

Assessment of Patient Satisfaction as a tool for Marketing/Management Decisions

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Ioannis Mitropoulos & Panagiotis Mitropoulos

Department of Business Administration (Patras)

TEI of Western Greece



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Introduction and Background

- The Public Primary Healthcare Centers (PHCCs) were established with the aim of providing primary health care services to the population of urban and rural areas.
- Although they provide public good (services) the application of marketing philosophy and principles in their operation would contribute to the optimization of their performance in terms of effectiveness and efficiency.
- The customer satisfaction is the major indicator to measure the effectiveness of an organization, thus it is not surprising that patient satisfaction is considered as one of the major factors of health services quality verification.

Introduction and Background

- Users' satisfaction from the health services provided to them is determined by factors relating to organizational and operational characteristics, but as well by the actual interpersonal relationship and communication with health professionals and particularly by the doctor-patient relationship.

Aim and objectives

- The aim of this study is to measure the effectiveness of the services provided by a sample of urban and rural public PHCCs in Greece and in Cyprus in terms of patients – users' satisfaction.
- The study results can provide useful insights for the selection of marketing-management strategies and practices in order to improve the performance of public PHCCs in both countries.
- The outperforming PHCCs can be identified and, thus, the opportunities and patterns to enhance the overall performance of all PHCCs may emerge.
- Moreover, valuable information can be provided for the amelioration of the PHCCs' public relations with all relevant stakeholders.

Methodology

- Patients' satisfaction was assessed by a structured validated questionnaire with 64 questions which evaluated health satisfaction's key factors (Aletras et al, 2007; Zandbelt et al, 2004).
- Specifically, the questionnaire aimed to obtain data about:
 1. satisfaction from making the appointment,
 2. satisfaction from the arrival at the PHCC,
 3. satisfaction from waiting for the examination,
 4. satisfaction from doctor's office and the examination by the doctor,
 5. satisfaction from radiographic/laboratory tests
 6. overall health satisfaction, and
 7. patients demographics

Methodology

- 5-point Likert scale was used for satisfaction assessment (from 1=very unsatisfied to 5=very satisfied)
- The rest were mainly close-ended questions
- The questionnaire was pilot tested by 40 respondents.

Sample

- 438 completed questionnaires were selected in Cyprus and 922 in Greece by a stratified sample of patients that visited state PHCCs.
- The sampling was random (every 2nd patient was selected after the questionnaire was completed), and patients were asked to respond to the questionnaires at their departure from the PHCC.
- The questionnaires were completed in the operating days and hours of the PHCCs, ie from Monday - Friday, 7.30 am - 2.30 pm.
- The completion of questionnaires began on December 15, 2010 and ended on February 15, 2011.

Data analyses

- SPSS statistical package was used for:
 - Frequencies and Descriptive statistics
 - Paired Samples T-Test
 - Oneway ANOVA
 - Pearson Correlations
 - Multiple Linear Regression

Sample Description

	Cyprus	Greece		Cyprus	Greece
Age			State of health		
18-24	4.3	3.3	Good	55.8	27.8
25-34	10.0	5.7	Moderate	4.3	32.7
35-44	17.5	12.9	Bad	39.9	39.5
45-54	19.8	13.9	Education		
55-64	23.6	22.6	Very low	3.9	25.9
65-74	17.8	25.9	Primary school	17.4	29.3
>75	7.0	15.7	Secondary school	14.8	16.8
Sex			High school	25.7	17.7
Male	45.4	47.7	TEI	14.8	6.1
Female	54.6	52.3	University	23.4	4.1

Health Satisfaction Dimensions and Overall

Country		Appointment	Arrival	Waiting for examination	Clinic and Examination by doctor	Laboratory Examinations	Overall (out of 100)	
Cyprus	N	Valid	412	426	427	427	386	383
		Missing	26	12	11	11	52	55
	Mean		3.92	3.89	3.89	4.13	4.05	77.60
	Median		4.00	4.00	4.00	4.30	4.00	80.00
	Std. Dev.		1.09	1.92	0.94	1.52	1.26	19.268
Greece	N	Valid	191	918	919	913	270	886
		Missing	731	4	3	9	652	36
	Mean		3.62	3.76	3.65	4.03	3.69	80.96
	Median		3.75	4.00	3.80	4.10	3.75	80.00
	Std. Dev.		0.75	0.79	0.79	0.54	0.58	14.851

Comparison: Cyprus-Greece

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Appointment	Equal variances assumed	8.182	.004	3.421	601	.001	.29892	.08738
	Equal variances not assumed			3.904	515.798	.000	.29892	.07657
Arrival	Eq. var.	12.122	.001	1.803	1342	.072	.13324	.07391
	Not Eq. var.			1.381	493.036	.168	.13324	.09647
Waiting for examination	Eq. var.	1.203	.273	4.861	1344	.000	.23994	.04936
	Not Eq. var.			4.570	717.950	.000	.23994	.05250
Clinic and Examination by doctor	Eq. var.	38.165	.000	1.737	1338	.083	.09851	.05673
	Not Eq. var.			1.300	476.926	.194	.09851	.07578
Laboratory Examinations	Eq. var.	45.639	.000	4.428	654	.000	.36473	.08236
	Not Eq. var.			4.972	577.209	.000	.36473	.07335
Overall Health Satisfaction (out of 100)	Eq. var.	21,298	,000	-3,375	1267	,001	-3,366	,997
	Not Eq. var.			-3,049	586,693	,002	-3,366	1,104

Demographics impact on health satisfaction

	Sex		Education	
	Cyprus	Greece	Cyprus	Greece
Appointment	-	-	-	
Arrival	-	-	-	* (University>Very low)
Waiting for examination	-	-	* (Secondary>University)	* (Primary>TEI)
Clinic and Examination by doctor	-	* (women>men)	* (all>Very low)	* (Primary>TEI & University)
Laboratory Examinations	-	-	-	-
Overall Health Satisfaction (out of 100)	-	(men>women)	-	-

Demographics impact on health satisfaction

	Age		Health State	
	Cyprus	Greece	Cyprus	Greece
Appointment	-		-	-
Arrival	-		-	* (bad>moderate)
Waiting for examination	-	* (>75 > 35-44)	-	* (bad>moderate)
Clinic and Examination by doctor	-		* (good & bad>moderate)	* (bad>moderate)
Laboratory Examinations	-	* (>75 > 25-34)	* (good >moderate)	-
Overall Health Satisfaction (out of 100)	-	* (>75 > 18-24)	-	* (good>bad)

Pearson Correlations - Cyprus

Country			Overall	Appointment	Arrival	Waiting for examination	Clinic and Examination by doctor	Lab Exams
Cyprus	Overall	Correlation	1	.605**	.617**	.591**	.658**	.519**
		Sig. (2-tailed)		.000	.000	.000	.000	.000
		N	383	364	383	380	382	349
	Appointment	Correlation	.605**	1	.312**	.581**	.307**	.499**
		Sig. (2-tailed)	.000		.000	.000	.000	.000
		N	364	412	403	404	405	365
	Arrival	Correlation	.617**	.312**	1	.346**	.338**	.227**
		Sig. (2-tailed)	.000	.000		.000	.000	.000
		N	383	403	426	421	421	379
	Waiting for examination	Correlation	.591**	.581**	.346**	1	.338**	.497**
		Sig. (2-tailed)	.000	.000	.000		.000	.000
		N	380	404	421	427	425	382
	Clinic and Examination by doctor	Correlation	.658**	.307**	.338**	.338**	1	.305**
		Sig. (2-tailed)	.000	.000	.000	.000		.000
		N	382	405	421	425	427	384
	Lab Exams	Correlation	.519**	.499**	.227**	.497**	.305**	1
		Sig. (2-tailed)	.000	.000	.000	.000	.000	
		N	349	365	379	382	384	386

Pearson Correlations - Greece

Country			Overall	Appointment	Arrival	Waiting for examination	Clinic and Examination by doctor	Lab Exams
Greece	Overall	Correlation	1	.394**	.208**	.223**	.338**	.369**
		Sig. (2-tailed)		.000	.000	.000	.000	.000
		N	886	178	883	885	884	260
	Appointment	Correlation	.394**	1	.412**	.601**	.522**	.250*
		Sig. (2-tailed)	.000		.000	.000	.000	.035
		N	178	191	191	190	187	71
	Arrival	Correlation	.208**	.412**	1	.415**	.368**	.206**
		Sig. (2-tailed)	.000	.000		.000	.000	.001
		N	883	191	918	917	911	269
	Waiting for examination	Correlation	.223**	.601**	.415**	1	.588**	.427**
		Sig. (2-tailed)	.000	.000	.000		.000	.000
		N	885	190	917	919	912	269
	Clinic and Examination by doctor	Correlation	.338**	.522**	.368**	.588**	1	.447**
		Sig. (2-tailed)	.000	.000	.000	.000		.000
		N	884	187	911	912	913	268
	Lab Exams	Correlation	.369**	.250*	.206**	.427**	.447**	1
		Sig. (2-tailed)	.000	.035	.001	.000	.000	
		N	260	71	269	269	268	270

Regression analysis: I

Model Summary ^b										
Country	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
Cyprus	.744 ^a	.553	.546	13.063	.553	79.514	5	321	.000	1.770
Greece	.614 ^c	.377	.325	13.312	.377	7.256	5	60	.000	1.720

a. Predictors: (Constant), Lab Exams, Appointment, Arrival, Clinic and Examination by doctor, Waiting for examination

b. Dependent Variable: Overall satisfaction from the services of the H.C. in your area (out of 100)

c. Predictors: (Constant), Lab Exams, Appointment, Arrival, Waiting for examination, Clinic and Examination by doctor

Regression analysis: I

Country		Coefficients ^a									
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
Cyprus	(Constant)	6.972	3.682		1.893	.059					
	Appointment	3.534	.931	.199	3.797	.000	.614	.207	.142	.505	1.982
	Arrival	2.941	1.177	.149	2.499	.013	.626	.138	.093	.393	2.548
	Waiting for examination	3.920	1.369	.177	2.863	.004	.647	.158	.107	.363	2.753
	Clinic and Examination by doctor	6.236	1.302	.281	4.791	.000	.670	.258	.179	.404	2.478
	Lab Exams	1.083	.762	.068	1.421	.156	.506	.079	.053	.601	1.664
Greece	(Constant)	16.203	12.382		1.309	.196					
	Appointment	1.728	3.065	.090	.564	.575	.463	.073	.057	.412	2.428
	Arrival	4.462	2.616	.220	1.705	.093	.491	.215	.174	.623	1.606
	Waiting for examination	2.526	3.300	.128	.765	.447	.510	.098	.078	.373	2.679
	Clinic and Examination by doctor	6.469	4.242	.255	1.525	.133	.546	.193	.155	.372	2.687
	Lab Exams	1.632	3.746	.060	.436	.665	.388	.056	.044	.553	1.807

a. Dependent Variable: Overall satisfaction from the services of the H.C. in your area (out of 100)

Regression analysis: 2

Model Summary ^b										
Country	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
Cyprus	.732 ^a	.536	.530	13.255	.536	98.432	4	341	.000	1.782
Greece	.531 ^c	.281	.270	13.237	.281	24.773	4	253	.000	1.647

a. Predictors: (Constant), Lab Exams, Waiting for examination, Clinic and Examination by doctor, Arrival

b. Dependent Variable: Overall satisfaction from the services of the H.C. in your area (out of 100)

c. Predictors: (Constant), Lab Exams, Arrival, Waiting for examination, Clinic and Examination by doctor

Regression analysis: 2

Country		Coefficients ^a									
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
Cyprus	(Constant)	6.793	3.668		1.852	.065					
	Arrival	3.446	1.157	.174	2.979	.003	.625	.159	.110	.398	2.513
	Waiting for examination	5.219	1.323	.237	3.946	.000	.652	.209	.146	.377	2.649
	Clinic and Examination by doctor	7.576	1.270	.338	5.967	.000	.673	.307	.220	.423	2.362
	Lab Exams	1.401	.746	.089	1.879	.061	.505	.101	.069	.611	1.636
Greece	(Constant)	9.289	7.543		1.232	.219					
	Arrival	3.391	1.300	.150	2.608	.010	.324	.162	.139	.853	1.172
	Waiting for examination	2.210	1.452	.105	1.522	.129	.389	.095	.081	.602	1.662
	Clinic and Examination by doctor	8.969	2.111	.298	4.248	.000	.477	.258	.226	.577	1.733
	Lab Exams	3.848	1.666	.141	2.309	.022	.353	.144	.123	.757	1.320

a. Dependent Variable: Overall satisfaction from the services of the H.C. in your area (out of 100)

Regression analysis: Stepwise

Model Summary ^e											
Country		R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
						R Square Change	F Change	df1	df2	Sig. F Change	
Cyprus	1	.670 ^a	.448	.447	14.425	.448	264.269	1	325	.000	
	2	.714 ^b	.510	.507	13.622	.061	40.440	1	324	.000	
	3	.734 ^c	.539	.535	13.226	.030	20.696	1	323	.000	
	4	.742 ^d	.550	.545	13.084	.011	8.076	1	322	.005	1.761
Greece	1	.546 ^a	.298	.287	13.681	.298	27.166	1	64	.000	
	2	.597 ^f	.356	.336	13.207	.058	5.672	1	63	.020	1.432

a. Predictors: (Constant), Dimension: Clinic and Examination by doctor

b. Predictors: (Constant), Dimension: Clinic and Examination by doctor, Dimension: Appointment

c. Predictors: (Constant), Dimension: Clinic and Examination by doctor, Dimension: Appointment, Dimension: Waiting for examination

d. Predictors: (Constant), Dimension: Clinic and Examination by doctor, Dimension: Appointment, Dimension: Waiting for examination, Dimension: Arrival

e. Dependent Variable: Rate the services of the H.C. in your area (out of 100)

f. Predictors: (Constant), Dimension: Clinic and Examination by doctor, Dimension: Arrival

Regression analysis: Stepwise

Country			Coefficients ^a		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
			Unstandardized Coefficients B	Std. Error				Tolerance	VIF
Cyprus	1	(Constant)	15.884	3.872		4.102	.000		
		Dimension: Clinic and Examination by doctor	14.843	.913	.670	16.256	.000	1.000	1.000
	2	(Constant)	12.456	3.696		3.370	.001		
		Dimension: Clinic and Examination by doctor	10.400	1.110	.469	9.371	.000	.604	1.657
		Dimension:Appointment	5.643	.887	.318	6.359	.000	.604	1.657
	3	(Constant)	8.232	3.707		2.221	.027		
		Dimension: Clinic and Examination by doctor	7.485	1.254	.338	5.970	.000	.446	2.243
		Dimension:Appointment	4.207	.918	.237	4.585	.000	.532	1.879
		Dimension:Waiting for examination	5.717	1.257	.258	4.549	.000	.442	2.263
	4	(Constant)	7.242	3.683		1.966	.050		
		Dimension: Clinic and Examination by doctor	6.588	1.280	.297	5.148	.000	.419	2.388
		Dimension:Appointment	3.662	.928	.207	3.948	.000	.509	1.963
Dimension:Waiting for examination		4.124	1.364	.186	3.024	.003	.367	2.723	
Greece	1	Dimension:Arrival	3.280	1.154	.166	2.842	.005	.409	2.443
		(Constant)	26.235	10.891		2.409	.019		
	2	Dimension: Clinic and Examination by doctor	13.860	2.659	.546	5.212	.000	1.000	1.000
		(Constant)	18.455	11.010		1.676	.099		
		Dimension: Clinic and Examination by doctor	10.106	3.013	.398	3.355	.001	.726	1.377
	Dimension:Arrival	5.725	2.404	.283	2.382	.020	.726	1.377	

a. Dependent Variable: Rate the services of the H.C. in your area (out of 100)

Conclusions – Proposals

- Patients in both Cyprus and Greece are rather satisfied for clinic and Examination by doctor and less for the other health satisfaction dimension.
- Overall health satisfaction is relatively high
- More satisfied in Cyprus than in Greece in terms of Appointment, Waiting for examination and Laboratory Examinations. However, more overall satisfaction in Greece than in Cyprus.
- Higher impact of demographics on health satisfaction in Greece than in Cyprus

Conclusions – Proposals

- Higher correlation between health satisfaction dimensions and overall health satisfaction from H.C. in Cyprus than in Greece.
- The health satisfaction dimensions that are most important for overall health satisfaction are:
 - Cyprus: Clinic and Examination by doctor, Appointment, Waiting for examination, Arrival
 - Greece: Clinic and Examination by doctor, Arrival
- Improving issues related to appointment in Cyprus and arrival for both countries would increase overall health satisfaction

Conclusions – Proposals

- High standard deviation values for health dimensions in Cyprus and relatively high impact of demographics on them primarily in Greece and secondarily in Cyprus (i.e. education and health state) indicate that patient groups with significantly different needs and attitudes would emerge from cluster analysis.
- The survey results could serve the basis for benchmarking among PHCCs and valuable insights can emerge from those that were found to provide higher service quality than others.
- Public relations strategies should better tailor to the specific needs and other characteristics of each patient target group.