

ORIGINAL RESEARCH

Predictive factors for patient satisfaction in public and private hospitals in Kosovo

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Abstract

Aim: The objective of this study was to assess predictive factors for patient satisfaction with healthcare services as a measure of the quality of hospital care in public and private hospitals in Kosovo.

Methods: A cross-sectional study was conducted in Kosovo during 2015-2016 including a representative sample of 2585 patients older than 18 years [1010 (48.6%) males and 1069 (51.4%) females from public hospitals; and 240 (47.4%) males and 266 (52.6%) females from private hospitals]. Patient satisfaction dimensions such as satisfaction with medical care, nursing care, organization, and overall impression were the main variables measured. A risk-adjusted multivariate analysis was applied.

Results: Multiple linear regression analysis revealed as independent significant predictors of the total satisfaction of patients from public hospitals the following factors: age, length of stay in hospital in days, education, payment for additional analyzes during hospitalization and buying medications for hospital treatment. These five independent significant predictors accounted for 7.3% of the change in the total patients' satisfaction (stepwise method - $R^2 = 0.073$). Conversely, there were only four predictors of the total satisfaction of patients from private hospitals: length of stay in hospital in days, number of hospitalizations in the last 12 months, paying for hospitalization, and cost of hospitalization exceeds received services. Only the variables “length of hospital stay” together with “cost of hospitalization exceeds received services” as independent predictors, explained 5.3% of the variability of total satisfaction.

Conclusion: Structural and qualitative characteristics of hospitals have a significant impact on patients' satisfaction. Age, length of stay, education, payment for additional analyzes during hospitalization and the cost of hospitalization in public hospitals and length of stay, paying for hospitalization, and cost of hospitalization in private hospitals are useful predictors for total satisfaction of patients in Kosovo.

Keywords: Kosovo, predictors of patient satisfaction, public and private hospitals.

Introduction

Around the world, hospitals appear to gradually focus on their strategies of service quality. Patient satisfaction is best understood as a multi-attribute model with completely different aspects of care decisive overall satisfaction. Lower performance on an attribute creates much more dissatisfaction than the satisfaction generated by higher performance on another attribute, negative performance is more determinant in satisfaction than positive performance (1). Patient satisfaction will offer valuable and distinctive insights into daily medical care and is widely accepted as a freelance dimension of quality of care as a result of an analysis of patient satisfaction includes “internal” (inward-looking) aspects of hospital care, which regularly stay unrecorded, like communication, fellow feeling or interaction (2,3-5). However, various studies and systematic reviews demonstrate a correlation between subjective patient perspective and clinical safety and effectiveness, and that they demonstrate that patient satisfaction reflects totally different dimensions of quality of care (3,6-12). Thus, it comes as no surprise that the activity of patient satisfaction is usually used as a tool to enhance the quality of care (8,12). International studies additionally counsel that in-progress analysis and publication of patient surveys could complement public reportage on clinical outcomes and method quality to help patients in selecting a hospital and serve to enhance the standard of medical care on a long-run basis (7,8). Research on health system satisfaction has known ways to boost health, scale back prices and implement reform (13). The lack of a solid abstract basis and an identical mensuration tool for client satisfaction has crystal rectifier over the past ten years to a

proliferation of surveys that focus solely on patient expertise. i.e. aspects of the caring expertise like waiting time, quality of basic amenities, and communication with health care suppliers all facilitate tangible quality improvement priorities. According the idea of UN agency, within the future measures of patient expertise, meant to capture the “responsiveness” of the health system (14), seemingly to receive even larger attention as physicians and hospitals return underneath growing pressure to enhance the standard of care, enhance patient safety and lower the value of services. Health system responsiveness specifically refers to the manner and surroundings during which individuals are treated once seeking health care. Hospitals have dominantly specialized in health care provision to fulfill, maintain and promote people's health desires of a community (15). Within a study (16) has been found that private hospitals have higher name and image in the eyes of patients, and are far better than public ones in terms of service quality, giving importance to patients' satisfaction and physical look of the hospital buildings. Several studies highlighted that the factors who influence patients' satisfaction with attention services are classified into 2 broad categories: provider-related and patient-related (17,18). Socioeconomic characteristics have impacted patients satisfaction. Within the most systematic reviews (18) are found that providers' ability, social skills and facility characteristics (e.g. physical surroundings, sort and level of the facility) were absolutely related to patients' satisfaction. Patient-related characteristics, for instance, gender, age, race, socioeconomic standing, health standing, and expectation were weak and inconsistent predictors of patients' satisfaction. Many studies additionally highlighted what proportion of patient's

perceptions of care and actual aid experiences contribute to overall patients' satisfaction level (17-19).

The purpose of this study was to analyze the predictive factors for patient satisfaction in public and private hospitals in Kosovo.

Methods

A cross-sectional study was implemented for nine months in the period 2015-2016 in Kosovo. The study sample consisted of 2585 patients randomly selected (i.e., the sample was representative of the population of Kosovo for the level of significance of 95% and a confidence interval of $\pm 5\%$). The main criteria for selecting patients were to be older than 18 years and to be hospitalized at the moment of study implementation. The study covered patients from all public and private hospitals in Kosovo. After information related to study and confidentiality aspects, the participants were asked for oral consent. The Ethical Committee of NIPH Kosovo approved the study.

We used a standardized questionnaire (Queensland, Australia 2004) (20), translated into the Albanian language and after piloting adapted to the national needs. A few questions were excluded and several other items were added to the final version of the study questionnaire. All six sections of the questionnaire covered 55 questions (first visit-5, before admission-3, admission-8, hospital stay-24, hospital environment -8 and discharged-7). Possible answers were on a six-point Likert scale (excellent, very good, good, fair, poor, and not sure), with lower scores corresponding to higher satisfaction. Participants had the option to fulfill the questionnaire by themselves or to ask for assistance from the field researchers.

Statistical analysis

Data was statistically analyzed in SPSS software package, version 22.0 for Windows (SPSS, Chicago, IL, USA). The qualitative series were processed by

determining the coefficient of relations, proportions, and rates, and were shown as absolute and relative numbers. Quantitative series were analyzed with measures of central tendency (average, median), as well as with dispersion measures (standard deviation, standard error).

Internal consistency on a set of questions was examined by Cronbach's Alpha.

The Mann-Whitney U test was used to compare differences between two independent groups when the dependent variable was continuous, but not normally distributed.

Pearson's chi-square test was used to determine the association between certain attributive dichotomies.

A two-sided analysis with a significance level of $p < 0.05$ was used to determine the statistical significance.

Results

A total of 2585 hospitalized patients were involved in this study. Reliability analysis for the items included exhibited a Cronbach's Alpha=0.872 (Cronbach's Alpha Based on Standardized Items: 0.874; N=55). There were 2079 patients from public hospitals: 1010 (48.58%) males and 1069 (51.42%) females; and 506 patients from private hospitals: 240 (47.43%) males and 266 (52.57%) females. No significant association was found between gender and the type of the hospital (Pearson Chi-square=0.6527; df=1; $p=0.4191$). Mean age of public patients was 44.67 ± 16.49 with Median IQR=45 (30-56), and of private patients it was 42.71 ± 15.76 with Median IQR=42 (29-54), with significant differences in mean age between the two groups (Mann-Whitney U Test: $Z=2.516$; $p=0.0119$), implying a significantly lower age of patients from private hospitals. From rural areas, there were 995 (47.45%) of public hospital patients and 158 (31.11%) of private hospital patients, with two times significantly more patients from rural areas in public hospitals compared to private ones

[OR=2.001 (1.63 – 2.46) 99% CI]. Public and private hospital patients with high education were 497 (24.13%) vs. 206 (40.79%); with college degree there were 565 (27.43%) vs. 31 (6.14%); with elementary school there were 495 (24.03%) vs. 31 (6.14%); and with no education there were 81 (3.93%) vs. 6 (1.19%).

There was a significant difference between patients from public and private hospitals in terms of individual overall satisfaction for each of the analyzed aspects (first visit, acceptance, stay, physical environment and output) with significantly greater satisfaction of patients from private hospitals.

Among the public hospital patients, for $p < 0.05$, significant differences in the total satisfaction score were found related to reason for admission, number of hospitalizations in the last 12 months, education, payment for additional analysis while in hospital, cost of hospitalization

exceeds received services, buying medication for hospital treatment, age, and length of hospital stay (Enter method - $R^2=0.076$) (Table 1).

With multiple linear regression analysis (Table 2), as independent significant predictors of the total satisfaction of patients from public hospitals, there were confirmed five factors: age, length of stay in hospital in days, education, payment for additional analyzes during hospitalization and buying medications for hospital treatment. These five independent significant predictors explained 7.3% of the changes in the total patients' satisfaction (Stepwise method - $R^2 = 0.073$). Only the variables "pay for additional analysis during hospitalization", together with "buying medications for hospital treatment", as independent predictors, explained 4.1% of the variability of total satisfaction.

Table 1. Binary linear regression - total satisfaction score related to selected parameters

Parameters	Satisfaction score (public)			Satisfaction score (private)		
	Mean	SD	p	Mean	SD	P
Reason for admission						
Surgical	2.358584	0.524215	Kruskal-Wallis test: H=18.451 p=0.0004**	1.528748	0.429106	Kruskal-Wallis test: H=50.001 p=0.0001**
Medical	2.325146	0.545558		1.921032	0.399125	
Maternity	2.507780	0.729963		1.669437	0.515809	
Emergency	2.253506	0.543969		1.686018	0.208065	
Transferred from another hospital						
Yes	1.632222	0.200030	Mann-Whitney U Test: Z=-0.886 p=0.375	1.377778	0.452155	Mann-Whitney U Test: Z=-0.979 p=0.327
No	1.648361	0.469240		1.529697	0.521974	
Number of hospitalizations in the last 12 months						
One	2.310388	0.570299	Kruskal-Wallis test: H=10.658 p=0.005**	1.607373	0.438166	Kruskal-Wallis test: H=30.869 p=0.0001**
Two	2.413505	0.513785		1.841548	0.425020	
≥ Three	2.337081	0.649830		1.481222	0.522291	
Gender						
Male	2.338796	0.515792	Mann-Whitney U Test: Z=-0.174 p=0.862	1.602579	0.353156	Mann-Whitney U Test: Z=-1.039 p=0.298
Female	2.347288	0.609724		1.686032	0.524438	
Place of living						
Urban	2.359672	0.569754	Mann-Whitney U Test: Z=0.385 p=0.862	1.654048	0.424239	Mann-Whitney U Test: Z=1.523 p=0.128
Rural	2.327131	0.557364		1.630998	0.516661	
Level of education						

No education	2.179574	0.798358		1.318492	0.343095	
Partly elementary	2.206693	0.634021	Kruskal-Wallis test: H=21.758 p=0.0006**	1.365179	0.215593	Kruskal-Wallis test: H=46.714 p=0.0001**
Elementary	2.354832	0.577412		1.914056	0.480274	
Secondary	2.302739	0.565943		1.556413	0.423172	
College	2.395024	0.526674		1.832815	0.410434	
High	2.399455	0.511615		1.571029	0.456809	
Paying for hospitalization						
Yes	2.347518	0.591523	Mann-Whitney U Test: Z=0.901 p=0.368	1.561964	0.398229	Mann-Whitney U Test: Z=-8.561 p=0.0001**
No	2.339965	0.539951		2.169494	0.426998	
Paying for additional analysis while in hospital						
Yes	2.428653	0.546035	Mann-Whitney U Test: Z=7.734 p=0.0001**	1.819382	0.591600	Mann-Whitney U Test: Z=-2.777 p=0.005**
No	2.180322	0.563681		1.588795	0.380680	
Paid price for hospitalization is more than received services						
Yes	2.458014	0.556340	Kruskal-Wallis test: H=49.759 p=0.0001**	1.650059	0.409010	Kruskal-Wallis test: H=2.956 p=0.228
No	2.229283	0.539610		1.602356	0.427372	
Don't know	2.416133	0.575153		1.683548	0.557070	
Buying medication for hospital treatment						
Yes	2.391366	0.567563	Mann-Whitney U Test: Z=-5.336 p=0.0001**	1.406746	0.331941	Mann-Whitney U Test: Z=1.081 p=0.279
No	2.169203	0.516799		1.651445	0.454457	
Cost of hospitalization exceeds received services						
Yes	2.401185	0.551062	Kruskal-Wallis test: H=3.265 p=0.195	1.567328	0.371254	Kruskal-Wallis test: H=11.495 p=0.003**
No	2.321112	0.525140		1.804324	0.619753	
Don't know	2.341440	0.608008		1.741223	0.471197	
Length of hospital stay						
Days	Spearman Rank Order Correlation: R=-0.127*			Spearman Rank Order Correlation: R=-0.118*		
Age						
Years	Spearman Rank Order Correlation: R=-0.147*			Spearman Rank Order Correlation: R=0.037		

* significant for p<0.05.

** significant for p<0.01.

Among the private hospital patients, for p<0.05, significant differences in total satisfaction score were found related to reason for admission, number of hospitalizations in the last 12 months, education, paying for hospitalization,

payment for additional analysis while in hospital, cost of hospitalization exceeds received services, and length of hospital stay (Table 1) (Enter method - $R^2=0.073$) (Table 2).

Table 2. Multiple linear regression – independent predictors for total satisfaction in public hospitals

Independent variable	Non-standardized coefficient		Standardized coefficient	T	Sig.	95% CI for B	
	B	Std. Error	Beta			Upper Level	Lower Level
(constant)	2.635	.119		22.087	.000	2.401	2.869
Reason for admission	(.012)	.019	(.019)	(.628)	.530	(.048)	.025
Hospitalizations in the last 12 months	.029	.024	.037	1.227	.220	(.017)	.076
Age	.015	.003	.132	4.377	.000	.008	.022
Length of hospital stay	(.004)	.001	(.100)	(3.219)	.001	(.006)	(.001)
Level of education	.035	.012	.087	2.868	.004	.011	.058
Payment for additional analyzes	(.156)	.037	(.132)	(4.251)	.000	(.229)	(.084)
Cost of hospitalization exceeds received services	.022	.022	.029	.961	.337	(.023)	.066
Buying medication for hospital treatment	(.191)	.043	(.137)	(4.476)	.000	(.274)	(.107)
	R=0.275		R ² =0.076	F=11.362	p=0.0001		

Dependent variable=satisfaction score

Table 3. Multiple linear regression – independent predictors for total satisfaction in private hospitals

Independent variable	Non-standardized coefficient		Standardized coefficient	T	Sig.	95% CI for B	
	B	Std. Error	Beta			Upper level	Lower Level
(constant)	1.953	.107		18.272	.000	1.743	2.163
Reason for admission	.021	.018	.033	1.167	.243	(.014)	.057
Hospitalizations in the last 12 months	.063	.026	.070	2.445	.015	.012	.113
Length of hospital stay	.021	.004	.150	5.367	.000	.013	.028
Level of education	(.010)	.012	(.023)	(.833)	.405	(.034)	.014
Paying for hospitalisation	.144	.039	.104	3.662	.000	.067	.221
Payment for additional analyzes	.011	.026	.012	.440	.660	(.039)	.062
Cost of hospitalization exceeds received services	(.200)	.029	(.191)	(6.807)	.000	(.257)	(.142)
	R=0.269		R ² =0.073	F=13.797	p=0.0001		

Dependent variable=satisfaction score.

With multiple linear regression analysis (Table 3), as independent significant predictors of the total satisfaction of patients from private hospitals, there were confirmed only four factors: length of stay in hospital in days, number of hospitalizations in the last 12 months, paying for hospitalization, and cost of hospitalization exceeds received services. These four independent significant predictors accounted for 7.1% of the changes in total patient satisfaction (Stepwise method - $R^2 = 0.071$). Only the variables “length of hospital stay” together with “cost of hospitalization exceeds received services”, as independent predictors, explained 5.3% of the variability of total satisfaction.

Discussion

This study has clearly demonstrated that there is a significant difference between patients from public and private hospitals in terms of individual overall satisfaction for each of the analyzed aspects (first visit, acceptance, stay, physical environment and output) with significantly greater satisfaction of patients from private hospitals.

This finding is quite comparable to other studies (19,21,22). In this study, it is evident that age is a predictor factor, by increase of age, patients' satisfaction increases too regarding quality of health care, similar to other studies, older patients tended to have higher satisfaction scores (23-26). Whereas for education as predictor factor, correlation is negative, with increase of education level, patient satisfaction decreases, similar to other studies (23). The findings from our study show that the

length of stay in the hospital could determine significantly the overall patient satisfaction, similar to study conducted in Japan (27). The longer the length of stay in the hospital generates lower patient satisfaction on specific domains such as comfort, visiting, and cleanliness, which seemed logical, as in other studies (28). An inverse correlation between inpatient satisfaction and Length of Stay was seen in other studies (29). As independent significant predictors of the total satisfaction of patients from public hospitals, we confirmed only five: payment for additional analyzes during hospitalization and buying medications for hospital treatment. Main predictors in private hospitals are payment for hospitalization, and cost of hospitalization. Predictors of the total satisfaction of patients from private hospitals, we confirmed only four: length of stay in hospital in days, number of hospitalizations in the last 12 months, paying for hospitalization, and cost of hospitalization exceeds received services. In the case of private physicians, the performance fell short of expectations, thus generating dissatisfaction (30).

In conclusion, the structural and qualitative characteristics of hospitals have a significant impact on patient satisfaction. Age, length of stay, education, payment for additional analyzes during hospitalization and the cost of hospitalization in public hospitals and length of stay, paying for hospitalization, and cost of hospitalization in private hospitals are predictor factors for total satisfaction of patients.

Conflicts of interest: None.

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