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AN EMPIRICAL ANALYSIS OF THE DETERMINANTS OF OUT-OF-POCKET HEALTHCARE EXPENDITURE OF RURAL HOUSEHOLDS IN THE SIRAJGANJ DISTRICT OF BANGLADESH

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Abstract

The allocation of resources to health sector and its utilization bear great importance as health is treated as the root of all happiness of human life. The prime objective of this study was to examine the factors influencing the out-of-pocket healthcare expenditure of rural households in Sirajganj district of Bangladesh. The research has used a set of cross-sectional data on the respective variables for the empirical analysis. For this purpose, the study applied a two-stage sampling technique consists of purposive and cluster random sampling for the selection of 400 households from four upazilas of the district. Finally, the data has been collected from the sample households with the help a structured questionnaire composed of both open and closed-ended questions by using face to face interview method. The study has employed a double log regression model to assess the effects of various specified determinants on the per head out-of-pocket healthcare expenditure of households. The results of the study showed that the per head out-of-pocket healthcare expenditure is positively related with the ratio of family members aged below 5 years, ratio of family members aged above 50 years, household income per head, wealth per head, education level of the household head, quality of private hospital in the territory, household size and ratio of chronically ill family members. In contrast, ratio of family members aged 5- below 50 years, ratio of male family members, ratio of single family members, quality of government hospital, consumption expenditure per head and time distance to the nearest healthcare center have negative relationship with per head out-of-pocket healthcare expenditure. Since the study found that the availability of better-quality government hospital in a locality reduces the per capita out-of-pocket health expenditure, it is suggested to establish new government hospitals and raise the capacity of the existing ones may make healthcare services more accessible to the poor people.

Keywords: Healthcare Expenditure, Regression, Healthcare Market, Information Asymmetry.

1.0 INTRODUCTION

1.1 Background

The importance of healthcare is beyond any argument because it is one of the universal basic needs of human life. Recently, the significance of this sector is extremely intensified in every nation due to pandemic caused by covid-19 worldwide. By publishing a report titled “Global Spending on Health: A World in Transition” WHO claimed that, in two years from the beginning of Sustainable Development Goals (SDGs) era, global health expenditure has been increased from US$ 7600 billion in 2016 to US$ 7800 billion in 2017. The report also made evident that the global health expenditure grew at a rate of 3.9 percent per year in real term between 2017 and 2020, whereas the global economic growth rate was 3.0 percent per year during the same time span. Hence, it asserted that global health sector grows at a faster rate than the global economic growth rate. Moreover, a substantial portion of global capital and labour have been employed in healthcare sector, indicates that it plays significant roles in

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providing health services and generating employment in every nation. Furthermore, health is treated as an asset not only in the life of an individual but also in the aggregate economic mechanism of a country as whole. By using the theory of human capital, Grossman (1972a, 1972b), argued that education, training, and health are the medium through which people can invest in themselves aimed at increasing their earnings. In personal life, people may be benefited from good health by feeling better as well as earning additional money while being more productive because of sound body. Consequently, there is a possibility that the overall economic performances of a country can be flourished as its citizens become healthier.

Although, since independence, Bangladesh achieved a considerable success in health sector like decreasing infant mortality rate, controlling some contagious diseases and decreasing maternal mortality rate; however not adequate to handle present situation. According to the WHO, the out-of-pocket spending on healthcare in 2015 was 32 percent of total healthcare expenditure globally. It is evidence from Bangladesh National Health Accounts 1997-2015 published in 2018 that, about 67 percent of total healthcare expenditure was spent by the households out of their pockets, which is more than double of the global percentage. As a consequence, annually about 3.5 percent of total population which is equivalently 5 million people are being pushed into poverty in Bangladesh (Khan et al., 2017). Health is a such sensitive issue that, in which people spend money at the cost of their present consumption of many essential items without any hesitation in case of emergency. But, individuals and households face income constraint alike an economy faces resource constraint, therefore, in all cases best utilization of resources is obligatory.

1.2 Country Wise per Head Health Expense

A comparison of per head health expense of different countries of the world has been shown with the help of the table-01. The statistics shows that the per head health expense of Bangladesh very negligible compared to the developed countries of the world. It is obvious from the data that the per capita health spending of United States is 238 times more than the per person health spending of Bangladesh. As a result, Bangladesh has the maximum value of health spending paid by the individuals themselves (as a percentage of total health expenses); the data show that Bangladeshi people pay on an average 72.68 percent of the total health expenditure, whereas American people pay only 11.31 percent of their total health expenditure.

Table 01: Country Wise per Capita Health Expenditure in 2019

Country	Per Person Health Expenses (US$)	Out-of-Pocket Spending (% of Total Health Expenses)
Bangladesh	45.86	72.68
United States	10921.01	11.31
Australia	5427.46	15.98
Japan	4360.47	12.91
Malaysia	436.61	34.57
India	63.76	54.78
Sri Lanka	160.70	45.64

Source: WHO Database, January 2022

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1.3 Recent Trend of Health Expenditure in Bangladesh

The Figure-01 & 02 represent the recent trend of health expenditure in Bangladesh. There are two indicators: per person health spending (US$) and total health expenses as a portion of GDP has been considered to explain the trend.

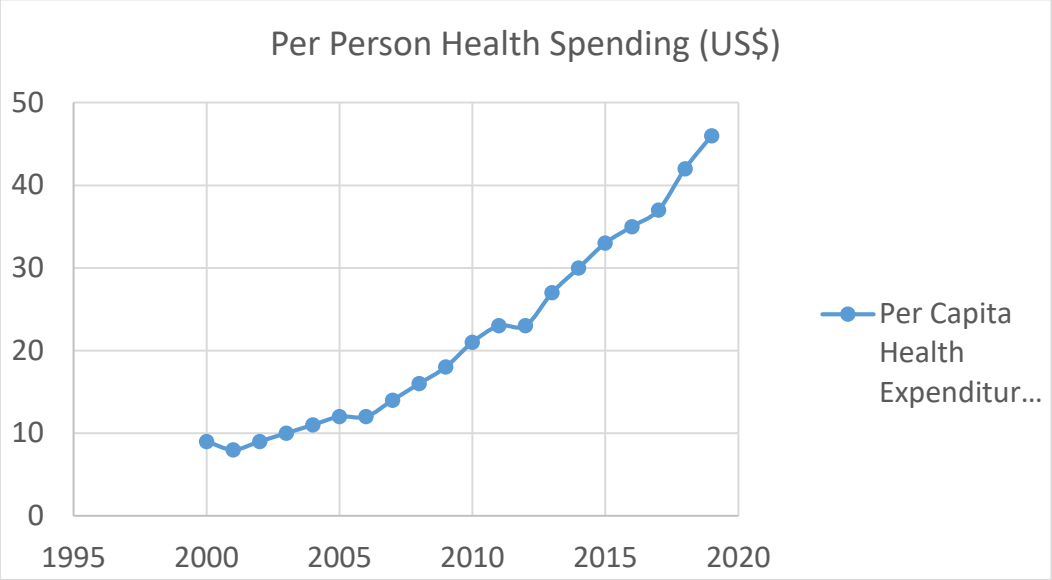

Figure 03: Recent Trend of Per Person Health Spending in Bangladesh

(Source: Bank World Database, 2020)

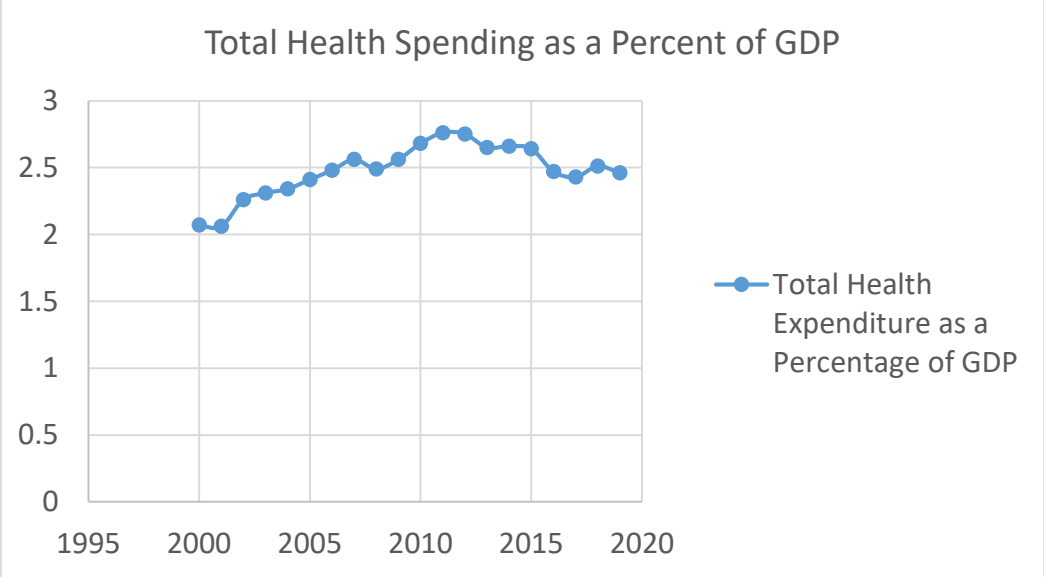

Figure 04: Recent Trend of Total Health Spending as a Percent of GDP in Bangladesh

(Source: Bank World Database, 2020)

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An interesting thing has been happened here that the per person health spending has a rising trend on an average, however the total health spending as a percentage of GDP has both a rising and falling trend. Since, Bangladesh has a GDP growth rate much higher than the population growth rate, the per capita health spending increases even after decreasing the total health spending as percentage of GDP. The thing which necessary to be noted here that though Bangladesh has a rising trend of per person health spending, but rate of rising the health spending is so gentle.

In economics, health and healthcare are treated as usual goods and services, that is, consumptions of healthcare by individuals or households are determined by some factors such as their income, prices, preferences, age, gender, and so on. Many of the previous studies investigated relationship of healthcare expenditure with its various determinants, however, the nature of the relationships inferred from different studies varies one to another. There was no unique relationship between the health expenditure and any of its determinants found from all of the studies incorporating the same determinants for analysis. Moreover, there is information asymmetry in health and healthcare markets, which indicates the problem of moral hazard and adverse selection in this market. If the patients pay their physicians on capitation basis, there is a possibility that they will get lesser services and lower quality care (Quast, Sappington, and Shenkman, 2008). Another study revealed that physicians try to save cost if government rewarded them for choosing more cost saving techniques (Ho and Pakes, 2011). The noted characteristics of health and healthcare market create a matter of doubt that, whether the market is able to provide proper treatment at reasonable price, or whether the individuals or households are capable to allocate their income or wealth efficiently for health purpose. The purpose of the study was to investigate the effects of specified factors on the self-financed healthcare expenditure of rural households in Sirajganj district of Bangladesh.

2.0 LITERATURE REVIEW

Ang, J. B. (2010) conducted a study to determine the factors of healthcare spending in Australia", by using error correction model showed that income elasticity estimated for demand for healthcare is larger than one, implies it is a luxury good in Australia. The study also inferred that demographic structure, accessibility of healthcare services and government funding have positive relationships with healthcare expenditure. Getachew et al., (2023) concluded from a study in southwest Ethiopia that catastrophic health expenditure of household largely dependent on average daily income, out of pocket payment, household size, and chronic diseases. Kraipornsak (2017) carried out a study on 15 Asian and 30 OECD countries in order to make comparison of their health expenditure structures. The research found an insignificantly negative impact of price on healthcare spending; however, GDP has a significantly favorable impact on it. The study also found that the lower mortality rate and higher life expectancy have a favorable effect on healthcare spending in Asian countries, but in case of OECD countries the direction of influences of the same indicators are opposite; whereas out of pocket payment was exerted as a cause of inducement of healthcare expenditure for the both categories of countries. Houeninvo et al., (2023) conducted a study by using a sample of 14,952 households from Benin and employed 3SLS method to study the effects of

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self-financed health spending on the non-health expenses. The study concluded that additional self-financed households' health expenditures reduce their affordability of other necessities. On the basis of time series data from US for the period 1960 to 2012, Murthy and Okunade (2016) conducted a study by using autoregressive distributed lag cointegration (ARDL) method and estimated a value of 0.92 for income elasticity of demand for healthcare. The study also concluded that medical technology advancement has a notable contribution to the long run increase in US healthcare expenditure. Njuyen et al. (2009) by employing a two-way fixed effects (TWFE) model along with a two-way random effects (TWRE) model found proportion of elderly members in family, the percent of disability pensions, the employment as a percent of population, the municipal tax rate, income, and population density as the principal factor affecting per capita total health expenditure. The study also showed that number of hospital in a district has a significant influence on health spending.

The study estimated the values of income elasticities for two models were 0.045 and 0.020 respectively, the small values of elasticities indicates that healthcare is a very necessity good. By employing the fourier-based cointegration test Aydin and Bozatli (2023) concluded that carbon emissions as well as the refugee population lead to rise the health expenditure; but renewable energy consumption leads to decrease that expenditure. By using country level panel data, Xu Ke et al. (2011), illustrated that health expenditure doesn't depend on whether the health financing mechanism is tax-based or insurance based. The study found the presence of fungibility, that is, if a country receives grants or aids for health from abroad the government reduces the spending on healthcare financed by domestic resources; but reduction in health spending by the government is very small compared to aid or grant received. Moreover, the study concluded that trends and patterns of government health spending and self-payment varies across the nations depending on their levels of economic development. By conducting a study in Asella referral hospital in Southeast Ethiopia, Degefa et al., (2023) concluded that patients with chronic diseases, especially people in uninsured families, had higher prevalence and intensity of catastrophic health expenses.

Therefore, they thought that the financial protection to the people with chronic conditions can be provided by the expansion of community health insurance. Kwon and Chung (2023) used a quantile regression analysis in order to study how the medical spending and health service utilization affected by private health insurance in South Korea. They showed that the socioeconomic and health status of the people with private health insurance is more satisfactory and have a higher outpatient cost than the people without private health insurance. Pavon and Sanchez (2018) used cross-sectional data to make comparison between the health facilities in rural and urban areas in Peru and revealed that 16 percent of urban population get higher-complexity services (hospitals), whereas the rate is 5 percent only for rural areas. The study also found that insurance status, extent of provider difficulty, amount of family expenditure per person and age of individuals exerts a positive relationship with out-of-pocket health spending. The most of the previous studies identified and analyzed the factors influencing the government healthcare expenditure or private out of pocket healthcare expenditure. But there has been no study found yet in Sirajganj district of Bangladesh to investigate the impacts of different factors on out-of-pocket healthcare expenditure of rural households.

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3.0 RESEARCH METHODOLOGY

The prime goal of this research was to examine the determinants of per head out-of-pocket healthcare spending of rural households in the Sirajganj District of Bangladesh. The research has used a two-stage sampling technique consists of purposive and cluster random sampling for the selection of 400 households from four upazilas of the district. A structured questionnaire composed of both open and closed-ended questions has been applied for collecting data. Finally, face to face interview method has been used to collect data from the sample households. The study has employed a double log regression model to assess the effects of various specified determinants on the per head out-of-pocket healthcare expenditure of households. So, the specified model for analysis:

$$lnY_i = ln\beta_0 + \beta_1 lnX_{1i} + \beta_2 lnX_{2i} + \beta_3 lnX_{3i} + \beta_4 lnX_{4i} + \beta_5 lnX_{5i} + \beta_6 lnX_{6i} + \beta_7 lnX_{7i} + \beta_8 lnX_{8i} + \beta_9 lnX_{9i} + \beta_{10} lnX_{10i} + \beta_{11} lnX_{11i} + \beta_{12} lnX_{12i} + \beta_{13} lnX_{13i} + \beta_{14} lnX_{14i} + u_i$$

Where,

Y = Per head out-of-pocket healthcare expenditure

X_1 = Ratio of family members aged below 5 years

X_2 = Ratio of family members aged 5- below 50 years

X_3 = Ratio of family members aged above 50 years

X_4 = Ratio of male family members

X_5 = Ratio of single family members

X_6 = Household income per head

X_7 = Wealth per head

X_8 = Education level of the household head

X_9 = Quality of government hospital

X_{10} = Quality of private hospital in the territory

X_{11} = Consumption expenditure per head

X_{12} = Household size

X_{13} = Time distance to the nearest healthcare center

X_{14} = Ratio of chronically ill family members

3.1 Introduction of Variables in the Model

3.1.1 Dependent variable:

Per person out-of-pocket healthcare expenditure

The regressand in this model is out-of-pocket healthcare spending per head in a household. This variable is determined by dividing the total healthcare cost incurred for all members of a household during last one year time period by the number of members in the household. The

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value of this variable is expressed in Bangladeshi taka (BDT). The variable is measured for one year time period because a shorter period (e.g. a month) may provide misleading information if everyone in the household gets sick or none gets in that month, since no one of the situations is normal.

3.1.2 Explanatory Variables:

Ratio of family members aged below 5 years

This variable expresses the number of family members aged below 5 years as a fraction of total number of family members.

Ratio of family members aged 5 - below 50 years

This variable measures the number of family members aged 5- below 50 years as a fraction of total number of family members.

Ratio of family members aged above 50 years

This variable represents what fraction of total members aged above 50 years in a household.

Ratio of male family members

This variable expresses the number of male members as a fraction of total number of family members.

Ratio of single family members

This variable measures the number of single members as a fraction of total number of family members.

Household income per head

Household income per head of a family is determined by dividing the total household income during the last year by its total members. That is, the value of this variable is expressed in Bangladeshi taka (BDT) per person per year.

Wealth per head

Wealth per head of a family is determined by dividing the total household wealth by its total members. The value of this variable is expressed in Bangladeshi taka (BDT).

Education level of the household head

Education level of the household head is determined by his/her years of schooling.

Quality of government hospital

The responses of the respondents about the quality of government hospital in the locality of the respondents are classified into five categories: very low, low, moderate, good and excellent which are represented by 1, 2, 3, 4 and 5 respectively.

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Quality of private hospital in the territory

The quality of private hospital in the locality of the respondents are also classified into five categories: very low, low, moderate, good and excellent which are represented by 1, 2, 3, 4 and 5 respectively.

Consumption expenditure per head

Consumption expenditure per head of a family is determined by dividing the total household consumption expenditure during the last year by its total members. The value of this variable is expressed in Bangladeshi taka (BDT) per head per year.

Household size

The household size is determined by the number of family members in the household.

Time distance to the nearest healthcare center

This variable measures the time required to reach the nearest healthcare center whether it is government or private. The required time to reach the healthcare center is expressed in hour.

Ratio of chronically ill family members

This variable measures the number of family members who are chronically ill as a fraction of total number of family members.

4.0 RESULTS AND DISCUSSION

Results and discussion section is composed of two sub-sections: healthcare scenario in the study area and results of the log log regression model. The first sub-section represents the healthcare scenario in the study area and the following sub-section represent the result of the log log model.

4.1 Healthcare Scenario in the Study Area

4.1.1 Yearly Out-of-Pocket Healthcare Expenditure

The out-of-pocket healthcare expenditure is calculated in two ways first the expenditure is calculated as the total of the whole household and subsequently which is converted to per head expenditure by dividing the total healthcare expenditure of a household by its total number of family member.

The result is represented in table-02 shows that maximum value of total out-of-pocket household annual healthcare expenditure is BDT 265000 which have a minimum value of BDT 10000 and mean value of BDT 48787 in the study area. The table also shows that per head out-of-pocket annual healthcare expenditure has the maximum value of BDT 91333 which has a minimum value of BDT 1235 with a mean value of BDT 5445 for the people in the study area.

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Table 02: Yearly Out-of-Pocket Healthcare Expenditure

Yearly Out-of-Pocket Expenditure (BDT)	Maximum	Minimum	Mean
Total Household Expenditure (BDT)	265000	10000	48787
Per Head Expenditure (BDT)	91333	1235	5445

Source: Field Survey in November, 2023

4.1.2 Household Income

The table-03 shows the income of the household in the study area. The maximum and minimum values of household total income are BDT 6360000 and BDT 85000 respectively. The mean value of household total income is BDT 158654. The per head income has a mean value of BDT 54543 with the maximum and minimum of BDT 1078564 and BDT 21436 respectively.

Table 03: Yearly Household Income

Yearly Household Income (BDT)	Maximum	Minimum	Mean
Total Household Income (BDT)	6360000	85000	158654
Per Head Income (BDT)	1078564	21436	54543

Source: Field Survey in November, 2023

4.1.3 Quality of Government and Private Hospitals

The table-04 is used to represent the quality of government and private hospital in the locality. The quality of both the government and private hospitals are measured by using the personal judgement of the household heads in a region. The response of the household head about the quality of hospitals is taken by using the Likert scale. The scale ranges from 1 to 5, where the higher value indicates better quality of the hospitals. In the study area, the estimated average values of the Likert scales are 2.23 and 3.53 for government and private hospital respectively.

Table 04: Quality of Government and Private Hospitals

Quality	Maximum	Minimum	Mean
Government Hospitals	1	5	2.23
Private Hospitals	1	5	3.53

Source: Field Survey in November, 2023

4.2 Results of the Log Log Regression Model

The results of the log linear model, represented in table-06, is estimated with the help of SPSS software. The results show that the coefficients of quality of government hospital, consumption expenditure per head and percentage of family members ill chronically are statistically significant at 1 percent level of significance. Moreover, the coefficients of percentage of family members aged below 5 years, percentage of family members aged above 50 years, household income per head, education level of the household head, household size and time distance to the nearest healthcare center are statistically significant at 5 percent level. The results also disclose that the coefficients of percentage of family members aged 5- below 50 years, ratio of single family members, wealth per head and quality of private hospital in the territory are statistically significant at 10 percent level of significance. The coefficients of different

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explanatory variables can be interpreted in the following fashion:

Ratio of family members aged below 5 years (X_1)

The value of the coefficient of ratio of family members aged below 5 years is 0.117 which indicates that 1 percent increase in the ratio of family members aged below 5 years results on an average 0.117 percent increase in the out-of-pocket healthcare expenditure per head, others things remaining the same. The result supports that children are more likely to be ill frequently and push up the healthcare cost of the household which results an increase in the out-of-pocket healthcare expenditure per head in the households.

Table 06: Estimate Results of the Regression model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	57.430***	4.9873		11.515	0.000
Ratio of family members aged below 5 years	0.117**	0.0541	0.154	2.163	0.037
Ratio of family members aged 5- below 50 years	-0.019*	0.0012	-0.020	-15.833	0.093
Ratio of family members aged above 50 years	0.098**	0.0074	0.105	13.243	0.029
Ratio of male family members	-0.091	0.0057	-0.097	-15.965	0.172
Ratio of single family members	-0.008*	0.0006	-0.012	-13.333	0.076
Household income per head	0.047**	0.0051	0.055	9.216	0.002
Wealth per head	0.024*	0.0089	0.029	2.697	0.065
Education level of the household head	0.056**	0.0278	0.062	2.014	0.041
Quality of government hospital	-0.027***	0.0087	-0.041	-3.103	0.001
Quality of private hospital in the territory	0.039*	0.0117	0.053	3.333	0.071
Consumption expenditure per head	-0.071***	0.0098	-0.078	-7.245	0.000
Household size	0.009**	0.0041	0.018	2.195	0.004
Time distance to the nearest healthcare center	-0.018**	0.0067	-0.022	-2.687	0.038
Ratio of chronically ill family members	0.035***	0.0084	0.043	4.321	0.000
Note: *significant at 10%, **significant at 5%, and ***significant at 1% level of significance.					

a. Dependent variable: Out of pocket healthcare expenditure per head

Source: Researcher's Estimations

Ratio of family members aged 5- below 50 years (X_2)

The coefficient of the ratio of family members aged 5- below 50 years has negative sign implies that the higher the ratio of family members aged 5- below 50 years in a household, the lower is the per head healthcare expenditure of the household. The value -0.019 of the coefficient illustrates that 1 percent increase in the ratio of family members aged 5- below 50 years results a 0.019 percent decrease in the out-of-pocket healthcare expenditure per head in the households. The result indicates that the people aged 5-below 50 have comparatively better

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health condition and less frequently visit the doctors and hospitals, consequently reduce the per head out-of-pocket healthcare expenditure per head in the households.

Ratio of family members aged above 50 years (X_3)

The value of the coefficient of the ratio of family members aged above 50 years is 0.098 which indicates that the out-of-pocket healthcare expenditure per head will increase by 0.098 percent if the ratio of family members aged above 50 years increases by 1 percent on an average, others things remaining the same. The people aged above 50 years have a higher probability of illness and they have to visit doctors and hospitals continually. Therefore, the larger the fraction of the older people in a household, the more is the per head out-of-pocket healthcare expenditure in the family.

Ratio of male family members (X_4)

Although the coefficient of the ratio of male family members is not statistically significant, the value of the coefficient -0.091 states that if the ratio of male family members increases by 1 percent the per head out-of-pocket healthcare expenditure will decrease by 0.091 percent on an average, if other factors of healthcare expenditure are held constant. This result indicates that the rate of illness for female is higher than the rate for male. Therefore, as the ratio of male to the total members in a family increases the per head healthcare expenditure decreases.

Ratio of single family members (X_5)

As the variable 'ratio of single family members' has negative sign indicates that it has a negative influence on the per head out-of-pocket healthcare expenditure. The value -0.008 of the coefficient implies that if the ratio of single member in a family increases by 1 percent the per head out-of-pocket healthcare expenditure will decrease by 0.008 percent on an average, if other things remaining constant. The result suggests that the rate of illness for married members in a family is higher than the single members. Consequently, the household having a higher ratio of single members has lower per head out-of-pocket healthcare expenditure.

Household income per head (X_6)

The positive value of the coefficient of household income per head represents a positive influence of household income per head on the per head out-of-pocket healthcare expenditure. The value of the coefficient is 0.047, which means that the per head out-of-pocket healthcare expenditure will increase by 0.047 percent if the household income per head increases by 1 percent. The result indicates that like other normal goods people consumes more healthcare services as a result of an increase in income.

Wealth per head (X_7)

The results show that wealth per head has a positive relationship with per head out-of-pocket healthcare expenditure. The coefficient of the variable implies that if the wealth per head in a family increase by 1 percent the per head out-of-pocket healthcare expenditure will increase by 0.024 percent, other factors held constant. The people with lower per head wealth have more overall financial stress have less affordability of healthcare services.

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Education level of the household head (X_8)

The coefficient of the education level of the household head has a positive influence on the per head out-of-pocket healthcare expenditure. The coefficient has a value of 0.056 means that if the years of schooling increases by 1 percent the per head out-of-pocket healthcare expenditure will increase by 0.056 percent on an average, other things remaining the same. The result support that the more educated household heads are more aware of importance of health of the family members.

Quality of government hospital (X_9)

The negative sign of the coefficient of quality of government hospital in an area has a negative influence on the per head out-of-pocket healthcare expenditure. The value -0.027 of the coefficient states that, 1 percent increase in the quality of government hospital as per the judgement of the people results 0.027 percent reduction on an average in the per head out-of-pocket healthcare expenditure, if other factors held constant. The result supports that the locality having a better quality of government hospital provides the health services at low cost and reduces the per head out-of-pocket healthcare expenditure.

Quality of private hospital in the territory (X_{10})

The quality of private hospital in the territory has positive relationship with per head out-of-pocket healthcare expenditure. The value of the coefficient implies that the per head out-of-pocket healthcare expenditure will increase by 0.039 percent on an average resulting from 1 percent increase in the quality of private hospital in a locality as per the judgement of the household heads, keeping other factors influencing the healthcare expenditure constant. The result explains that the positive judgement of the people about the private hospital in the territory motivates them to go private hospital for healthcare services instead of the government ones, consequently their per head out-of-pocket healthcare expenditure increases for being the private hospital expensive.

Consumption expenditure per head (X_{11})

The results show that the consumption expenditure per head has a negative association with per head out-of-pocket healthcare expenditure. The coefficient states that if the consumption expenditure per head increases by 1 percent the per head out-of-pocket healthcare expenditure will decrease by 0.071 percent on an average, other things remaining the same. The result supports that the household spend more on consumption per head become less ill and visit the doctors and hospitals less frequently. Therefore, because of having better diet people lead healthy life and spend less on healthcare services.

Household size (X_{12})

There is a positive relationship between household size and per head out-of-pocket healthcare expenditure exerted from the results. The coefficient of household size states that, 1 percent increase in household size will increase the per head out-of-pocket healthcare expenditure by 0.009 percent on an average, other things remaining fixed. The members of a larger family size have less healthy environment and more likely to be ill, which results an increase in the per

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head out-of-pocket healthcare expenditure.

Time distance to the nearest healthcare center (X_{13})

The result shows that the time distance to the nearest healthcare center has a negative influence on per head out-of-pocket healthcare expenditure. The result indicates that if the time distance to the nearest healthcare center increases by 1 percent the per head out-of-pocket healthcare expenditure will decrease by 0.018 percent on an average, if other factors held constant. The result supports that many time people don't go to the healthcare center for minor health problems because of longer distance, as a result people of longer distance spend less on healthcare services.

Ratio of chronically ill family members (X_{14})

The result shows that the household have the higher ratio of chronically ill family members, the higher is the per head out-of-pocket healthcare expenditure. The coefficient explains that, 1 percent increase in the ratio of chronically ill family member results 0.035 percent increase in the per head out-of-pocket healthcare expenditure on an average, other things remining the same. The result implies that the cost for the treatment of chronic diseases is higher, consequently the families with higher percentage of chronically ill members have more per head out-of-pocket healthcare expenditure.

5.0 CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Conclusion

Healthcare expenditure is considered as one of the most essential expenditures in human life, as a result it is included in basic needs of human life with great importance. Healthcare expenditure is a very significant indicator of an economy because the quality of life of the its residents and their productivity are directly related with the level of healthcare expenditure of the country.

It is also very important in the personal life of an individual while leading a healthy and joyous life requires a substantial amount of healthcare expenditure. However, it is difficult for the majority of the people in Bangladesh to spend required money on healthcare as their income is not sufficient. On the other hand, there is an inadequate supply of government healthcare services at lower cost. Consequently, the most of the people in the country cannot afford the necessary healthcare services. The results of the study show that ratio of family members aged below 5 years, ratio of family members aged above 50 years, household income per head, wealth per head, education level of the household head, quality of private hospital in the territory, household size and ratio of chronically ill family members have positive associations with the per head out-of-pocket healthcare expenditure. Contrarily, ratio of family members aged 5- below 50 years, ratio of male family members, ratio of single family members, quality of government hospital, consumption expenditure per head and time distance to the nearest healthcare center negatively influence the per head out-of-pocket healthcare expenditure.

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Since the study indicated that a large portion of the household's expenditure on healthcare is spent for the illness of the children and older family members, increase in the pediatric and geriatric health services at low cost may reduce the total healthcare expenditure of the family which can help for attaining the healthcare services for all other members of the household. As the households with higher level of satisfaction about the services of the private hospitals have higher per head out-of-pocket healthcare expenditure means private hospitals charge more than the amount required for their usual profit, the government need to arrange platform to regulate the private hospital properly for reducing the per head healthcare expenditure. While the availability of better-quality government hospital in a locality deduces the per capita out-of-pocket health expenditure, the establishment of new government hospitals and raise the capacity of the existing ones may make healthcare services more accessible to the poor people. As the study evident that the people who spend more on consumption for being aware of the balanced diet need to spend less on healthcare, an initiative to provide appropriate knowledge about the proper diet may be helpful for the better health without spending more on healthcare. Since the households with more ratio of chronically ill members have more per capita out-of-pocket healthcare expenditure due to higher cost of treatment for chronic diseases, availing low-cost treatment for chronic diseases may make more healthcare services affordable for other members of family Since without healthcare services human life is always in danger, it is inevitable to make the healthcare services affordable to all.

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