The quality usually demonstrates the superiority or advantage of a product or service. There are several definitions for the quality of service such as:

- Being appropriate and fitting
- The best feature of a product or service which ensures the costumer satisfaction and satisfies their needs and expectations

- The quality of service should satisfy the costumer’s need in the time being and the future (Crozier and Baylis, 2010)

Costumer satisfaction: The patient’s view on quality is always what he/she understands from the medical environments. This view is what is called “patient satisfaction”. Patient satisfaction is a essential in defining quality. To give satisfaction to the patient the service providers should respect the needs, expectations and individual differences of the patients.

MATERIALS AND METHODS

This is an applied research in terms of goals and descriptive/survey in execution terms. It deals with exploring the relations among qualitative variables and attempts to explain these relations. This study investigated the relation between the perceived quality by medical tourists and costumer satisfaction, hence it is inductive in terms of the logic of performance and in terms of the relations among variable it is correlational. The population under study were the medical tourists from Iraq country in Imam-Reza Medical-Educational Center. Since, the statistical population is assumed as infinite, 384 individuals were selected as the statistical sample by considering maximum variance ($p \leq 0.05$) and limiting error of 0.05. A questionnaire was administered among the sample respondents. The questionnaire was designed using Likert scale. Different methods and statistical tests were used in this study such as Pearson correlation test which investigates the significance of the relations among variables. OLS Regression Model Test is another test applied in this study to assess the degree of effects and the goodness-of-fit. The collected data were analyzed by SPSS and AMOS. Finally, the appropriate model was determined using two criteria (and comparison between the proposed and independent model).

Normality test: The Kolmogorov-Smirnov test was used to test the normality of the distribution of variables. The null hypothesis in this test is the normality of the distribution of the variable. If the significance level is above 0.05 the null hypothesis is accepted (Table 1).

Table 1: The results of Kolmogorov-Smirnov test for the normality of data distribution

Variables	Mean	SD	Kolmogorov-Smirnov	Significance level	Results
			statistics		
Perceived quality of medical care	4.092	0.53	1.050	0.214	Affirmed
Perceived quality of service	4.191	0.50	0.931	0.352	Affirmed
Costumer satisfaction	4.089	0.48	1.290	0.070	Affirmed

Table 2: The Pearson correlation coefficient between perceived quality of medical care and customer satisfaction

Costumer satisfaction	Tests	Values
Perceived quality of medical care	Pearson correlation coefficient	0.527
	Significance level	0.000

Table 3: The Pearson correlation coefficient between perceived quality of service and customer satisfaction

Costumer satisfaction	Tests	Values
Perceived quality of service	Pearson correlation coefficient	0.633
	Significance level	0.000

Since, the significance level for all variables is above 0.05 it is concluded that all variables follow the normal distribution.

Investigating the hypothesis of the study

First hypothesis: There is a positive significant relation between the perceived quality of medical care with the costumer satisfaction.

- H_0 : there is no positive significant relation between the perceived quality of medical care with the costumer satisfaction
- H_1 : there is a positive significant relation between the perceived quality of medical care with the costumer satisfaction (Table 2)

Considering the significance level which is 0.000 and comparing it with the permitted error of 5% ($p < 0.05$), H_0 is rejected with a 95% confidence interval. In view of the value and sign of the Pearson correlation coefficient which is equal to 0.527 the first hypothesis is accepted.

Second hypothesis: There is a positive significant relation between the perceived quality of the services with the costumer satisfaction.

- H_0 : there is no positive significant relation between the perceived quality of the services with the costumer satisfaction
- H_1 : There is a positive significant relation between the perceived quality of the services with the costumer satisfaction

Considering the significance level which is 0.000 and comparing it with the permitted error of 5% ($p < 0.05$), H_0 is rejected with a 95% confidence interval. In view of the value and sign of the Pearson correlation coefficient which is equal to 0.633 the first hypothesis is accepted (Table 3).

RESULTS AND DISCUSSION

The measurement model for the variable of the perceived quality of medical care: To perform the factor analysis,

Table 4: Results of KMO-Bartlett test

KMO sampling adequacy measure	Values
Bartlett test	0.619
χ^2	53.930
Degree of freedom	3.000
Significance level	0.000

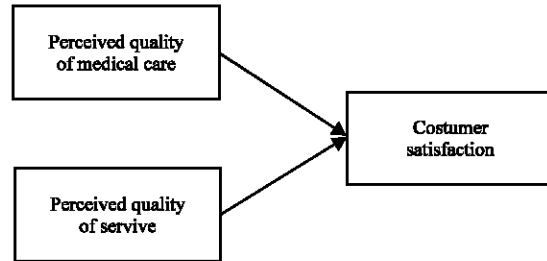


Fig. 1: The model of study

first the KMO-Bartlett test should be applied (Table 4). Considering the results it is possible to perform the stages of the confirmatory factor analysis on the data. The KMO statistics being above 0.05 approves the adequacy of the sample. Moreover, the confidence level of 0.000 for Bartlett test also shows that the selected factor model is appropriate.

The column for initial eigenvalues in the table indicates the number of hidden factors of the study and the number of total initial eigenvalues being above 1 indicates the presence of hidden factors. Since, the eigenvalues column for the variable of perceived quality of medical care shows one factor with the eigenvalue above 1, the proposed factor structure consists of one factor. Here, the variable of the perceived quality of medical care were measured. In the first stage, the answers to the question 1-3 were fed to the software as the factor weights for the variable of the perceived quality of medical care and the results were studied but since the significance level of question number 3 is above 0.05 this question was omitted to ensure the proper assignment of the factor weights to the variable under study and the confirmatory factor analysis was performed again. In the second stage, the optimal model with the proper assignment of the factor weights was derived that the results of which are shown in Table 5. Figure 1 shows the measurement model for the variable of the perceived quality of medical care in the standard estimation mode. The factor weights of the model in standard estimation mode show the contribution of each variable or item to the variance of the scores of the main variable or factor. In other words, the factor weight indicates the degree of correlation between each observation variable (each question) with the variables (factors). When factor weights in one are all above 0.3, there is convergent reliability of the construct (Table 6). The factor weights are shown in Fig. 2.

Table 6: The factor weights of indexes related to the variable of the perceived quality of medical care

Variables	Index	Factor weight of the model (regression coefficients)
Physicians have the necessary expertise to treat patients	q1	1.00
Nurses have the necessary expertise to take care of patients	q2	0.84

Table 7: The fit indexes for the measurement model of the variable of perceived quality of medical care

Index	Values	Results
Root Mean Squares of Approximation (RMSEA)	0.000	Model affirmed
Goodness-of-Fit Index (GFI)	0.987	Model affirmed
Adjusted Goodness-of-Fit (AGFI)	0.987	Model affirmed
Normalized Fit Index (NFI)	0.959	Model affirmed
Comparative Fit Index (CFI)	1.000	Model affirmed
Incremental Fit Index (IFI)	1.000	Model affirmed

Table 8: Results of KMO-Bartlett test

KMO sampling adequacy measure	Values
Bartlett test	0.649
χ^2	64.090
Degree of freedom	3.000
Significance level	0.000

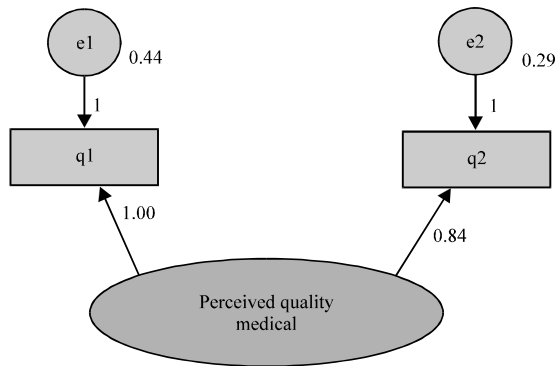


Fig. 2: The measurement model for the variable of perceived quality of medical care

In this study, the indexes provided in Table 7 were used to investigate the goodness-of-fit of the model. Considering the results it can be stated that all goodness-of-fit indexes in the model above are in the acceptable range and therefore the fitness of the collected data with the model is. Hence, the fitness of the final model of the perceived quality of medical care is affirmed.

The measurement model for the variable of the perceived quality of service: To perform the factor analysis, first the KMO-Bartlett test should be applied (Table 8).

Considering the results it is possible to perform the stages of the confirmatory factor analysis on the data. The KMO statistics being above 0.05 approves the adequacy of the sample. Moreover, the confidence level

Table 9: Sum of the variance accounted by the variable of perceived quality of service

Factor (1)	Sum	Percentage of variance	Aggregate percentage
Initial eigenvalues	1.202	62.18	62.18
Sum of squares of the derived factor weights	1.202	62.18	62.18

Table 10: The factor weights of indexes related to the variable of the perceived quality of service

Variables	Index	Factor weight of the model (regression coefficients)
Patient reception is quick and easy	q3	1.00
Hospital has the capability to treat patients	q4	1.70
Hospital pays attention to the patient's guardians and visitors	q5	1.20

of 0.000 for Bartlett test also shows that the selected factor model is appropriate. In the next stage the number of hidden factors should be identified.

The column for initial eigenvalues in the table indicates the number of hidden factors of the study and the number of total initial eigenvalues being above 1 indicates the presence of hidden factors. Since, the eigenvalues column for the variable of perceived quality of service shows one factor with the eigenvalue above 1, the proposed factor structure consists of one factor. In the first stage, the answers to the question 3-6 were fed to the software as the factor weights for the variable of the perceived quality of service and the results were studied and the optimal model with the proper assignment of the factor weights was extracted that the results of which are shown in Table 9. Figure 3 shows the measurement model for the variable of the perceived quality of service. The factor weights of the model show the contribution of each variable or item to the variance of the scores of the main variable or factor. In other words, the factor weight indicates the degree of correlation between each observation variable (each question) with the variables (factors). The table above shows the results of factor analysis for each question regarding the variable of perceived quality of service (Table 10). The factor weights are shown in Fig. 3.

In this study the indexes provided in the table above were used to investigate the goodness-of-fit of the model. Considering the results it can be stated that all goodness-of-fit indexes in the model above are in the acceptable range and therefore the fitness of the collected data with the model is good. Hence, the fitness of the final model of the perceived quality of service is affirmed (Table 11).

The measurement model for the variable of customer satisfaction: To perform the factor analysis, first the KMO-Bartlett test should be applied (Table 12).

Table 11: The fit indexes for the measurement model of the variable of perceived quality of service

Index	Values	Results
Root Mean Squares of Approximation (RMSEA)	0.000	Model affirmed
Goodness-of-Fit Index (GFI)	0.995	Model affirmed
Adjusted Goodness-of-Fit (AGFI)	0.973	Model affirmed
Normalized Fit Index (NFI)	0.984	Model affirmed
Comparative Fit Index (CFI)	1.000	Model affirmed
Incremental Fit Index (IFI)	1.000	Model affirmed

Table 12: Results of KMO-Bartlett test

KMO sampling adequacy measure	Values
Bartlett test	0.692
χ^2	92.770
Degree of freedom	3.000
Significance level	0.000

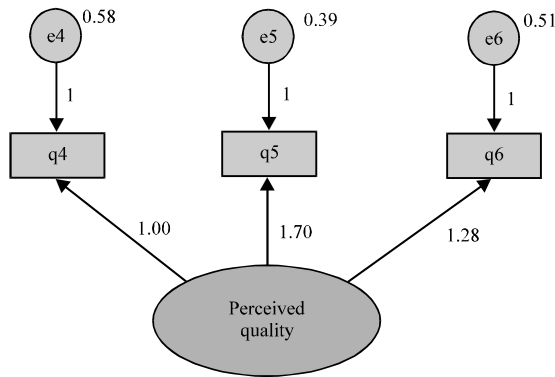


Fig. 3: The measurement model for the variable of service

Considering the results it is possible to perform the stages of the confirmatory factor analysis on the data. The KMO statistics being above 0.05 approves the adequacy of the sample (KMO = 0.692). Moreover, the confidence level of 0.000 for Bartlett test also shows that the selected factor model is appropriate. In the next stage the number of hidden factors should be identified (Table 13).

The column for initial eigenvalues in the table indicates the number of hidden factors of the study and the number of total initial eigenvalues being above 1 indicates the presence of hidden factors. Since, the eigenvalues column for the variable of customer satisfaction. Figure 4 shows the measurement model for the variable of the perceived quality of service. The factor weights of the model show the contribution of each variable or item to the variance of the scores of the main variable or factor. In other words, the factor weight indicates the degree of correlation between each observation variable (each question) with the variables (factors) (Table 14).

Table 13: Sum of the variance accounted by the variable of customer satisfaction

Factor (1)	Sum	Percentage of variance	Aggregate percentage
Initial eigenvalues	1.145	53.05	53.05
Sum of squares of the derived factor weights	1.145	53.05	53.05

Table 14: The factor weights of indexes related to the variable of customer satisfaction

Variables	Index	Factor weight of the model (regression coefficients)
Waiting time to get medicine is short	q6	1.00
Waiting time to do the tests is short	q7	0.76
Nurses and other staff are polite and responsive	q8	0.86

Table 15: The fit indexes for the measurement model of the variable of customer satisfaction

Index	Values	Results
Chi-squared (χ^2/df)	2.113	Model affirmed
Root Mean Squares of (RMSEA) Approximation	0.033	Model affirmed
Root Mean Residual (RMR)	0.677	Model affirmed
Goodness-of-Fit Index (GFI)	0.917	Model affirmed
Adjusted Goodness-of-Fit (AGFI)	0.901	Model affirmed
Normalized Fit Index (NFI)	0.902	Model affirmed
Comparative Fit Index (CFI)	0.870	Model affirmed
Incremental Fit Index (IFI)	0.898	Model affirmed

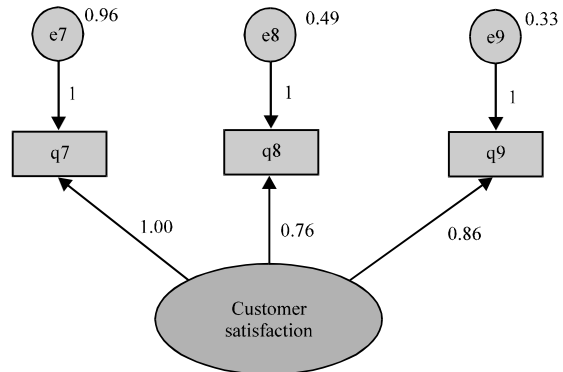


Fig. 4: The measurement model for the variable of customer satisfaction

The factor weights are shown in Fig. 5. Factor weights in one are all above 0.3, therefore there is convergent reliability of the construct. In this study the indexes provided in Table 15 were used to investigate the goodness-of-fit of the model.

Considering the results it can be stated that all goodness-of-fit indexes in the model above are in the acceptable range and therefore the fitness of the collected data with the model is good. Hence, the fitness of the final model of customer satisfaction is affirmed.

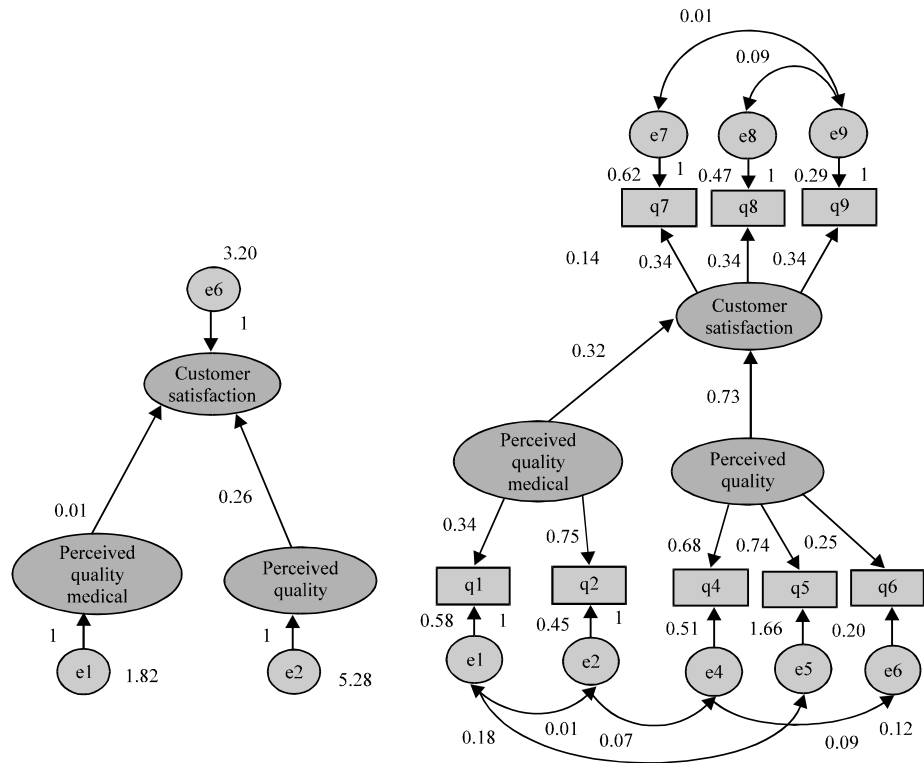


Fig. 5: Structural equation model for the standard estimation mode, the adjusted model of study

CONCLUSION

Main hypothesis: There is a positive significant relation between the perceived quality by medical tourists and their satisfaction.

The quality of service is the main factor encouraging the costumers to use the service and providing satisfaction in them. In this study, the patients and their guardians in Imam-Reza Medical Center are questioned about the services and medical cares in this hospital. The perceived quality of medical care (0.000) and the perceived quality of service (0.000) are at the significance level of 0.05 which shows a significant relation between the service (medical, treatment) and patient satisfaction.

Sub-hypothesis

First hypothesis: There is a positive significant relation between the perceived quality of medical care with the customer satisfaction.

Since, the resulted value is at the significance level of 0.000 which is below 0.05, it is concluded that this parameter has a significant effect on the variable of customer satisfaction. Considering the value and sign of Pearson correlation coefficient which is 0.527, this relation

is positive. Furthermore, the results from calculations affirm the goodness-of-fit of the models. The results are in conformity with Ferdowsi and Han.

Second hypothesis: There is a positive significant relation between the perceived quality of the services with the costumer satisfaction.

Since, the resulted value is at the significance level of 0.000 which is below 0.05, it is concluded that this parameter has a significant effect on the variable of customer satisfaction. Considering the value and sign of Pearson correlation coefficient which is 0.633, this relation is positive. Furthermore, the results from calculations affirm the goodness-of-fit of the models. The results are in conformity with Joneydi and Han.

SUGGESTIONS

Practical suggestions: Taking note of the conclusions derived from the hypothesis, we suggest:

For the first hypothesis: There is a positive significant relation between the perceived quality of medical care with the costumer satisfaction:

- Recruiting experienced and professional staff for the treatments
- Forming a medical committee for the patient, consisting the patient's guardian

For the second hypothesis: There is a positive significant relation between the perceived quality of the services with the customer satisfaction:

- Granting financial aid for patients with poor financial standing
- Identifying and prioritizing factors affecting the improvement of medical care and health care
- Building operation rooms in each division and planning to increase their number

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