Khulna University Studies Volume 19(1): 128-140 : 2022

ORIGINAL ARTICLE **SOCIAL SCIENCE**

DETERMINANTS OF SATISFACTORY PUBLIC HEALTH CARE SERVICES IN RURAL BANGLADESH

Tasnim Murad Mamun, Sajib Chowdhury* and Nazia Sultana Sumi

Economics Discipline, Khulna University, Khulna-9208, Bangladesh

KUS: 21/35: 301121

Manuscript submitted: November 30, 2021 Accepted: February 3, 2022

Abstract

Quality of public health care services is a necessary step in the process of improving health care services. It plays an important role for preventing the overuse, underuse and misuse of health care services and ensuring patient safety. Thus, the study aims to investigate the determinants of satisfactory public health care services in rural Bangladesh. Data are collected from 150 respondents of six upazilas in Khulna and Bagerhat districts who spend at least one day in the upazila health complex for receiving treatment. Quantitative analysis is performed through factor analysis and ordered logistic regression. This study demonstrates that almost three-fourth of the respondents visit hospitals at least 3-4 times in a year, also exerts that almost 70% of the respondents earn/month on an average between BDT 5,001-10,000, whereas nearly 40% of the respondents are compelled to spend almost about BDT 2,001-4,000 for availing medical facilities. Ordered logistic regression demonstrates that, educational status of the respondents, financial & physical access to care and health personnel conduct have positively associated with the respondent level of satisfaction on health care services rendered by public health complexes. Therefore, it is vital to improve the related facilities to increase the satisfaction level. Thus, authors suggest improving the overall structure of rural health complex, ensure availability of essential drugs, increase the financial support to government or initiate community-based health insurance to reduce the out of pocket health expenditure to increase the patient satisfaction level.

Keywords: Public health care services, determinants, ordered logistic regression, Bangladesh

Introduction

Health is considered as a fundamental need that helps to improve the quality of life. National economic and social developments largely depend on the status of a country's available health facilities for their people (Khandakar, 2014). The health care system reflects the socio-economic and technological development of a country. Thus, the government of a country has the responsibility to provide and improve the health care facilities of its people. The effectiveness of a health care system depends on the availability and accessibility of services in a form where the people are able to understand, accept and utilize the facility (Bhat *et al.*, 2016; Khandakar, 2014; Talib *et al.*, 2015).

*Corresponding author: <Sajib171534@yahoo.com>

DOI: https://doi.org/10.53808/KUS.2022.19.01.2135-s

The concept of satisfactory public health care services denotes the degree of health care services provided for the individuals to increase the desired health outcomes which is consistent with the current professional knowledge (Narang, 2011). It includes three elements e.g., structure, process and outcome (Wong *et al*., 2013). Structure has been connected with infrastructure, technology and resources. On the other hand, process includes interaction between service providers and patients that result in health outcomes. Additionally, outcome includes deaths, disability, satisfaction or responsiveness of the patients. Thus, the stakeholders should focus on the structure, process and outcomes to maintain a quality health care facility (Chassin & Loeb, 2011; Lluch, 2011; Scott *et al*., 2011).

The government takes several attempts to improve the service quality of rural health care system of Bangladesh. The data of health indicators in Bangladesh clearly states a well improvement of this sector. Statistical evidence in World Bank shows that life expectancy at birth has been increased from 47 to 73 between the years 1971 to 2019. Noticeable issue is that, the female's life expectancy rate (75 years in 2019) is higher than males (72 years in 2019) in Bangladesh. The data also exerts that crude death rate decreases from 19 percent to 6 percent; infant mortality rate per 1000 live birth has been declined from 149 to 26 by the year 1971 to 2019; under five child mortality rates has been reduced from 221 per 1000 live birth to 31 during the year 1971 to 2019. More importantly, 98 percent children aged 12-23 months in Bangladesh have been immunized in 2019 (World Bank, 2019). Thus, these data indicate the radical improvement of the health indicators in Bangladesh.

This improvement is happened by taking a large number of initiatives to establish a strong health care network by developing medical universities, medical colleges, nursing and paramedical institutions and others (Hussain and Raihan, 2016). The Ministry of Health and Family Welfare (MOHFW) has supposed to ensure the basic health care facilities for its people. Mainly, they have two broad divisions e.g., health services and family planning. There exist three tiers to ensure the public health care services among the citizens: primary level (sub-district), secondary level (district) and tertiary level (division). Moreover, community health clinic services help the grass root people to assure the basic health facilities. The government of Bangladesh has taken many initiatives to make available the health care facility at the door step in the remote areas in rural Bangladesh. Statistics of 2019 shows that, almost 7000 hospitals exist in Bangladesh including both government and non-government hospitals (Newspaper Store, 2019).

Despite this progress, the health sector of Bangladesh has some concerning aspect to deliver the quality health care facility among its people. According to the service provider, this sector has not well coordinated to provide the service efficiently. According to Hussain & Raihan (2016), public health care service in Bangladesh rated as the lowest position in terms of user's satisfaction. This report also mentioned that staff absenteeism, pilferage of drugs, mistreatment and negligence of clients, unauthorized and illegal payments collected from customers are responsible for lower customer satisfaction. Importantly, user satisfaction has prioritized in most of the studies to assess the quality health care services (Ashrafun and Uddin, 2011). However, the user satisfaction is still less emphasized among the policymakers (Hossain and Westhues, 2011).

In the existing literature, some qualitative studies have been conducted to explore the issue of user satisfaction. Aldana *et al.* (2001) has explored that service provider's attitude and their behaviors, especially respect and politeness are considered as the most powerful predictor to measure client satisfaction with the public health care services. They further exhibit that there exists negative correlation between patient satisfaction and gift culture in hospital services. Another study on patient satisfaction with quality of health care of hospital services in Bangladesh has identified that there is a loss of faith in public and private hospitals. The study also showed that some factors such as doctor's treatment, the behavior of nurses and their services to patient are significantly influence the patient's satisfaction level (Andaleeb *et al*., 2007).

A study on stakeholder's satisfaction regarding health care service of Bangladesh is immensely important for health-related service improvement and policy perspective of Bangladesh. Thus, it is important to explore the perception of service receivers about the public health care services and their condition of satisfaction. Hence, the general objective of the study is to find out the determinants of satisfactory public health care services in rural Bangladesh from the perspective of patients who stay at least one day in hospital during the survey year. Several research works have been conducted in many countries on the purpose of determining the quality of public health care services. Some qualitative research works on health care service are found in the context of Bangladesh. However, this study uses quantitative analysis e.g., ordinal logistic regression and factor analysis to reveal the determinants of the satisfactory public health care services is scarce in literature. Also,

So, to make a clear conception on the public health care services in rural Bangladesh, patient's perception and their level of satisfaction is considered in this study. This section briefly explains the background, objective and research gap of the study. Next section delineates the methodology of the study. The study result is portrayed in section three and section 4 recapitulates the study findings with discussion. Ultimately, conclusions and study recommendation are presented in section five.

Methodology

Study area: The study mainly focuses on the assessment of the determinants for satisfactory health care services provided by the public health care centers of rural Bangladesh from the perspective of patient's perception. Two disaster prone districts of the South-western region of Bangladesh, Khulna and Bagerhat are purposively selected as the primary study area for this study. South-western area of Bangladesh is considered as a disaster-prone region and suffer from water salinity, lack of safe drinking water and many problems (Saha 2017; Islam and Hasan, 2016). People of this region affected by different health hazard problems and they mainly depend on the rural health care services for treatment. Therefore, authors select this area to collect the relevant information to fulfill the aforementioned objective.

Sample size and sampling technique: People who receive public health care services from the selected study areas are the population of this study. However, for deep analysis of factors of satisfaction level, people who received not only health care facilities but also needed to stay at least a single day in the hospital to receive treatments are considered as the sample of this study. Authors choose a cross-sectional study among 150 individuals from the selected study areas to complete the study properly. At first, authors purposively select two districts and then randomly select twelve villages from six upazilas (sub-district) to select the respondents. Then, authors list down the respondent's information who receive public health care services from the hospital and stay at least one day in hospital during 1 January 2018 to 31 December 2018. Then, they randomly pick the 150 sample from the listed data and survey them to gather the information. A structured questionnaire was used to collect necessary data as defined in our preplanned study target which was surveyed at the end of 2018.

Study variables and measurement: This study attempts to assess the factors influencing the satisfactory quality public health care services in rural Bangladesh by using a cross-sectional data collecting from two south-western districts in Bangladesh. The explanations of study variable and its measurement scale are described in Table 1.

Analytical strategy: This study has used summary statistics, factor analysis and ordered logistic regression model to trace out the objective of this research. Factors of health care delivery, interpersonal & diagnostic aspect of care, factors of available facilities, health personnel conduct and factors of financial & physical access to care have been used in factor analysis (Table 1A to 1J).

To get a perceived value for each of the main variables through factor analysis, authors have conduct Kaiser-Meyer-Oklin (KMO) test which help to get a perceived value for each of the main variables and the impact of these values on the level of satisfaction defined through ordered logistic regression.

Table 1. List of Variable

Variable Name	Measurement Scale	Literature Support
Gender	0= male. 1= female	Pradhan & Behera (2021)
Age	Years	
Educational Status	Year of Schooling	
Monthly Income	BDT per Month	Authors Compilation
Number of Family Member	In numbers	
Distance of Health Complex	In Kilometer	
Frequency of Being Hospitalized (Year)	Number of times	
Frequency of Receiving Treatment	In numbers	
Number of Days Stayed in Hospital	Number of days	
Health Care Delivery Interpersonal and Diagnostic Aspect of Care Available Facilities Health Personnel Conduct Financial & Physical Access to Care	Predicted value generated through Factor Analysis	Narang (2011)
Expenditure for Medical Facilities	BDT per Year	Pradhan & Behera (2021)

In this study, ordered logistic regression is used to examine the level of satisfaction of the patients with the public health care facilities they receive from Upazila Health Complexes. The ordered logistic regression model is formulated in equation 1:

$$Y_i = \beta_0 + \beta_i X_i + \epsilon_i \dots (1)$$

Where,

Y_i= Dependent variable which shows the level of satisfaction of the respondent (here, 5 = Highly Satisfied, 4 = Satisfied, 3 = Moderately Satisfied, 2 = Dissatisfied, 1 = Highly Dissatisfied), β_0= Intercept or constant term; β_i =Coefficient of the explanatory variables; X_i= Explanatory variables; ϵ_i = Error term

Results

In this section, authors show an effort to evaluate and examine the socioeconomic and demographic features of the respondents who receives public health care services from the upazila health complex.

Socio-economic and Demographic Feature: Table 2 explains that percentage of female patient is higher than the male patient and it provides an image that the people within the age group of 31-45 receives maximum level of health care services from the health care center. This study also finds that most of the respondent belongs to the nuclear family because more than 75 percent respondents have 4 to 6 family members.

Respondent's monthly income is important in this study because people have supposed to manage their medical treatment with their income. This study exerts that nearly three-fourth of the total respondent's monthly income is only BDT 5,001-10,000. It is also revealed that two-fifth respondent's monthly expenditure for medical facilities is about BDT 2,001-4,000. Thus, it indicates that a significant portion of the respondent's

income is going to fulfill the demand of medical services. Distance is an important issue which can influence the decisions of a respondent about receiving medical facilities from Health Complex. This table shows that most of the respondents have available medical center with distance of 4 to 6 kilometers. Thus, they can easily find out the basic health related solution from this point. It also illustrates that more than 70 percent respondents visit Upazila Health Complex at least 3-4 times in a year. Number of days spend in hospital is considered as an important variable because as the respondents spend more days in the centers they can be more able to provide more accurate perceptions. This study describes that, 46 percent respondents spend 4-6 days to the public health care centers in the last time.

Table 2. Socioeconomic and Demographic Feature

Gender	**Frequency**	**Percentage**
Male	60	40.00
Female	90	60.00
Age Group (Year)	**Frequency**	**Percentage**
Below 15	12	8.00
16-30	48	32.00
31-45	78	52.00
46-60	12	8.00
Number of Family Members	**Frequency**	**Percentage**
1-3	14	9.33
4-6	114	76.00
7-9	22	14.67
Monthly Income (BDT)	**Frequency**	**Percentage**
Below 5000	20	13.33
5001-10000	110	73.34
10001-15000	15	10.00
15001-20000	5	3.33
Amount Used for Receiving Medical Facilities (Year)	**Frequency**	**Percentage**
0-2000	75	50.00
2001-4000	61	40.66
4001-6000	12	8.00
6001-8000	1	0.67
Distance of Health Complex (K.M.)	**Frequency**	**Percentage**
1-3	38	25.33
4-6	95	63.33
7-9	17	11.34
Frequency of Receiving Medical Facilities	**Frequency**	**Percentage**
1-2	21	14.00
3-4	107	71.33
5-6	14	9.33
7-8	8	5.34
Number of Days Being Hospitalized	**Frequency**	**Percentage**
1-3	22	14.67
4-6	69	46.00
7-9	35	23.33
More than 10	24	16.00
Total	**150**	**100.00**

Examining Patients Perception through Factor Analysis: This study has used factor analysis to examine the perceptions of the respondents on several variables those are concerned with quality of public health care services. Table 3 displays the results of the factor analysis and reveals which factors are mostly associated to predict the major five variables: health care delivery, interpersonal & diagnostic aspect of care, available facilities, health personnel conduct, financial & physical access to care.

The results of KMO>0.6 represent (Table 1A to 1J) that adequate availability of doctors, diagnosis system is good, satisfaction over prescriptions and quality of drugs is well are mostly relevant factors for the variable- health care delivery system. Whereas, all the factors except proper disposal of waste and transportation facilities are relevant influential factors for the variable-available facilities. Likely, all the factors under the variables- health personnel conduct and financial & physical access to care provide satisfactory KMO result.

Table 3. Perception through Factor Analysis

Description of Variables	Scoring Factor	Mean	Standard Deviation	DF*
Health Care Delivery				
Adequate availability of doctors	0.612	3.05	0.911	0.672
Diagnosis system is good	0.529	3.17	0.730	0.725
Satisfaction over prescriptions	0.529	3.55	0.538	0.983
Quality of drugs is well	0.323	3.63	0.536	0.603
Recovery is fast	0.324	3.43	0.584	0.555
Sufficient time to patients	0.035	3.47	0.539	0.065
Payment arrangements is fine	0.229	3.22	0.489	0.468
Adequate availability of information	0.211	3.01	0.272	0.775
Interpersonal & Diagnostic Aspect of Care				
Organized systems in reception counter	0.724	3.56	0.596	1.214
Staffs are honest	0.627	3.59	0.667	0.941
Good clinical examination	0.181	3.53	0.609	0.297
Follow-up, monitoring of patients is satisfactory	0.096	3.71	0.482	0.199
Medical equipment is satisfactory	0.088	3.24	0.514	0.171
Staffs are skilled	0.379	3.03	0.383	0.989
Available Facilities				
Adequacy of beds & cabins	0.514	3.09	0.567	0.908
Adequate number of doctors for women	0.342	3.21	0.547	0.625
Neat and clean hospital premises	0.499	3.58	0.547	0.914
Clean appearance of staff	0.499	3.75	0.463	1.079
Proper disposal of waste	0.207	3.68	0.482	0.429
Waiting time for doctors is logical	0.278	2.99	0.426	0.652
Transportation facility is satisfactory	0.200	2.39	0.515	0.389
Health Personnel Conduct				
Compassion and support is satisfactory	0.583	3.42	0.495	1.178
Adequate respect to patients	0.701	3.47	0.609	1.145
Timely supply of all drugs	0.642	3.36	0.662	0.969
Financial & Physical Access to Care				
Financial feasibility of treatment	0.575	3.21	0.575	1.000
Easily approachable	0.575	3.05	0.577	0.997

Based on the eigenvalues>1, we exert that adequate availability of doctors explain 82% variation of health care delivery. Similarly, the most explainable factors of other variables are organized systems in reception counter, adequacy of beds and compassion and support is satisfactory under the variable-interpersonal & diagnostic aspect of care, available facilities, and health personnel conduct respectively. A factor with positive scoring factor shows that it has a higher association with the broad variable and vice-versa (Sana, 2012).

Factor of difference (DF) is concluded from scoring factor divided by the standard deviation. The increase or decrease of perception about a variable from one respondent to another respondent in categorical scale (from 1 to 5) is influenced by the DF of that variable. For first variable, satisfaction over prescription has a positive DF which means that a patient's perception about this variable is higher than the perception of the previous patient and it is influenced by the DF.

Table 4. Ordered Logistic Regression on Level of Satisfaction

Variable Name	Unit of Measurement	Level of Satisfaction
Age	Years	0.86 (0.12)
Educational Status	Years of Schooling	1.32* (0.22)
Ratio of Children to the Family Member	Ratio	7.11* (8.01)
Distance of Health Complex	In Kilometer	1.01 (0.12)
Frequency of Receiving Treatment	In numbers	0.99 (0.17)
Medical Expenditure	In BDT	0.99 (0.00)
Number of Days Stayed in Hospital	Number of days	0.93 (0.07)
Health Care Delivery	Predicted Value Generated through Factor Analysis	1.12 (0.53)
Interpersonal & Diagnostic Aspect of Care		0.80 (0.42)
Available Facilities		0.60 (0.42)
Health Personnel Conduct		3.52*** (1.83)
Financial and Physical Access to Care		2.94** (1.57)
Log pseudo likelihood = -217.13 Pseudo R^2 = 0.0695 Observations= 150		

*Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; Source: Author's Compilation*

Ordered Logistic Regression: This study has conducted an ordered logistic regression to image the determinants of satisfactory public health care services in rural Bangladesh. To find out the determinants, authors randomly select the respondents who receive public health care services from the hospital and stay at least one day in hospital in survey year. The respondent's level of satisfaction on health care services rendered

by public health complexes, which is the interest of outcome, is measured by the help of five-point scaling (5=Highly Satisfied, 4=Satisfied, 3=Moderately Satisfied, 2=Dissatisfied and 1=Highly Dissatisfied) and the determinants is presented in table 4.

Table 4 illustrates the proportional odd ratios of mentioned variables and exerts that educational status, ratio of children to the family member; health personnel conduct and financial & physical access to care have significant positive impact on patient satisfaction level.

More specifically, it shows that for a one-year increase of schooling of the respondent, the odds of the high category of satisfaction level compare to the others are 1.32 times greater ($p<0.10$) which is consistent with the findings of Priporas *et al.* (2008). In general, educated people are heavily concerned to the choice of doctors, maintain regularity of checking and have access to digital platform. Thus, they can easily contact with the doctors for any emergency case which amplify the scope of satisfaction level of the educated respondents. Surprisingly, ratio of children to the family member exhibits a positive significant association to the satisfaction of the respondents. Specifically, for a one unit increase in ratio of children to the family members, the odds of the high category of satisfaction level are 7.11 times ($p<0.05$) greater compare to the other categories. This result indicates that children and family member ratio is important because in the diseased time, children plays a significant role to manage the family and other household chores. Importantly, for a one-point increase in health personnel's good conduct, the odds of the high category of satisfaction level are 3.52 times ($p<0.01$) greater comparing to the other categories. Additionally, for a one-point increase in financial and physical access to care index, the odds of the high category of satisfaction level are 2.94 times ($p<0.05$) greater than lower categories. This result indicates that it is important to provide the mental support, compassion, financial feasibility and easily approaches to the services for higher level of patient satisfaction. This result is consistent with the findings of Fatima *et al.*, (2018); Jalil *et* al. (2017), Westaway *et al.* (2003).

Discussion

This study aims to seek the determinants for satisfactory public health care services through using the factor analysis and ordered logistic regression model. Five interpersonal factors have been used in this study which shows a good internal consistency which is similar to the findings of Narang (2011).

This study identifies that females visit in the hospital is higher than male which is similar to the findings of Findik *et al.* (2010) and Beyene *et al.* (2015) where they state that the rate of females' hospital visiting and number of days stayed in hospital is comparatively higher than their counterparts.

This study recognizes that almost three-fourth of the respondent's visit Upazila Health Complex at least 3-4 times in a year also exerts that two-fifth respondent's monthly expenditure for medical facilities is about BDT 2,001-4,000. This indicates the out of pocket expenditure for medical issues is a significant problem for the rural respondent which is similar to the findings of Molla *et al.* (2017) and Hamid *et al.* (2014).

This study also identifies that health personnel conduct has positive impact on the level of satisfaction. The availability of drugs, adequate respect to patients and satisfactory compassion and support increase the satisfaction level of a patient that is consistent with the findings of (Van *et al.*, 2004). Most of the studies have been recognized that behavior of a doctor and staffs related to medical services is a matter of fact in perspective of patient satisfaction of patient satisfaction (Fatima *et al.*, 2018; Jalil *et* al., 2017; Manzoor *et al.*, 2019).

This study also recognizes that availability of financial support & physical access to care increase the level of patient satisfaction. Many studies find that increasing pocket expenditure leads to decrease the level of patient satisfaction (Callander *et al.*, 2020; Khalid *et al.*, 2021; Zeng *et al.*, 2018). This is similar to the findings of this study that is financial availability and easily accesses to health care facility improve the level of satisfaction.

Conclusion

Current public health care system is surrounded by many problems and rural respondents face several difficulties to get public health care services. Mainly, government's health care service is important as it saves the pocket expenditure of the households and ensures their health safety. Otherwise, people are compelled to take service from private health care centers which generate a poverty trap especially for poor household. Thus, government takes necessary steps to change the scenario of the rural health complex but still it needs some more attention to ensure good quality of services.

Authors consider some important variables for this study such as; health care delivery, interpersonal & diagnostic aspect of care, available facilities, health personnel conduct, financial & physical access to care. This study finds that years of schooling, health personnel conduct, financial & physical access to care have positive impact on the level of satisfaction of the respondents. The results of estimating these variables through incorporation of respondent's perspectives can provide valuable assistance in improving the quality of public health care services. This study also recognizes that almost three-fourth of the respondent's visit hospitals at least 3-4 times in a year also exerts that two-fifth respondent's monthly expenditure for medical facilities is about BDT 2,001-4,000 whereas the monthly income of the three-fourth of respondent's is only BDT 5,001-10,000.

Thus, this study suggests improving the overall structure of rural health complex and availability of essential drugs in rural area to increase the satisfaction of the patients. Also, suggest to increasing the financial support to government or initiate community-based health insurance to reduce the out of pocket health expenditure especially in the rural area. So, the government should provide necessary financial and technical support for higher patient satisfaction level.

The results of this study throw lights to the areas which require urgent and immediate attention. This will help to employ suitable strategies to improve the quality of public health care service as well as help to restore the faith of the respondents on the public health care centers and subsequently their increased consumption.

The researcher faced many difficulties due to the lack of prior research works in the context of rural Bangladesh. Though only patient's perspective is not enough to access the quality of public health care services, further research work can be done by comprising the aspects of both service providers and clients. Thus, here is option for future research to include patient, doctor and other stakeholders of medical services from different public and private health care centers of different regions of Bangladesh, then it would be more fruitful to assess the quality of health care services. However, this research reveals out the determinants of satisfactory public health care services, which is useful to the policy makers to identify the factors of patient satisfaction level that might be helpful to improve the rural health care facilities.

Acknowledgement

We would like to acknowledge Economics Discipline of Khulna University for providing institutional support. Our complements are due to the respondents, enumerators and concerned others. Finally, our thankful gratitude goes to the anonymous reviewers and editors for their invaluable comments and suggestions to improve this article.

References

Aldana, J. M., Piechulek, H., & Al-Sabir, A. (2001). Client satisfaction and quality of health care in rural Bangladesh. *Bulletin of the World Health Organization*, *79*(6), 512-517.

Andaleeb, S. S., Siddiqui, N., & Khandakar, S. (2007). Patient satisfaction with health services in Bangladesh. *Health Policy and Planning*, *22*(4), 263-273.

Ashrafun, L., & Uddin, M. J. (2011). Factors determining inpatient satisfaction with hospital care in Bangladesh. *Asian Social Science, 7*(6), 15.

Beyene, A., Muhiye, A., Getachew, Y., Hiruye, A., Mariam, D. H., Derbew, M., ... & Enquselassie, F. (2015). Assessment of the magnitude of teenage pregnancy and its associated factors among teenage females visiting Assosa General Hospital. *Emergency Medicine Journal*, 25-37.

Bhat, S., Gijo, E. V., & Jnanesh, N. A. (2016). Productivity and performance improvement in the medical records department of a hospital: an application of Lean Six Sigma. *International Journal of Productivity and Performance Management*.

Callander, E. J., Topp, S., Fox, H., & Corscadden, L. (2020). Out of pocket expenditure on health care by Australian mothers: Lessons for maternal universal health coverage from a long-established system. *Birth*, *47*(1), 49-56.

Chassin, M. R., & Loeb, J. M. (2011). The ongoing quality improvement journey: next stop, high reliability. *Health Affairs*, *30*(4), 559-568.

Fatima, T., Malik, S. A., & Shabbir, A. (2018). Hospital healthcare service quality, patient satisfaction and loyalty: An investigation in context of private healthcare systems. *International Journal of Quality & Reliability Management*.

Findik, U. Y., Unsar, S., & Sut, N. (2010). Patient satisfaction with nursing care and its relationship with patient characteristics. *Nursing & Health Sciences*, *12*(2), 162-169.

Hamid, S. A., Ahsan, S. M., & Begum, A. (2014). Disease-specific impoverishment impact of out-of-pocket payments for health care: evidence from rural Bangladesh. *Applied Health Economics and Health Policy*, *12*(4), 421-433.

Hossen, A., & Westhues, A. (2011). Improving access to government health care in rural Bangladesh: the voice of older adult women. *Health Care for Women International*, *32*(12), 1088-1110.

Hussain, M. M., & Raihan, M. M. H. (2016). Patients' satisfaction with public health care services in Bangladesh: Some critical issues. *Malaysian Journal of Medical and Biological Research*, *3*(1), 51-62.

Islam, M. R., & Hasan, M. (2016). Climate-induced human displacement: A case study of Cyclone Aila in the south-west coastal region of Bangladesh. *Natural Hazards*, *81*(2), 1051-1071.

Jalil, A., Zakar, R., Zakar, M. Z., & Fischer, F. (2017). Patient satisfaction with doctor-patient interactions: a mixed methods study among diabetes mellitus patients in Pakistan. *BMC health services research*, *17*(1), 1-13.

Khalid, F., Raza, W., Hotchkiss, D. R., & Soelaeman, R. H. (2021). Health services utilization and out-of-pocket (OOP) expenditures in public and private facilities in Pakistan: an empirical analysis of the 2013–14 OOP health expenditure survey. *BMC Health Services Research*, *21*(1), 1-14.

Khandakar, M. S. A. (2014). Rural Health Care System and Patients' Satisfaction towards Medical Care in Bangladesh: An Empirical Study. *Journal of Business*, *35*(2).

Lluch, M. (2011). Healthcare professionals' organisational barriers to health information technologies A literature review. *International Journal of Medical Informatics*, *80*(12), 849-862.

Manzoor, F., Wei, L., Hussain, A., Asif, M., & Shah, S. I. A. (2019). Patient satisfaction with health care services; an application of physician's behavior as a moderator. *International Journal of Environmental Research and Public Health*, *16*(18), 3318.

Molla, A. A., Chi, C., & Mondaca, A. L. N. (2017). Predictors of high out-of-pocket healthcare expenditure: an analysis using Bangladesh household income and expenditure survey, 2010. *BMC Health Services Research*, *17*(1), 1-8.

Narang, R. (2011). Determining quality of public health care services in rural India. *Clinical Governance: An International Journal*, *16*(1), 35-49.

Newspaper Store. (2019). Available at. https://www.newspapersstore.com/hospitals-in-bangladesh/.

Pradhan, J., & Behera, S. (2021). Does choice of health care facility matter? Assessing out-of-pocket expenditure and catastrophic spending on emergency obstetric care in India. *Journal of Biosocial Science*, *53*(4), 481-496.

Priporas, C. V., Laspa, C., & Kamenidou, I. (2008). Patient satisfaction measurement for in-hospital services: a pilot study in Greece. *Journal of Medical Marketing*, *8*(4), 325-340.

Saha, S. K. (2017). Cyclone Aila, livelihood stress, and migration: empirical evidence from coastal Bangladesh. *Disasters*, *41*(3), 505-526.

Scott, A., Sivey, P., Ouakrim, D. A., Willenberg, L., Naccarella, L., Furler, J., & Young, D. (2011). The effect of financial incentives on the quality of health care provided by primary care physicians. *Cochrane Database of Systematic Reviews*, (9).

Talib, F., Azam, M., & Rahman, Z. (2015). Service quality in healthcare establishments: A literature review. *International Journal of Behavioural and Healthcare Research*, *5*(1-2), 1-24.

Van Duong, D., Binns, C. W., Lee, A. H., & Hipgrave, D. B. (2004). Measuring client-perceived quality of maternity services in rural Vietnam. *International Journal for Quality in Health Care*, *16*(6), 447-452.

Westaway, M. S., Rheeder, P., Van Zyl, D. G., & Seager, J. R. (2003). Interpersonal and organizational dimensions of patient satisfaction: the moderating effects of health status. *International Journal for Quality In Health Care*, *15*(4), 337-344.

Wong, C. A., Cummings, G. G., & Ducharme, L. (2013). The relationship between nursing leadership and patient outcomes: a systematic review update. *Journal of Nursing Management*, *21*(5), 709-724.

World Bank. (2019). Available at. https://data.worldbank.org/indicator/SP.DYN.LE00.IN?locations=BD.

Zeng, W., Lannes, L., & Mutasa, R. (2018). Utilization of health care and burden of out-of-pocket health expenditure in Zimbabwe: results from a National Household Survey. *Health systems & reform*, *4*(4), 300-312.

Supplementary materials:

Table 1A. Factor Analysis of Health Care Delivery

Factor	Eigenvalue	Difference	Proportion	Cumulative
Adequate availability of doctors	1.242	0.648	0.823	0.823
Diagnosis system is good	0.594	0.275	0.393	1.216
Satisfaction over prescriptions	0.319	0.256	0.211	1.427
Quality of drugs is well	0.063	0.057	0.042	1.469
Recovery is fast	0.006	0.131	0.004	1.473
Sufficient time to patients	-0.124	0.120	-0.082	1.391
Payment arrangements is fine	-0.244	0.102	-0.162	1.229
Adequate availability of information	-0.346		-0.229	1.00

Table 1B. Scoring Factors and Result of KMO Test

Factor	Health Care Delivery	KMO
Adequate availability of doctors	0.612	0.617
Diagnosis system is good	0.529	0.676
Satisfaction over prescriptions	0.529	0.667
Quality of drugs is well	0.323	0.614
Recovery is fast	0.324	0.494
Sufficient time to patients	0.035	0.397
Payment arrangements is fine	0.229	0.511
Adequate availability of information	0.211	0.435

Table 1C. Factor Analysis of Interpersonal & Diagnostic Aspect of Care

Factor	Eigenvalue	Difference	Proportion	Cumulative
Organized systems in reception counter	1.111	0.796	1.092	1.092
Staffs are honest	0.314	0.267	0.309	1.402
Good clinical examination	0.048	0.113	0.047	1.448
Follow-up, monitoring of patients is satisfactory	-0.066	0.031	-0.065	1.383
Medical equipment is satisfactory	-0.097	0.196	-0.095	1.288
Staffs are skilled	-0.293		-0.288	1.000

Table 1D. Scoring Factor and Result of KMO Test

Factor	Interpersonal & Diagnosis Aspect of Care	KMO
Organized systems in reception counter	0.724	0.513
Staffs are honest	0.627	0.509
Good clinical examination	0.181	0.569
Follow-up, monitoring of patients is satisfactory	0.096	0.545
Medical equipment is satisfactory	0.088	0.359
Staffs are skilled	0.379	0.591

Table 1E. Factor Analysis of Available Facilities

Factor	Eigenvalue	Difference	Proportion	Cumulative
Adequacy of beds & cabins	1.041	0.721	1.253	1.253
Adequate availability of doctors for women	0.320	0.244	0.386	1.639
Neat and clean hospital premises	0.076	0.142	0.091	1.730
Clean appearance of staff	-0.067	0.042	-0.080	1.649
Proper disposal of waste	-0.109	0.066	-0.131	1.519
Waiting time for doctors is logical	-0.175	0.081	-0.211	1.308
Transportation facilities is satisfactory	-0.256		-0.308	1.000

Table 1F. Scoring Factor and Result of KMO Test

Factor	Facility	KMO
Adequacy of beds & cabins	0.515	0.703
Adequate availability of doctors for women	0.342	0.645
Neat and clean hospital premises	0.499	0.675
Clean appearance of staff	0.499	0.679
Proper disposal of waste	0.207	0.580
Waiting time for doctors is logical	0.278	0.608
Transportation facilities is satisfactory	0.200	0.555

Table 1G. Factor Analysis of Health Personnel Conduct

Factor	Eigenvalue	Difference	Proportion	Cumulative
Compassion and support are satisfactory	1.244	1.355	1.349	1.349
Adequate respect to patients	-0.111	0.099	-0.121	1.229
Timely supply of all drugs	-0.211		-0.229	1.000

Table 1H. Scoring Factor and Result of KMO Test

Factor	Health Personnel Conduct	KMO
Compassion and support is satisfactory	0.583	0.715
Adequate respect to patients	0.701	0.629
Availability of all drugs	0.642	0.665

Table 1I. Factor Analysis of Financial and Physical Access to Care

Factor	Eigenvalue	Difference	Proportion	Cumulative
Financial feasibility of treatment	1.038	1.187	1.488	1.489
Ease of obtaining drugs	-0.149	0.042	-0.214	1.274
Easily approachable	-0.191		-0.274	1.000

Table 1J. Scoring Factor and Result of KMO Test

Factor	Financial and Physical Access to Care	KMO
Financial feasibility of treatment	0.575	0.671
Ease of obtaining drugs	0.614	0.643
Easily approachable	0.575	0.669