Predictors of Level of Patient Satisfaction Regarding Inpatient Health Care Services in Tertiary Care Hospitals of Punjab

Samra Subhani[1], Abdul Majeed Nadeem[2], Sofia Anwar[3]

1 *PhD Scholar, Department of Economics, Government College University, Faisalabad Pakistan*
Manuscript writing, Data collection, Results and discussion writing, References layout, Statistical analysis

2 *Assistant Professor, Department of Economics, Government College University, Faisalabad Pakistan*
Statistical analysis, Supervised the study, Proof reading

3 *Professor, Department of Economics, Government College University, Faisalabad Pakistan*
Selection of research topic, Literature review

CORRESPONDING AUTHOR
Samra Subhani
PhD Scholar, Department of Economics,
Government College University, Faisalabad Pakistan
Email: samsub321@gmail.com
Submitted for Publication: 09-03-2022
Accepted for Publication 30-03-2022

ABSTRACT

Background: Patient satisfaction has appeared as an important step in measuring the evaluation of the health care system and predicting the health outcome. **Objective:** To determine the factors that affect patient satisfaction from access to health care services. **Study Design:** A cross sectional primary survey based on well-structured questionnaire. **Settings:** Three tertiary care hospitals of Punjab Pakistan including Allied Hospital Faisalabad, Mayo Hospital Lahore and Nishtar Hospital Multan were selected. **Duration:** Data were collected from October 2020 to March 2021. **Methods:** All admitted patients of four different wards who spent more than 48 or above hours were the population of study. The patients who fulfill these criteria were administered during conducting interview. Data were processed in SPSS. 20.0 by applying binary logistic regression to find desired results. **Results:** The study evaluated that the health expenditures had a negative and significant relationship with the satisfaction of patient while the availability of free test, availability of free medicine, health insurance, working of medical equipment, facility of cleanliness, timely availability of reports had a positive and significant relationship with the patient satisfaction. **Conclusion:** It was concluded that the patients showed less satisfaction due to the financial burden of health expenditures. It was strongly recommended that the management should develop a systematic mechanism under which the performance of staff could be evaluated and monitored to take proper action for improvement.

Keywords: Patient's satisfaction, Health expenditure, Medical equipment, Free medicine, Free test.

INTRODUCTION

Quality of health care and well-being is globally becoming an emerging phenomenon, which occasioned the health care industry undergo through several changes to achieve the ever-increasing demands of health sector. In this context, patient satisfaction is considered as a major tool to evaluate quality of health care services. Equality in access to health care services and organized management is the desire of patient. Recently, in this era when every- one is on the track of struggling for the achievement of sustainable development goals, patient is importantly to be focused because it provides specific input to judge the development in health sector through criticizing the weak points of industry. So, the quantifiable patient satisfaction data for the improvement of performance and for the effectiveness of clinical programs is the need of current decade.[1]

The ambitious health goals, with changing health needs and growing public expectations are making health system to generate better health services for the attainment of greater social values. Quality is the DNA of all health care systems that optimize it in all context to meet the current demands of patients. In low medium countries, about eight million people are died of disease that are treatable by the health care system. Poor quality is becoming a bigger dilemma that results in mortality as compared to access. More than 50% deaths in low medium income countries are caused by the poor quality of health care system while the remaining are due to the non-utilization of other health care system. More than two million people can be prevented from the major heart disease by the improvement of health care system. In this regard there is a dire need to conduct research to judge patient satisfaction from health care system to improve its quality of services.[2]

Patient satisfaction is a multidimensional aspect that deals with attitude and perception that a patient viewed towards his total experience of health care system. It collaborates to be represented as the vital marker for the delivery of health care system. Furthermore, the level of

patient satisfaction is an internationally accepted measure that is most importantly to be studied to complement other phenomenon of health care assessment measures to make a smooth functioning of health care system.[3]

Various dimensions regarding the assessment of health care services have been addressed that assumed to be focused on all steps that are involved in handling issues in taking admission to the time of discharge. Along with that it also observed waiting time a patient has to face during getting health care facilities as well as the medical care and the appropriate communication of authorities. Moreover, interpersonal skill and communication are identified as the two unique dimensions of health care providers that are helpful in the patient assessment of health care service. General availability and quality of health care services also noticed to showing their effects on the satisfaction of patient.[4]

A study conducted in Iraq also contributed to evaluate the patient satisfaction in the context of patient demographics.[5] Another study was conducted on the cross-sectional data reveled the different aspects of health care sector such as ethnic, regional and socio-demographic factors.[6] In Ethiopia, it was found that the availability of free medicine and free test reports were of worth importance. Furthermore, previous literature revealed that the situation was not quite different in developed countries. In Wuhan, China the patients expressed average level of satisfaction from the quality of health care system.[7]

In addition to that socio-demographic and economic status of patients and their expectations towards the care and attitudes are considered the factors that are the major influential dimension in the context of patient satisfaction.[8]

Thus, in Pakistan the health care facilities are limited in their availability and the quality is also experienced as poor that represents the true picture of country's economic status. It takes a handsome share in the increasing morbidity and mortality rates due to major emerging chronic and infectious disease. Patient satisfaction is considered as the major bottleneck of health care system. So, the agenda of current government is to improve the health care industry and the quality of health care services delivery to the patients. In this effort to improve health care access and quality, measurement of patient satisfaction is an integral part to guide government to take steps for the improvement of system.[4]

METHODS

It was a cross sectional survey based on both qualitative and quantitative techniques. Data were collected in the second surge of covid-19 from three tertiary care hospitals in Punjab Pakistan including Allied Hospital

Faisalabad, Nishtar Hospital Multan and Mayo Hospital Lahore. This study was completed in 6-months from October 2020 to March 2021.

The sample size was calculated by using simplified Yamane formula (1967).

$$n = N/1 + N(e2)$$

According to the formula a minimum of 384 sample size were obtained. So, we took a sample size of 600 patients from the three tertiary care hospitals of Punjab, Pakistan.

Data were collected by using the stratified random sampling technique by using a well- structured questionnaire.

All admitted patients of four different wards including (1- Oncology 2- Cardiac 3- Kidney 4- Psychology) who spent more than 48 or above hours were the population of study. The patients who fulfill these criteria were administered during conducting interview.

Patients who were in severe pain such as cancer patients after getting chemotherapy, heart patients with severe attacks and patients without guardian and attendants were excluded from the study.

Variables of Study

Dependent Variable: We considered patient satisfaction as a dependent variable that was in dichotomous form. The satisfaction index was consisted on three satisfaction variables regarding patient satisfaction by applying PCA (Principal Component Analysis) These variables were 1) satisfaction from equality in access to health care services 2) satisfaction from the way health services were provided in hospital 3) satisfaction from the current health condition of patient. It was further converted in to two categories because the response rate of third category was very low.

Independent Variables

These were the factors that were influencing overall patient satisfaction.

Health Expenditure: Health expenditures included different types of costs such as food cost, traveling cost, overall treatment cost that were not incurred by the hospital.

Access to Free Test and Medicine: These variables included free test and medicine available to the patient from hospital.

Perception about Technical and Interpersonal Skills: This variable measured by patient satisfaction about staff's interpersonal communication and technical skills.

Health Insurance: It was calculated by checking the status of patient about having insurance. The variable was available in two categories 0-No 1-Yes.

Working of Medical Equipment: It represented the patient perception about working of medical equipment.

Facility of Cleanliness: It was concerned with the patient perception about the cleanliness of hospital.

Timely Availability of Reports: It represented availability of test reports in time.

Data Management and Analysis: The collected data were entered and analyzed in SPSS 20.0. The first step of process was the data cleaning. The dependent variable was expressed in binary response 0 and 1 so binary logistic regression applied to analyze the data. Suitable equations for this model are given below.

Equation for Model: Patient Satisfaction = β_0 + β_1 Health Expenditures + β_2 Availability of Free Test + β_3 Availability of Free Medicine + β_4 Technical and Interpersonal Skills+β_5 Health Insurance + β_6 Working of Medical Equipment + β_7 Facility of Cleanliness + β_8 Timely Availability of Reports + π_0

Detail of all dependent and independent variables is given below in table 1.

Table 1: Description of dependent and independent variables

Variable	Type of Variable	Categories
Patient's Satisfaction Index	Dependent	0-Unsatisfied 1= Satisfied
Health Expenditures	Independent	In Rupees
Access to Free Test	Independent	0-Unavailable 1= available
Access to of Free medicine	Independent	0-Unavailable 1= available
Perception about Technical and Interpersonal Skills	Independent	0-Unsatisfied 1= Satisfied
Health Insurance	Independent	0= No Insurance 1= Have Insurance
Working of Medical Equipment	Independent	0-Unsatisfied 1= Satisfied
Facility of Cleanliness	Independent	0-Unsatisfied 1= Satisfied
Timely Availability of Reports	Independent	0-Unavailable 1= available

Source: survey data (2020-2021) conducted from the selected tertiary care hospitals of Punjab (Pakistan)

RESULTS AND DISCUSSION

It was a cross sectional primary survey conducted in three tertiary care hospitals of Punjab, Pakistan. Gamma and Chi-Square test were used to check the association between the variables. Detail of results is given below in table 2.

Table 2: Results of chi-Square and gamma test for the patient satisfaction in selected tertiary care hospitals of Punjab, (Pakistan)

Variables	Value of Chi-Square	Value of Gamma Statistics
Health expenditures	74.82*	0.91*
Access to Free Test	90.61*	0.75**
Access to Free Medicine	70.64**	0.98*
Technical and Interpersonal Skill	83.67**	0.84*
Health Insurance	95.09*	0.77**
Working of Medical Equipment	76.05*	0.86*
Facility of Cleanliness	80.56**	0.91*
Timely Availability of Reports	85.90*	0.88*

Source: Survey Data (2020-2021) conducted from the selected tertiary care hospitals of Punjab (Pakistan) Note: p<0.01, ** p<0.05*

The results of table 2 revealed that there was positive association between the patient satisfaction and health expenditures as given by the value of Chi-Square 74.82. Similarly, the value of Gamma 0.91 reflected the strong relationship between the patient satisfaction and health expenditures. There was positive association between the patient satisfaction and access to free test expressed from the high value of Chi-Square 90.61. The Gamma test also confirmed the strong relationship between the variables. It was found that the access to free medicine was strongly and positively associated with the patient satisfaction as given by the value of Chi-Square and Gamma test 70.64, 0.98.

The results also elaborated that patient's perception about staff's technical and interpersonal skill exhibited a positive relationship with patient satisfaction as reflected from the value of Chi-Square 83.67. There was also a strong relationship between the technical and interpersonal skill and patient satisfaction given by the value of Gamma 0.84. There was a positive and strong association between the patient satisfaction and health insurance expressed by the value of Chi-Square 95.09 and Gamma test 83.09, 0.77 respectively. The result also explained that there was positive association between the patient's perception about proper working of medical equipment and patient satisfaction given by the value of Chi-Square 76.05. The value of Chi-Square 80.56 showed facility of cleanliness had a positive association with the patient satisfaction. In the same context Gamma test showed a strong relationship between the variables 0.91.

The results reveled that there was a positive association between the patient satisfaction and timely availability of reports as exhibited from the value of Chi-Square 85.90. The value of Gamma confirmed their strong relationship 0.88.

As the dependent variable was in dichotomous form so, binary logistic regression was found to be appropriate to check the effect of different factors on patient satisfaction. Detail of results is given below in table 3.

Table 3: Results of patient's satisfaction from the access to health care services in selected tertiary care hospitals of Punjab (Pakistan)

Variables	B	S.E	Ex(β)
Health Expenditures	-.071*	.035	0.946
Access to Free Test	.067**	.161	1.054
Access to Free Medicine	.090**	.027	1.073
Technical and Interpersonal Skill	.100*	.124	1.081
Health Insurance	.214**	.036	1.181
Working of Medical Equipment	.447*	.025	1.417
Facility of Cleanliness	.147*	.152	1.121
Timely Availability of Reports	.144**	.524	1.119
Constant	3.39**	.145	14.13

Source: survey data (2020-2021) conducted from the selected tertiary care hospitals of Punjab (Pakistan) Note: $p<0.01$, ** $p<0.05$

The results of table 3 elaborated that the patients who faced high burden of health expenditure had 0.946 times less likelihood to be satisfied as compared to those who did not bear the burden of health expenditure. Cosma *et al*, 2020 concluded that the patients were highly dissatisfied due to the health expenditures.[9]

People expected to get facilities from the public hospitals free of cost but when they had to bypass the hospital, they had to face traveling cost, accommodation cost and visitors cost that proved to be a burden for them. So, they became depressed and showed less satisfaction from the expenditures they faced in the form of cost. In contrast to that Lwin *et al*, 2020 concluded that people were highly satisfied from their dental tourism. They did not bother the traveling cost. They were highly satisfied from the traveling cost.[10]

The results elaborated that the patients who got access to free test had 1.054 times more probability to be satisfied as compared to those who did not get free test. Meng *et al*, 2018 concluded that the satisfaction from the overall medical services including the free test services provided by the hospital were very satisfactory for the patients.[7] Laboratory and diagnostic test played a vital role in the satisfaction. During treatment patient followed doctor's instruction for several tests to diagnose their disease level

properly. Without test a doctor could not be able to perform his diagnostic skills properly. So, there was a positive relationship between the availability of test facility and the satisfaction of patient from the health care services.[4]

The results also explained that the patients who got free medicine had 1.073 times more chances to be satisfied as compared to those who did not get free medicine. Due to high level of insurance the cost of medicine had reduced relatively. It helped the poor people to accommodate their financial burden. Meng *et al*, 2018 concluded that it also increased the annual growth of per capita income.[7] In a study by Siniyazi *et al*, 2021, patients expressed dissatisfaction from the proper availability of medicine. The problem of shortage of medicine was very severe in Northern Malawi. Patients failed to get required medicine that made them dissatisfied from the provision of health care services.[11]

It was found that the patients had 1.081 more likelihood to be satisfied from the technical and interpersonal skill of staff. If the facilities were available but the technical staff was not available to handle the machines then the availability was useless so they required proper trained staff. Gavurova *et al*, 2021 found a positive relationship with satisfaction and technical and interpersonal skills.[12] In contrast to that Meng *et al*, 2018 presented an insignificant relation with satisfaction of patient and technical interpersonal skill of hospital staff to use the equipment in the treatment of patients.[7]

The results concluded that the patients who had insurance showed 1.181 times more likelihood to be satisfied as compared to those who had no insurance. In contrast to that, Meng *et al*, 2018 concluded that the provision of medical insurance had a negative but significant relationship with the satisfaction of patient.[7] It was demonstrated that the health insurance system had been well managed in China and more than 85% had been completely insured. Wagstaff *et al*, 2008 stated that health insurance also reduced the uncertainty and increased the satisfaction of patient.[13] Sometimes medical insurance did not prove to be beneficial for patients. This was against the conventional thinking of people. In a study be Li *et al*, 2016, patients with no medical insurance had high level of satisfaction, the reason was that they had better financial condition. People did not need for a financial aid because they had enough money to get proper treatment.[14]

The results of this study pointed out that the patients had 1.417 times more probability to be satisfied if they get treatment from good medical equipment as compared to those who get treatment from damaged medical equipment. When the medical equipment was working properly then it could diagnose the history of patients

correctly and provided proper information to doctor while diagnosing the specific disease. In contrast to that, Siniyazi *et al*, 2021 concluded that patients were highly dissatisfied from the availability of proper diagnostic instruments.[11]

It was observed that the patients who were treated in a clean environment had 1.121 more probability to be satisfied as compared to those who were treated in a dirty environment. Cleanliness found to be important for making healthy environment in the hospital. Cleanliness could be taken as precautionary measure for the relevant disease. In contrast to that Siniyazi et al, 2021 concluded that the patients were highly dissatisfied from the level of cleanliness.[11] The reason was that the toilets were very dirty. The waste was not delivered properly. The waste was not handled properly. It affected the overall environment of hospital. Patient felt comfortable in a clean environment to reduce the disease level. It reduced frustration among the patient.

The results of this study revealed that the patients who got test reports in time had 1.119 times more probability to be satisfied as compared to those who did not get the test reports in time. In a study, Asmarew et al, 2020 found a significant relationship between the satisfaction of patient and the timely availability of reports to the patients. Patients needed to get check-up on routine basis. The availability of test reports was the demand of diagnosis. Patients always emphasized on the timely availability of reports for their treatment.in the absence of test reports patients had to face harsh attitude of doctor.[15] Kamra *et al*, 2016 reveled that, doctors felt reluctant to make treatment without test reports because the reports reflected the condition of patient and doctor could make judgment about his current condition. Everyone wanted to check early but in case of unavailability of reports he had to come back home without check-up facing the same level of critical condition. In case of availability of reports the doctor gave him time happily and made their treatment more accurately without any hesitation. He became confident about their prescription and treat patients more accurately.[16]

CONCLUSION

Pakistan is a developing country and spending a minor amount of its budget on health sector. So, patients had to face a financial burden in the form of health expenditures. In this study patients showed dissatisfaction from access to healthcare services due to health expenditures. The study also concluded that patients were satisfied due to clean environment of the hospital, availability of health Insurance, proper working of medical equipment and timely availability of laboratory reports.

LIMITATIONS

We had conducted survey in public hospitals. The study can also be extended by collecting data from private sector to compare the patient satisfaction in public and private sector.

SUGGESTIONS / RECOMMENDATIONS

It is recommended that Government should take measures to upgrade the health facilities at hospitals by allocating appropriate amount of its budget and enhancing the professional capabilities of human resource. Proper referral system, guidance and other facilitation measures should be implemented according to international standards at each step of treatment process in the hospitals. Proper professional training of the human resource with proper check and balance on their performance should be ensured. This will help in building high level of satisfaction and trust among the mases in getting proper treatment from the healthcare system. It will reduce the unnecessary haphazard rush at the tertiary care hospitals which creates disparity between the available services and the number of patients. This will save the wastage of public finances and human resource resulting in high level of satisfaction among the patients.

ACKNOWLEDGEMENTS

REFERENCES

1. Larson E, Sharma J, Bohren MA, Tunçalp Ö. When the patient is the expert: measuring patient experience and satisfaction with care. Bulletin of the World Health Organization. 2019 Aug 1;97(8):563.
2. Kruk ME, Gage AD, Mbaruku GM, Leslie HH. Content of care in 15,000 sick child consultations in nine lower-income countries. Health services research. 2018 Aug;53(4):2084-98.
3. Chakraborty SN, Bhattacherjee S, Rahaman MA. A cross-sectional study on patient satisfaction in an urban health care centre of Siliguri Municipal Corporation, Darjeeling, West Bengal. Medical Journal of Dr. DY Patil University. 2016 May 1;9(3):325.
4. Manzoor F, Wei L, Hussain A, Asif M, Shah SI. Patient satisfaction with health care services; an application of physician's behavior as a moderator. International journal of environmental research and public health. 2019 Jan;16(18):3318.
5. Jadoo SA, Yaseen SM, Al-Samarrai MA, Mahmood AS. Patient satisfaction in outpatient medical care: the case of Iraq. Journal of Ideas in Health. 2020 Aug 26;3(2):176-82.
6. Hayek S, Derhy S, Smith ML, Towne SD, Zelber-Sagi S. Patient satisfaction with primary care physician performance in a multicultural population. Israel journal of health policy research. 2020 Dec;9(1):1-9.
7. Meng R, Li J, Zhang Y, Yu Y, Luo Y, Liu X, Zhao Y, Hao Y, Hu Y, Yu C. Evaluation of patient and medical staff satisfaction regarding healthcare services in Wuhan Public Hospitals. International journal of environmental research and public health. 2018 Apr;15(4):769.

8. Andaleeb SS, Siddiqui N, Khandakar S. Patient satisfaction with health services in Bangladesh. Health policy and planning. 2007 Jul 1;22(4):263-73.

9. Cosma SA, Bota M, Fleşeriu C, Morgovan C, Văleanu M, Cosma D. Measuring patients' perception and satisfaction with the Romanian healthcare system. Sustainability. 2020 Jan;12(4):1612.

10. Lwin HN, Punnakitikashem P, Thananusak T. The level and determinants of international patient satisfaction with dental tourism in Bangkok, Thailand. Cogent Business & Management. 2021 Jan 1;8(1):1898316.

11. Sinyiza FW, Kaseka PU, Chisale MR, Chimbatata CS, Mbakaya BC, Kamudumuli PS, Wu TS, Kayira AB. Patient Satisfaction with Healthcare at a Tertiary Hospital in Northern Malawi: Results from a Triangulated Cross-sectional Survey.

12. Gavurova B, Dvorsky J, Popesko B. Patient Satisfaction Determinants of Inpatient Healthcare. International Journal of Environmental Research and Public Health. 2021 Jan;18(21):11337.

13. Wagstaff A, Lindelow M. Can insurance increase financial risk?: The curious case of health insurance in China. Journal of health economics. 2008 Jul 1;27(4):990-1005.

14. Li J, Wang P, Kong X, Liang H, Zhang X, Shi L. Patient satisfaction between primary care providers and hospitals: a cross-sectional survey in Jilin province, China. International journal for quality in health care. 2016 Jun 1;28(3):346-54.

15. Asamrew N, Endris AA, Tadesse M. Level of patient satisfaction with inpatient services and its determinants: a study of a specialized hospital in Ethiopia. Journal of environmental and public health. 2020 Aug 13;2020.

16. Kamra V, Singh H, Kumar De K. Factors affecting patient satisfaction: an exploratory study for quality management in the health-care sector. Total Quality Management & Business Excellence. 2016 Sep 2;27(9-10):1013-27.