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Determinants of Patient's Choice to Bypass the Closest Hospital A Case Study of Punjab, Pakistan

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ABSTRACT

Pakistan is a developing, 5th populous country with recession in economic indicators. Bypassing is the phenomenon that is widely discussed among the low income countries due to the less provision of health care facilities at primary health care centers. Secondary healthcare centers provide specialized level of diagnostic and treatment facilities while tertiary care hospitals provide specialized healthcare facilities at advance level. There is an impression of better health service facilities at tertiary care hospitals as compared to primary and secondary healthcare hospitals located near the patient's homes. So, they prefer to go to tertiary care hospitals after bypassing the closest secondary care hospitals. The objective of this study was to evaluate the factors that caused patients to bypass the closest hospital. A well-structured questionnaire was developed to collect data through a stratified random sampling technique. Data was collected from three major tertiary care hospitals of Faisalabad, Lahore, and Multan in Punjab province. The dependent variable was in dichotomous form so, binary logistic model applied to see the effects of several independent variables such as patient's demographic and behavioral factors like problem of inequality, severity of disease, competency of doctor, reputation of hospital, availability of ambulance, availability of own transport facility, recommendation from friend, referred from primary health care. Results revealed that all these variables had a positive and significant relationship with the patient decision to bypass the closest hospital except residential area, competency of doctor and reputation of hospital. It is suggested that Government should take measures to upgrade the primary health care units to minimize the problem of bypassing the closest hospital. It will reduce the financial burden on patients this enhance their well-being.

Keywords: Patient's Choice, Bypass, Tertertiary care, Repute of hospital, Inequality.

INTRODUCTION

Bypassing local facilities is always a common point to be discussed among the low-income countries. It is traditionally associated with the hospitals where patients receive their desired services. However, bypassing is costly for the people in low-income countries caused by not only the deficiency of finance but also due to travel time. In recent decades patient choice has captured a considerable attention of health economist because the consumer choice is a pre-condition for competition to survive in any market so patient (health consumer) choice has been focused to debate (Liu, 2007).

Pakistan is the country that is facing high burden of disease due to the prevalence of both communicable and

non-communicable diseases. It is ranked at 5th in case of having tuberculosis. Blood transfusion without screening is also seen at large. It is estimated that the drug restricted cases of tuberculosis are more than 4%. The other half of the burden of disease is constituted on mental health and injuries. Injuries exhibited about 11% of total disease. It is also alarming that Pakistan is ranked at 7th in the prevalence of diabetes. Disability with different elements is also very high but the facilities provided to disabled is limited. More than 50% females that are in reproductive age are found to be anemic. The health system is constantly disrupted by chronic crises such as earthquakes, droughts and floods. According to WHO, the death rate by heart disease is increasing annually (Abbas *et al.*, 2021).

In health care marketing the choice of hospital is gaining a remarkable academic attention and its research is dominated by traditional economic theories (Parsons *et al*, 2004). It has been widely maintained over the last few decades that a more cognitive perspective has complemented the classic economic view, making it evident to get insight into a patient's hospital decision (Frank *et al*, 2004). Cognitive science and knowledge of psychology has played a vital role in understanding the hospital choice preferences. However, patient's choice preferences are still unknown and very little information is available for patient decision making (Handricks *et al*, 2019).

The study of literature provides a deep insight to evaluate contribution of human resources such as knowledge and time. On the basis of bounded rationality theory, a method for analyzing that the patient has restricted access to essential information for their processing skills was discovered. Generally, the patients are not able to analyze all information and cannot act with perfect rationality. The point of patient decision about the choice of hospital is further elaborated by the adaptive decision making model formulated by Payne *et al*. (1993). They expressed patients as actors who flexibly gathered information for processing and make their effort for decision making. Furthermore, the decision efforts are taken as a function of complexity of information in the context of making decision in the choice of hospital. However, the decision making strategy is strongly influenced by the complexity of problem, individual characteristics and some of the social context factors (Battman *et al*, 1999).

In last few decades, rural community hospitals are facing the challenges for bypassing a bulk of patients to the urban hospital. It affects the survival of rural community hospital that is dependent on the retaining of patients to the service area (Boachie, 2018).

The measurement of factors of hospital choice is difficult due to complex nature of quality. Patient choice reflects the patient empowerment that is based on the belief that patient choice can stimulate the policy makers to design their strategies to promote better quality and high social welfare (Cookson & Dowson, 2012). Furthermore, the rural population is found to be more than urban population in developing countries so, in this regard the local and demographic trends are important to be noted to influence the volume of rural population. However, the problem of insufficient access to health-care services continues to be a major issue (Gaumer, 1989). Accordingly,

the choice of hospital is an important decision that has the ability to divert patient attention towards a right choice to get proper treatment for the desired disease. In the United States many empirical studies have been done to evaluate the patient's decision in the choice of hospital and found that patients prefer to get treatment in the high-quality hospital. The criteria of quality were based on the availability of number of staff and the availability of adequate number of beds etc. Various types of quality measurement methods were available that help the patients to evaluate different hospitals for their checkup and they had also got the facility from Government reports to make a better decision. UK and US both has introduced report cards for the measurement of quality that helps to stimulate quality improvements in the concerned hospital (Smith *et al*, 2003). Further, studies in Netherland have described several other methods to check the quality of hospital and helps to rate the hospital on the given assessed quality provided by the health care systems (Schut *et al*, 2013). Moreover, Vrangbæk *et al* (2006) consider different type of quality measurement methods for the comparison of external hospital concerned factors such as waiting time, travel time etc. Further they also added some other intrinsic factors that concluded that patients like to visit their nearest hospital for the required treatment. Several other factors such as income, social relation, facility available, travel time, bribery, hospital characteristics (number of beds, number of doctors, number of nurses, number of equipment), have laid a strong effect on bypassing the closest hospital. On this trade-off patient's characteristic like social status and age were the most influencing factors. Generally, the patients are less averse to travel but they preferred the hospital with a low waiting time. (Beukers *et al*, 2014). This is a first kind of study in Pakistan that has highlighted the problem of bypassing the closest hospital. This study will highlight the factors that are affecting the patient's decision to bypass the closest hospital. Furthermore, the highlighted problems will provide a deep insight to the Government and Policy makers to improve the facilities at basic health units to overcome the problem of bypassing. Resultantly, it will improve the patient' well-being that prove to be beneficial for country to achieve its target of sustainable development goals.

LITERATURE REVIEW

Bypassing primary care hospitals is a growing problem that has been encountered by the patients due to the

lack of facilities required for the specific treatment.

Amoro *et al.* (2021) exhibited the reasons of bypassing the nearest primary health care centers to get the desired facilities for the treatment. They took into account the mothers for their research work who were bypassing their nearest primary health care Centre due to several socio-economic and demographic reasons such as residential area, education, age, income and different means of transportation. They applied binary logistic regression and chi-square test to evaluate the final results. They concluded that these variables had a significant and positive relationship with the bypassing of hospital for getting high level facilities. They also found that the bypassers had to bear extra expenditures for the treatment in the form of transportation cost, medicine cost.

Bezu *et al.* (2021) focused on a specific scheme that was known as payment for performance to see its impact on the desire of a people to bypass their nearest hospital for getting high level facilities. This scheme concentrated on improving the facilities to reduce the incidence of bypassing the closest hospital. They applied difference in difference model to see the effect of this scheme. They also used machine learning approach to find out different factors that were more prominent in affecting the bypassing of closest hospital. There were two other major reasons one was type of facility and the other was distance to closest hospital. The results concluded that the patient bypass their nearest hospitals if the closest hospital was a dispensary and not the hospital. It was also found that if the hospital was close to the home, then the patient will be less likely to bypass the nearest hospital.

There were other quite different reasons that motivate the patients to bypass the closest hospital. Bruni *et al.* (2021) investigated the different reasons of patient 's mobility. They took data from Italian National Health System. Their main focus was on waiting time and the distance to travel for seeking high quality of services. They analyzed data by applying mixed-logit specification approach to evaluate the results of study. They found that the patients of younger age and severely ill were more eager to travel and for long to get high level facilities.

In this regard, Zhang *et al.* (2020) concluded that the people visited the facility farthest from the closest hospital. They explored the bypass behavior of individuals in China. For this purpose, they collected data from Chinese residents. They used a structured questionnaire for the collection of data. The independent variables were age, gender, health insurance and other factors. Binary

logit model was applied to see the effect of concerned variables. It was found that the quality of Primary Health Care services was positively associated with the bypass of closest hospital while the gender was negatively associated with the primary health care system.

The skilled professionals were considered better for the mothers in case of deliveries. Mubiri *et al.* (2020) concluded that providing expert services near the hospital was an important strategy to facilitate the people to get equitable access to the health care services. Data were collected from Expanded Quality Management Using Information Power Study in Mayuge District of Eastern Uganda. They applied a multi-logistic regression analysis between the dependent variable whether they bypass or not and the other independent variables. More than 25% people were found to bypass the nearest hospital. People with high socioeconomic status were considered to bypass the nearest hospital more as compared to the people with low socioeconomic status for the attainment of high facilities.

Smith *et al.* (2018) stressed the importance of a patient's choice of hospital in order to have access to necessary resources. Data were collected from hospital and National health Service of United Kingdom. They administered distance, parking area, no. of beds, waiting time, cleanliness and the patient safety score as the independent factors influencing the choice of hospital. For data analysis they applied multinomial logistic regression. From obtained results they concluded that the distance was an important influential measure affecting the choice of hospital. Parking area and number of beds are found to increase the utility of patient.

Moreover, Dahbrez *et al.* (2018) worked on the equity of access in the European Health Care Systems. Patients had given the free choice of hospitals to improve their rights and increase the hospital competition. They chose the females with uncomplicated deliveries in Denmark as they were carrying homogeneity in terms of different disease, availability of different type of behavioral data. They applied multi-logistic technique to get the required results. They made a comparison with the highly specialized and low specialized hospitals in the region in the context of bypassing. They found that the highly educated people had more probability to bypass the closest hospital to get high level facilities. Some other socioeconomic factors such as employment, income, and birth-order and access restriction had also a significant relationship with the bypassing of closest hospital.

Balia *et al.* (2018) concluded that reason of patient's mobility within long distances. They included data from two Italian hospitals. It was found that the mobility of patients was based on the patient characteristics, clinical quality and geographical distances. Data had been analyzed and processed by mixed logit model. It was found that clinical quality was the major factor that motivated patient to move from one hospital to another. It was also elaborated that the patients with younger age and high education had more probability to bypass the nearest hospital for their treatment.

Maternal Mortality was an important factor to be considered to evaluate the economic development. Shah (2016) had evaluated the factors that reduced the maternal mortality. Bypassing the nearest hospital for delivery was a normal phenomenon especially in developing countries such as Nepal. He had done work on the data of six rural villages in Nepal. A structured questionnaire developed to collect data from more than 250 respondents. He applied multi-logistic regression to see the effect of different independent variables. The results revealed that the people living in the plain areas had more probability to bypass the nearest hospitals. Similarly, people with higher level of economic status and older age were also showed more intention to bypass the nearest hospital.

Patient's mobility is based on several factors some of which are discussed by Augustin *et al.* (2017). He collected a cross sectional data from a hospital-based center in Hamburg. The patients having chronic wounds and the psoriasis patients was included in the study. Data was analyzed by using their descriptive and multivariate analysis. It was observed that the mobility of patients from one hospital to another was based on the service portfolio and doctor's expertise. It further elaborated that the psoriasis patients preferred to travel for a long distance as compared to the wound patients. The severity of disease and education were found to be more influential factors.

Boachie (2015) investigated the factors influencing the choice of hospital among the patients of Ghana. They collected data through a structured questionnaire. On the given data they applied multi-logistic regression analysis and found that the availability of free medicine, distance, waiting time and the payment of additional charges was the major contributors involving in bypassing the nearest hospital. These variables provide significant results for public hospitals. On the other

hand, in private sector residence, gender, waiting time and reputation of hospital was directly associated with the choice of hospitals. They suggested that the authorities should release funds timely to complete the complex procedures for patients to make them comfortable with their treatment.

MATERIALS AND METHODS

Study Setting

It was a cross sectional primary survey supported by both qualitative and quantitative techniques.

Selection of Study Area

The data used in this study had been collected from the tertiary care hospitals. The main idea behind selecting the tertiary care hospitals was that it captured a large number of patients from different areas as they were available in main districts. They were the catchment area of all rural and urban patients. The three main tertiary care hospitals of Multan, Faisalabad and Lahore were absorbing a bulk of patients, so they were selected to represent Punjab Province. The cities were selected on the basis of population size that were visiting the hospital.

Sample Size

The sample size for collecting quantitative data from three tertiary care hospitals for this research had been calculated by using the simplified Yamane formula (1967) as found in previous literature (Kharuddin *et al.*, 2020; Oribhabor and Anyanwu 2019; Mora and Kloet, 2010).

$$n = \frac{N}{1 + N(e)^2}$$

n = Sample Size

N = Total Number of Patients in selected area

e = Acceptance error term (5% or 0.05)

According to (Wunsch and Gades, 1986) justifying an infinite population 384 samples were required. In accordance with aforementioned sample size. A total of 600 patients has been selected for this study.

Sampling Technique

Data has been collected by using the stratified random sampling technique. In this type of sampling population has divided into different strata(groups) based on their different characteristics (Taherdoost, 2016). Our population comprised on patients of different disease in tertiary care hospitals so, it was appropriate to apply stratified random sampling technique to collect data.

Duration of Study

The study comprised on two years from October 2020 to

March 2021

Tool of Data Collection

A well-structured questionnaire was developed after observing condition of patients and reviewing previous studies (Beukers *et al.*, 2014; Moscilli *et al.*, 2018; Kelly *et al.*, 2019). It was capturing all dimensions of problems that the patients were facing in the tertiary care hospitals. It was translated in Urdu and the local language of the concerned city.

Data Collection and Management

The data for current study was collected from three tertiary care teaching hospitals; Allied Hospital Faisalabad, Nishter Hospital Multan and Mayo Hospital Lahore, Punjab, Pakistan. A well-structured questionnaire was designed from relevant literature. Five persons having at least a degree of M.sc were selected for data collection. A training session was arranged at Government College University Faisalabad to provide information about the aim of research. A field trip was arranged in the nearby hospital for pre-testing of questionnaire. In a meeting after pre-testing a meeting was held to resolve the problems that researchers faced during field trip. For visiting of Lahore and Multan a minibus was arranged on routine basis. We decided to reach hospital at 10.00 Am and came back at 4.00 PM. The hospital timing was 8.00Am to 2.00PM but time was not a hurdle as our sample was consisted of admitted patients. The enumerators were given a specific decided amount in which they arranged their lunch. We had already taken the permission from the Medical Superintendent of the hospital in black and white. As we entered the department, we informed to the duty nurse and doctor and showed him the permission letter. She directed us to the area where the patients were available. Before starting interview the ethical norms were strictly followed. Privacy of patients were also ensured while discussing them.

Inclusion Criteria

All admitted patients of four different wards: 1-Oncology

2- Cardiac 3- Psychology 4- Urology who spent more than 48 or above hours were the population of study. The patients who fulfill this criterion were interviewed.

Exclusion Criteria

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. Patients below age 18 and above 65 are excluded from the study.

Variable Selection and Justification

Here the dependent variable was in binary or dichotomous form. Patients were asked a question *Is it your closest/local Hospital*. The answer was in binary form 1-Yes 0-No. This variable was in dichotomous form as used in previous literature (Amoro *et al.*, 2021; Darmongplisit *et al.*, 2017; Kruk *et al.*, 2009).

Description of Variables

There were several factors consisted of patient demographic and behavioral factors that were affecting the patient's decision to bypass the closest hospital. Detail of variables is given below in table 1.

Econometric Model and Technique

The collected data were entered and analyzed in SPSS 20.0 The first step of process was the data cleaning. Due to the dichotomous nature of dependent variable, it was appropriate to apply binary logistic regression to get desired results. Logistic regression was employed to analyze patient's choice to bypass closest hospital. These models were considered as direct probability models that had no requirements on the distribution of different types of independent variables (Harrel, 2001).

A simplified form of equation was always suitable for multiple input variables that were linear in nature. Such functions were known as logistic regression functions and were considered as superior to the logistic response function (Chatterge & Hadi, 2006). Appropriate equation for the binary logistic regression is given below;

$$\frac{P}{1-P} = e^{\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_p X_p}$$

The model for the choice of patients to bypass the closest hospital is given below;

Patient's choice to bypass the closet hospital

$$\begin{aligned} &= \beta_0 + \beta_1 \text{Gender} + \beta_2 \text{Age} + \beta_3 \text{Education} + \beta_4 \text{Income} + \beta_5 \text{Residential Area} \\ &+ \beta_6 \text{Marital Status} + \beta_7 \text{Problem of Inequality} + \beta_8 \text{Severity of Disease} \\ &+ \beta_9 \text{Competency of Doctor} + \beta_9 \text{Reputation of Hospital} \\ &+ \beta_{10} \text{Availability of Ambulance} + \beta_{11} \text{Transport Facility} \\ &+ \beta_{12} \text{Recommendation from Friend} + \epsilon_1 \end{aligned}$$

Table 1. Description of Dependent and Independent Variables.

Variable	Type of Variable	Categories	
Patients Choice to Bypass the Closest Hospital	Dependent	No bypass =0	Bypass=1
Gender	Independent	Female=0	Male=1
Age	Independent	Number of Years	
Education	Independent	Number of Years	
Income	Independent	In Pak Rupees	
Residential Area	Independent	Rural=0	Urban=1
Marital Status	Independent	Unmarried=0	Married=1
Problem of Inequality	Independent	Inequality=0	Equality=1
Severity of Disease	Independent	Not Severity=0	Severity=1
Competency of Doctor	Independent	Incompetent=0	Competent=1
Reputation of Hospital	Independent	Not Reputed=0	Reputed=1
Availability of Ambulance	Independent	Unavailable=0	Available=1
Availability of Own Transport Facility	Independent	Unavailable=0	Available=1
Recommendation from Friend	Independent	Not Recommended=0	Recommended=1
Referred from Primary Health Care Unit	Independent	Not Referred=0	Referred=1

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 tests were applied to check the association between the dependent and independent variables. The results of Gamma and Chi-Square explained that there was a positive and significant association between the patient choice to bypass the closest hospital and the included independent variables such as demographic factors and several other factors consisted of problem of

inequality, severity of disease, competency of doctor, reputation of hospital, availability of ambulance, transport facility, recommendation from friend, referred from primary health care. Detail of Gamma and Chi-Square results is discussed below in table 2.

As the dependent variable was obtained in dichotomous form so we applied binary logistic regression to check the effects of patient’s demographic and behavioral factors. Detail of results obtained from the application of binary logistic regression is given below in table 3.

Table 2. Demographic and Behavioral Factor’s Distribution with Reference to the Patient’s Choice to Bypass the Closest Hospital in Selected Tertiary Care Hospitals of Punjab, Pakistan.

Independent Variables	Bypass the Closest Hospital			
	No	Yes	Total	
Gender	Male	144	179	323
	Female	153	124	277
	Total	297	303	600
		Chi-Square: 61.47	Sig. = 0.000	
		Gamma: 0.72	Sig. =0.000	
Residential Area	Rural	169	148	317
	Urban	151	132	283
	Total	320	280	600
		Chi-Square: 72.38	Sig. = 0.000	
		Gamma: 0.85	Sig. =0.000	
Marital Status	Married	139	187	326
	Unmarried	143	131	274

		Total	282	318	600
			Chi-Square: 78.26		Sig. = 0.000
			Gamma: 0.69		Sig. = 0.000
Problem of Inequality	Inequality		123	130	252
	Equality		188	159	347
	Total		311	288	600
			Chi-Square:83.32		Sig. =0.000
			Gamma:0.71		Sig. =0.000
Severity of Disease	Not Severe		103	105	208
	Severe		168	224	392
	Total		271	329	600
			Chi-Square:96.45		Sig. =0.000
			Gamma:0.86		Sig. =0.000
Competency of Doctor	Incompetent		127	138	265
	Competent		118	217	335
	Total		245	355	600
			Chi-Square:83.05		Sig. =0.000
			Gamma:0.78		Sig. =0.000
Reputation of Hospital	No Reputed		131	153	284
	Reputed		145	171	316
	Total		276	324	600
			Chi-Square:74.56		Sig. =0.000
			Gamma:0.61		Sig. =0.000
Availability of Ambulance	Unavailable		189	151	340
	Available		119	141	233
	Total		308	292	600
			Chi-Square:88.15		Sig. =0.000
			Gamma:0.74		Sig. =0.000
Availability of Own Transport Facility	Unavailable		115	150	265
	Available		133	202	335
	Total		248	352	600
			Chi-Square:72.09		Sig. =0.000
			Gamma:0.63		Sig. =0.000
Recommendation from Friend	Not Recommended		143	164	307
	Recommended		118	175	293
	Total		261	339	600
			Chi-Square:91.65		Sig. =0.000
			Gamma:0.83		Sig. =0.000
Referred from Primary Health Care Unit	Not Referred		175	114	142
	Referred		149	162	458
	Total		324	276	600
			Chi-Square:85.65		Sig. =0.000
			Gamma:0.95		Sig. =0.000
Variable	Observation	Mean	Standard Deviation	Min	Max
Age	600	37.93	11.70	18	65
Education	600	4.63	5.17	0	16
Income	600	51335	29334	20,000	300000

Note: survey data (2020-21), author's own computation.

The results explained in table 3 exhibited that the male patients had 1.018 times more likelihood to bypass the closest hospital as compared to the females. Chae *et al.* (2021) found that male had more opportunities to bypass the closest hospital as compared to the females. In Eastern societies females had to face a lot of hurdles like family issues. Mostly they needed a man to accompany for their protection while moving from one

place to another. Females were not socializing as man so in this context they got less awareness as compared to male. They were considered as the low creatures in most of the backward areas and could get the required treatment of their disease (Bruni, 2021). In contrast, Zhang *et al.* (2020) explored in his findings that females had more chances to bypass the closest hospital as compared to male.

Table 3. Results of Factors Affecting Patient's Choice to Bypass the Closest Hospital in Selected Tertiary Care Hospitals of Punjab, Pakistan.

Variables	B	S.E.	Exp(B)
Gender	.018	.0116	1.018**
Age	.072	.061	1.075**
Education	-.178	.079	.837
Income	.009	.121	1.009*
Marital Status	.182	.206	1.199**
Residential Area	-.329	.166	.720*
Problem of Inequality	.028	.094	1.029*
Severity of Disease	.043	.060	1.044**
Competency of Doctor	-.114	.096	.892**
Reputation of Hospital	-.010	.266	.990**
Availability of Ambulance	.157	.121	1.170**
Availability of Own Transport Facility	.230	.134	1.259*
Recommendation from Friend	.168	.154	1.183**
Referred From Primary Health Care Unit	.102	.056	1.107*
Constant	-.594	.504	.552*

* Shows 1% level of significant

**Shows 5% level of significant

Age had a positive relationship with the patient's choice to bypass the closest hospital as explained in table 3. Zhang *et al.* (2020) also concluded that the old patients bypass the closest hospital more as compared to young. When a patient got any type of disease then he tried to get prevention of that disease where it was available more conveniently. Old and young both made their decision at the maximum of their benefit (Chae *et al.*, 2021). With contrast to that it was also found that young patients had more chances to bypass the closest hospital for better treatment. Old people always hesitated to travel more so they didn't bother the level of quality services. The young ones were more enthusiastic and energetic, so it was easy for them to make a decision to bypass the closest hospital for better treatment (Liu, 2008).

The results described in table 3 explained that education had insignificant relationship with patient's decision to bypass the closest hospital. The reason was that when patient was in problem and failed to get access to the required treatment then he decided to bypass the closest hospital for better treatment. The objective of every patient was to cure his disease whether he was educated or uneducated (Chae *et al.*, 2021). Whereas, in some studies education was also found to be influential. Highly educated people were keen to get better facilities, so they tried to get their best from the provided resources. The results expressed in table 3 showed that the probability of patient to bypass the closest hospital 1.009 times increased as the income increased. The variable was consisted of family income of a patient. Wealth Index was also a suitable indicator of the income

of a person. The research studies revealed that the people with higher wealth index had more probability to bypass their closest hospital as compared to the people who were bearing a lower wealth index (Shah, 2016). The rich people could easily afford the cost of treatment, so they considered it better to visit the hospital with more accomplished facilities (Mobiri, 2020). Karkee *et al.* (2015) also found that the increase in wealth increase the desire of a person to bypass the closest hospital for the sake of good facility. Rich persons emphasized on the quality of services neglecting the cost of services. They did not focus on the hardships as they had lot of money so they could travel comfortably as compared to a poor man.

The results of this study elaborated that the married patients had 1.199 times more chances to bypass the closest hospital as compared to the unmarried patient. Married patients found it easy to bypass their closest hospital due to the help of their spouse. Unmarried patients felt reluctant to travel due to their disease. Patients always required a caretaker for their help and movement from one place to another. Patient could not drive individually to travel from one place to another. He needed a companion to handle his disease in case of severity so the patient will try to take a person with him. A married person had more chances to bypass the closest local hospital as compared to the unmarried patient for their treatment (Liu *et al.*, 2008).

The results of this study exhibited that the patients residing in urban areas had .720 times less probability to bypass the closest hospital as compared to the patients who were residing in the rural areas. The urban people had more awareness, and they were more conscious about the choice of hospital. If they found any deficiency while getting treatment in their local hospital then they could easily bypass the closest hospital (Chae *et al.*, 2021). The people residing in the plain areas had found more ease in bypassing their closest hospital as the roads were comfortable, so the mobility of patients raised. On the other hand, people in hilly areas encounter difficult pathways to reach the hospitals far from their residents. People living in cities didn't hesitate to travel long from one place to another for better care. Care was the most important thing that every person liked to obtain at their best (Shah, 2016).

The results explained in table 3 exhibited that the patients who faced more inequality had 1.029 times more probability to bypass the closest hospital as

compared to those who faced less inequality. Similarly, Moscelli *et al.*, (2018) found a significant association with the problem of inequality and the bypass behavior of an individual. Inequality was the major effecting factor that could be seen in different places while accessing the health care services. During treatment procedure patient had to administer different types of facilities such as they had to visit dispensary for the attainment of medicine, then they had to handle the laboratory area for different test purposes. In all these scenarios when a patient was treated unequally then he decided to go to the next hospital that was not near to him. Inequality created a pressure on the patients, and they felt reluctant to visit the area where they had to face deprivation to get their required treatment (Dahbrez *et al.*, 2017).

The results of this study revealed that the patients who were in severe condition had 1.044 times more chances to bypass the closest hospital as compared to those who were not in severe condition. Enhanced facilities were the requirement of severe condition when patient was in a critical situation then he had to get a specific treatment with a specific instrument that was not mostly available in the primary care hospitals. In case of such a condition people decided to bypass the closest hospital to get the facility for the treatment. In case of complicated deliveries patients immediately decided to bypass the closest hospital to save both mother and children. Researchers found that severity was a critical condition in which patient feel reluctant to made delay in taking decision, so they easily bypassed their closest hospital to save their lives (Rao & Sheffel, 2018).

The results of current study pointed out that if the patients found competent doctor while visiting the hospital then they had .892 times less likelihood to bypass the closest hospital. When the competent doctor was available in the neighboring hospital then he would not bypass it and would reside in that area. In this context Augustin *et al.* (2017) concluded that the physician's expertise had a positive strong link with the patient to accept high costs in their closest hospital. It protected them to bypass their closest hospital. Patients always seek access to a specialist. General physician had not the capability of diagnosing the specific level of disease. In this data set patients were mostly with a severe disease that could not be procured by a general physician. In primary health care systems, there were lack of specialist, so patients had faced problem in their

treatment while accessing the closest hospital. It was the reason due to that people bypass the closest hospital for their treatment (Bell *et al.*, 2020). Patients liked to avail the opportunity from a specialist doctor rather than a general physician for their treatment. Primary care centers containing only general physician revealed more mortality rate as compared to the centers where more specialists were available. It increased the burden of cost for patient to move from closest area to the farthest area (Rao & Sheffel, 2018).

The results explained in table 3 exhibited that if the patients visited the hospital that had a good reputation, then they had .990 less probability to bypass the closest hospital. Reputation of hospital exerted a deep effect on the selection of hospital. The mortality rate was of worth to be discussed in detail. The mother mortality and the infant mortality were the key factors to determine economic development. These rates exhibited the overall level of quality of hospital. If the provided services were managed properly then the hospital was reputed very well. So, it was concluded that abundance of hospital fixed effects variables and the reduced mortality rates determined the reputation of hospital (Victoor *et al.*, 2012). Hospital repute had a strong power to attract patients towards its provided facilities. Similarly, Beukers *et al.* (2014) worked on the same lines and got the same results their findings revealed that there was a strong association with the bypass behavior and reputation of hospital. High quality hospitals were accessed mostly while the low-quality hospitals got less attention of people to approach the relevant hospital (Boachie, 2016). The study revealed that if the ambulance was available conveniently then patients had 1.170 more probability to bypass the closest hospital. Finally *et al.* (2021) concluded that the availability of ambulance services had a significant association with the patient's decision to bypass the nearest hospital. The transport intervals were associated with the death rate. When a patient got an ambulance to shift from one place to another then he could easily decide to go to the next hospital.

The results of current study explained that if the patient had his own vehicle, then he had 1.259 times more probability to bypass the closest hospital as compared to those who were not owning private transport. Transportation provided an easy chance for a person to bypass the closest hospital. Some people used public transport while the other affluent patients had their own

vehicles. The personal transportation remained comfortable for a diseased person to move from one place to another. Getting a personal transportation motivated the patients to bypass the closest hospital for the sake of high-quality services (Amoro *et al.*, 2021). If the well-equipped public transport was available in the concerned area, then people can easily move from one place to another. Convenient transport was the desire of every person that reduced the difficulty of all human beings. People felt ease in making decision to bypass the closest hospital conveniently (Karkee *et al.*, 2015).

It was found that if a patient got recommendation from his family friend, then he had 1.183 times more probability to bypass the closest hospital as compared to those who did not get recommendation from the family friend. People used to access the hospital that were advised from their family members. They took views of different people about the hospitals having the same facilities and then decided to select that one about which he got more positive responses. Victoor *et al.* (2007) found a significant association between the bypass behavior and the recommendation from the family member or friend. In traditional countries people living in the societies where people had strong social terms with each other, and they valued to each other views about different ideas and experiences. Positive experience could motivate the people to select concerned hospital (Boachie, 2016).

The results of the current study confirmed that the patients who referred from the primary health care had 1.107 times more probability to bypass the closest hospital as compared to those who did not refer from the primary health care. Patients tried to seek their health care services at their local primary care hospitals. When the patient didn't recover from the given treatment then he was referred to the secondary and tertiary care hospitals. Here patient had no chance to avoid bypassing the closest hospital. His life had only one option to be secured if he shifted from one hospital to another. Primary health care was not well equipped with all necessary services so in serious conditions people were referred to bypass the nearest primary health care to the tertiary care hospitals for their treatment. Visser *et al.* (2015) found that there was a strong association between the primary care and the intentions to bypass the nearest hospital. Patient bypass often occurred due to the less attention obtained from the primary health care that was available in its

neighboring locality. So, patients for their safety decided to move towards some high quality hospital for better treatment. The improved quality of primary health care services reduced the rate of bypass their closest hospital (Zhang *et al.*, 2020).

CONCLUSION AND POLICY IMPLICATION

The patient load was growing rapidly but the resources of country were compromising. The health care services were better provided in tertiary care hospitals as compared to primary and secondary healthcare hospitals. Moreover, due to inadequate health facilities at secondary healthcare system and reluctance to follow the referral system patients preferred to bypass their closest hospital. The ineffective referral system and weak integration between two systems created a problem of haphazard rush. They travelled and visited the tertiary care hospitals at far distance to avail better resources and services. People's preference to travel long to seek health care indicated that people like to give more importance to the quality of health care services. It was strongly recommended that Government should take initiatives to start such activities that promote the provision of high-quality services at primary and secondary health care units to reduce the bypass rate. This would also ensure the equality in access to health care services that protect the poor to pay high costs of long travelling to bypass the closest hospital for high quality services.

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