International Journal of Advanced Multidisciplinary Research and Studies

Test the Difference between the Control Variables and the Outpatients' Satisfaction with the Quality of Medical Examination and Treatment Services at Bach Mai Hospital

Pham Thi Thuy Van
University of Labour and Social Affairs, Vietnam

Corresponding Author: Pham Thi Thuy Van

Abstract

As an autonomous public hospital, the Board of Directors of Bach Mai Hospital has soon made changes in hospital management and administration to improve professional quality and facilities to achieve patient satisfaction, taking patients as the center because patients are customers and the main source of revenue for the hospital. In the current context of autonomy, only if the revenue source is well maintained and increased will the income of hospital officials and staff be guaranteed, and there will be no brain drain to other private hospitals. This study was conducted with the aim of evaluating the difference in outpatients' satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital through the survey results. Survey subjects are outpatients who go for medical examinations and treatment at Bach Mai Hospital. We use both qualitative and quantitative research methods. Quantitative research methods were carried out with SPSS software, including independent T tests and ANOVA. Research results show that there is a difference in the assessment of outpatients' satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital among different subjects in terms of ages, academic standards, job, income, and health insurance. But there was no difference in satisfaction between the male and female patient groups. Based on these results, the study proposes several recommendations for Bach Mai Hospital and outpatients.

1. Introduction

The way patients interact with healthcare professionals and get care will change if patients are seen as consumers in the healthcare industry. The majority of healthcare professionals welcome the opportunity to learn from other businesses and see this fundamental change in the healthcare paradigm as a necessary response to evolving patient needs. Medical professionals should take a cue from other industries that deal directly with consumers, according to 96% of experts surveyed on this topic.

As an autonomous public hospital, the Board of Directors of Bach Mai Hospital has soon made changes in hospital management and administration to improve professional quality and facilities to achieve patient satisfaction, taking patients as the center because patients are customers and the main source of revenue for the hospital. In the current context of autonomy, only if the revenue source is well maintained and increased will the income of hospital officials and staff be guaranteed, and there will be no brain drain to other private hospitals.

Bach Mai Hospital has had solutions to improve patient satisfaction, attract many patients for examination and treatment, and ensure the hospital's revenue and medical staff's income. However, patient satisfaction remains one of the topics that needs further clarification.

2. Literature Review

Hunt (1977) [4] defined customer satisfaction as their evaluation of a service following use. Customers can effectively determine if their wants, wishes, and expectations during service use have been met by using this effective emotional reaction attribute.

According to Oliver (1981) [5], satisfaction is a series of selection, evaluation, and judgment leading to a particular decision. It is expressed by the equation: Satisfaction equals (=) actual efficiency minus (-) expectation and is a pleasurable satisfaction, which means the consumer perceives that consumption satisfies some need, desire, goal, or the like, and this satisfaction is something interesting. Satisfaction, however, is the consumer's feeling that consumption provides results contrary to the standard of enjoyment.

Patient satisfaction is an important indicator in assessing service quality and business performance for healthcare service delivery networks in general as well as medical examination and treatment facilities in particular. To evaluate the quality and efficiency of providing medical services, people often evaluate patient satisfaction. Many studies have shown evidence that feedback from patients and their families helps improve health care systems and services.

3. Methodology
We used mixed methods, both quantitative and qualitative, to explain the differences in outpatients' satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital.

To begin with the qualitative method, we looked at previous studies and conducted interviews to identify the differences in outpatients' satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital. However, since their studies were based on foreign experience, we try to propose an enhanced framework by synthesizing their insights, adjusting observation variables

to the questions, and applying it to the context in Vietnam.

We also use meta-analysis techniques. The research comes from the topical issues of entrepreneurship in Vietnam. In addition, the authors generalize and identify the nature of the research problem.

After collecting interview results and cleaning data, the sample size of the study was 327 outpatients who came for medical examination at the Department of Examination and Treatment at the request of Bach Mai Hospital.

Then, we use quantitative methods, including the use of questionnaires as inputs for the independent T test and ANOVA analysis, to investigate the differences in outpatients' satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital.

Selective sampling involves participants in interviews and surveys. The selection was based on the number of observation variables in which participants were involved in going for medical examination and treatment at Bach Mai Hospital. Therefore, in our sample, 100% of participants are outpatients.

We conducted a questionnaire survey on a 5-point Likert scale. Variables are measured from 1 ("without agreeing") to 5 ("strongly agreeing").

4. Research Results
The author tested the difference in outpatient satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital, Hanoi, between different groups according to control variables.

By gender

Table 1: Levene homoscedasticity test for gender groups

		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	95% Confidence Interval of the Difference	
									Lower	Upper
Satisfaction (S)	Equal variances assumed	23.208	.000	1.554	325	.121	.12366	.07960	-.03294	.28026
	Equal variances not assumed			1.612	323.001	.108	.12366	.07670	-.02723	.27456

Source: Author compiled from data and SPSS software

According to the results shown in Table 1, sig Levene's test is 0.000, which is smaller than 0.05. The variance between males and females is different. Moreover, the sig value t-test is 0.108, which is larger than 0.05, which means that there is not a statistically significant difference in the outpatients' satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital between these different genders (Hoang & Chu, 2008; Hair et al., 2009; Hair et al., 2014) [3, 1, 2].

By ages
Levene test for age groups, results for sig.< 0.05. Thus, it can be confirmed that there is no uniformity in variance between age groups; the variance in satisfaction of outpatients is different and statistically significant. The

results of the Anova analysis are usable.

Table 2: Anova test between age and patient satisfaction

ANOVA					
S	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	111.031	3	37.010	212.886	.000
Within Groups	56.154	323	.174		
Total	167.185	326			

Source: Author compiled from data and SPSS software

Table 2 shows the results of the Anova analysis between age and outpatient satisfaction: sig. = 0.000 < 0.05, so there is a difference in outpatient satisfaction by age (Hoang & Chu, 2008; Hair et al., 2009; Hair et al., 2014) [3, 1, 2].

Table 3: Testing for in-depth differences between age groups and patient satisfaction

(I) Dotuoi (ages)		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
18-39	40-55	-.96750*	.06761	.000	-1.1421	-.7929
	56-69	-1.52537*	.06504	.000	-1.6933	-1.3574
	70 or older	-1.67098*	.08549	.000	-1.8917	-1.4502
40-55	18-39	.96750*	.06761	.000	.7929	1.1421
	56-69	-.55787*	.05569	.000	-.7017	-.4141
	70 or older	-.70348*	.07861	.000	-.9065	-.5005
56-69	18-39	1.52537*	.06504	.000	1.3574	1.6933
	40-55	.55787*	.05569	.000	.4141	.7017
	70 or older	-.14560	.07640	.228	-.3429	.0517
70 or older	18-39	1.67098*	.08549	.000	1.4502	1.8917
	40-55	.70348*	.07861	.000	.5005	.9065
	56-69	.14560	.07640	.228	-.0517	.3429

Source: Author compiled from data and SPSS software

Table 3 shows that there are differences in patient satisfaction between age groups. Particularly in the groups 56–69 years old and 70 years old or older, there was no difference in patient satisfaction.

It can be concluded that age groups always have differences in patient satisfaction, and the two age groups, 56–69 years old and 70 years old or older, have no difference (Hoang & Chu, 2008; Hair *et al*., 2009; Hair *et al*., 2014) [3, 1, 2].

Academic level

Table 4 shows that sig.< 0.05. Thus, it can be confirmed that there is no uniformity in variance between different educational level groups; the variance in satisfaction is different and statistically significant. The results of the Anova analysis are usable, and it can be concluded that there are differences in outpatient satisfaction by educational level.

Table 4: Anova test between educational level and outpatient satisfaction

ANOVA					
S	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	79.897	3	26.632	98.550	.000
Within Groups	87.288	323	.270		
Total	167.185	326			

Source: Author compiled from data and SPSS software

Table 5: Test of in-depth differences between educational level groups and outpatient satisfaction

(I) TDHV		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Intermediate level	College, bachelor	-.29433*	.07178	.000	-.4797	-.1090
	Graduate	.55147*	.10337	.000	.2845	.8184
	Other	.95908*	.08424	.000	.7415	1.1766
College, bachelor	Intermediate level	.29433*	.07178	.000	.1090	.4797
	Graduate	.84580*	.09736	.000	.5944	1.0972
	Other	1.25341*	.07674	.000	1.0552	1.4516
Graduate	Intermediate level	-.55147*	.10337	.000	-.8184	-.2845
	College, bachelor	-.84580*	.09736	.000	-1.0972	-.5944
	Other	.40761*	.10688	.001	.1316	.6836
Other	Intermediate level	-.95908*	.08424	.000	-1.1766	-.7415
	College, bachelor	-1.25341*	.07674	.000	-1.4516	-1.0552
	Graduate	-.40761*	.10688	.001	-.6836	-.1316

Source: Author compiled from data and SPSS software

Table 5 shows that there are differences in satisfaction between outpatient groups in terms of educational level (Hoang & Chu, 2008; Hair *et al*., 2009; Hair *et al*., 2014) [3, 1, 2].

By income

Levene test for income groups results for sig.< 0.05. Thus, it can be confirmed that there is no uniformity in variance between income groups; the variance in satisfaction of outpatients is different and statistically significant. The results of the Anova analysis are usable. Table 7 shows that the value sig. = 0.000 < 0.05, so it can be concluded that there is a difference in satisfaction.

Table 6: Anova test between income and patient satisfaction

ANOVA					
S	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	61.416	4	15.354	46.744	.000
Within Groups	105.768	322	.328		
Total	167.185	326			

Source: Author compiled from data and SPSS software

Table 7: Testing for in-depth differences between income groups and satisfaction

(I) Thunhap		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Less than 5 million VND	From 5 to 10 million VND	-1.43329*	.12919	.000	-1.7877	-1.0789
	From 10 to 15 million VND	-.71998*	.12643	.000	-1.0668	-.3731
	From 15 to 20 million VND	-1.11244*	.12844	.000	-1.4648	-.7601
	20 million VND or higher	-.37214	.14667	.085	-.7745	.0302
From 5 to 10 million VND	Less than 5 million VND	1.43329*	.12919	.000	1.0789	1.7877
	From 10 to 15 million VND	.71331*	.08606	.000	.4772	.9494
	From 15 to 20 million VND	.32084*	.08899	.003	.0767	.5650
	20 million VND or higher	1.06114*	.11372	.000	.7492	1.3731
From 10 to 15 million VND	Less than 5 million VND	.71998*	.12643	.000	.3731	1.0668
	From 5 to 10 million VND	-.71331*	.08606	.000	-.9494	-.4772
	From 15 to 20 million VND	-.39247*	.08495	.000	-.6255	-.1594
	20 million VND or higher	.34784*	.11059	.015	.0445	.6512
From 15 to 20 million VND	Less than 5 million VND	1.11244*	.12844	.000	.7601	1.4648
	From 5 to 10 million VND	-.32084*	.08899	.003	-.5650	-.0767
	From 10 to 15 million VND	.39247*	.08495	.000	.1594	.6255
	20 million VND or higher	.74030*	.11288	.000	.4306	1.0500
20 million VND or higher	Less than 5 million VND	.37214	.14667	.085	-.0302	.7745
	From 5 to 10 million VND	-1.06114*	.11372	.000	-1.3731	-.7492
	From 10 to 15 million VND	-.34784*	.11059	.015	-.6512	-.0445
	From 15 to 20 million VND	-.74030*	.11288	.000	-1.0500	-.4306

Source: Author compiled from data and SPSS software

Table 7 shows that there are differences in satisfaction between patient groups with different incomes. Particularly in the group of patients with incomes of less than 5 million VND and 20 million VND or more, there was no difference in satisfaction (Hoang & Chu, 2008; Hair *et al*., 2009; Hair *et al*., 2014) [3, 1, 2].

By job
Levene test for occupational groups, results for sig.< 0.05. Thus, it can be confirmed that there is uniformity in variance between occupational groups; the variance in satisfaction is different and statistically significant. The results of the Anova analysis are usable.

Table 8: ANOVA test between occupation and outpatient satisfaction

ANOVA					
S	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	98.719	4	24.680	116.072	.000
Within Groups	68.465	322	.213		
Total	167.185	326			

Source: Author compiled from data and SPSS software

Table 9: Testing for in-depth differences between occupational groups and patient satisfaction

(I) Nghenghiep		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Retired, housewife	Public sector employees	.03785	.08982	.993	-.2085	.2843
	Private sector staff	.36974*	.08267	.000	.1429	.5965
	General labor	.91412*	.08721	.000	.6749	1.1534
	Student	1.53228*	.09015	.000	1.2850	1.7796
Public sector employees	Retired, housewife	-.03785	.08982	.993	-.2843	.2085
	Private sector staff	.33188*	.07652	.000	.1220	.5418
	General labor	.87627*	.08140	.000	.6530	1.0996
	Student	1.49442*	.08454	.000	1.2625	1.7263
Private sector Staff	Retired, housewife	-.36974*	.08267	.000	-.5965	-.1429
	Public sector employees	-.33188*	.07652	.000	-.5418	-.1220
	General labor	.54438*	.07343	.000	.3429	.7458
	Student	1.16254*	.07691	.000	.9516	1.3735
General labor	Retired, housewife	-.91412*	.08721	.000	-1.1534	-.6749
	Public sector employees	-.87627*	.08140	.000	-1.0996	-.6530
	Private sector staff	-.54438*	.07343	.000	-.7458	-.3429
	Student	.61815*	.08176	.000	.3938	.8425
Student	Retired, housewife	-1.53228*	.09015	.000	-1.7796	-1.2850
	Public sector employees	-1.49442*	.08454	.000	-1.7263	-1.2625
	Private sector staff	-1.16254*	.07691	.000	-1.3735	-.9516
	General labor	-.61815*	.08176	.000	-.8425	-.3938

Source: Author compiled from data and SPSS software

Table 9 shows that there are differences in satisfaction between occupational groups of outpatients. As for the group of retirees and state employees, there is no difference in satisfaction (Hoang & Chu, 2008; Hair et al., 2009; Hair et al., 2014) [3, 1, 2].

By health insurance status
According to the results shown in Table 10, sig Levene's test is 0.000, which is smaller than 0.05. The variance between males and females is different. Moreover, the sig value t-test is 0.000, which is smaller than 0.05, which means that there is a statistically significant difference in the outpatients' satisfaction with the quality of medical examination and treatment services at Bach Mai Hospital between these different health Insurance statuses (Hoang & Chu, 2008; Hair et al., 2009; Hair et al., 2014) [3, 1, 2].

Table 10: Levene test of homoscedasticity for health insurance status groups

	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	95% Confidence Interval of the Difference	
								Lower	Upper
S Equal variances assumed	49.731	.000	4.381	325	.000	.34594	.07897	.19059	.50129
Equal variances not assumed			4.020	198.061	.000	.34594	.08606	.17623	.51564

Source: Author compiled from data and SPSS software

5. Discussion and implications
People are experiencing a change in their needs when participating in medical examinations and treatment services. What they expect most is the effectiveness of the entire process of examination, ordering tests, drawing conclusions, and prescribing medicine for patients. Indeed, when people go to the doctor, what they want is for the disease to be found, treated with the right medicine and technique, and cured soon.

Research results show that there are meaningful differences between different patient groups in terms of age, education level, occupation, income, and health insurance. Only by gender, there was no difference in satisfaction between male and female patient groups.

Regarding age, although there is a difference, there is no difference between the age groups of 56–69 and 70 years old and older. This can be understood because this age group is of retirement age, so they have a lot of time to wait patiently, line up for their turn to be examined, and have their orders and tests done. The difference between the remaining age groups is probably due to the waiting time factor because they are still of working age. Losing days and hours to see a doctor can affect their work and personal lives.

Regarding income, although there is a difference, the groups with incomes under 5 million VND and 20 million VND or more have no difference in satisfaction. This can be understood because, due to the characteristics of the On-Demand Medical Examination and Treatment Department being a service medical examination and treatment department, the cost of medical examination and treatment is higher than that of regular medical examination and treatment. Therefore, the group with an income of less than 5 million VND is usually students. When going to the doctor, they will be accompanied by a guardian, so personal wishes and opinions will be decided by the guardian. As for groups with incomes over 20 million VND, they will often use the best and fastest service package, in priority cases, and be accompanied by a tour guide. So, their biggest concern will be speed and efficiency; other influencing factors don't really matter to them.

Regarding occupational groups, there is a difference in satisfaction between occupational groups, but there is no difference in satisfaction between retirees and state employees. This reflects the time spent going to the doctor and the sympathy for the work of the medical staff of these two occupational groups. Maybe in the same government working environment, they understand the processes and procedures that sometimes take time.

Regarding the group of patients with and without health insurance, the results show that the satisfaction level of patients with health insurance is higher than that of patients without health insurance. This is thanks to the policy of combining health insurance and medical examination services. People with health insurance will not only enjoy benefits under the service package but also have the health insurance portion deducted for medical examination and treatment.

6. References
1. Hair JF, Black WC, Babin BJ, Anderson RE. Multivariate Data Analysis (7th ed.). Upper Saddle River, NJ: Prentice Hall International, 2009.
2. Hair JF, Henseler J, Dijkstra T, Sarstedt M, Ringle C, Diamantopoulos A, et al. Common beliefs and reality about partial least squares: Comments on Rönkkö and Evermann. Organizational Research Methods. 2014; 17(2):182-209.
3. Hoang T, Chu NMN. Analyzing researched data with SPSS (2nd ed.). Ho Chi Minh City, Vietnam: Hong Duc Publishing House, 2008. [Vietnamese]
4. Hunt KH. Conceptualization and Measurement of consumer sastifaction and dissatisfaction. Marketing Science Institue, 1977.
5. Oliver RL. Measurement and evaluation of satisfaction process in retail setting. Journal of Retailing. 1981; 57:25-48.