



## Catastrophic Health Expenditures and Its Socio-economic Consequences: A Case Study of Tehsil Utman Khel Tribal District, Bajaur

Saleem Shah <sup>1</sup> Gul Rukh Mehboob <sup>2</sup> Irfan Hussain Khan <sup>3</sup>

### Abstract

*Health expenditures become catastrophic when it exceeds a specific portion of the monthly income of the household. This study analyzed the socio-economic impact of health catastrophic expenditures in Tehsil Utman khel, district Bajaur of FATA. Data is collected through semi-structured questionnaire from 270 households using random sampling technique. Binary Logistic Regression model was used to analyze the relationship between health catastrophe and various other socio-economic variables. Study findings show that in last three months 61% of the targeted households faced health catastrophic expenditures. About 70% of the respondents confirmed that it had affected their daily consumption level and 92% had lost their working days due to their health issues. Moreover, 74% of the respondents reported that they had managed health expenditures either by selling properties or by taking loans. Results indicated that the probability of catastrophic health expenditures (CHE) decreases by 0.007 with one unit increase in income, whereas it increases by 0.545, 0.00019, and 0.313 with the increase in household size, health care cost, and chronic illnesses, respectively. It is recommended that Health Insurance Policy or other safety nets to save poor households from the trap of poverty.*

**Keywords:** Health catastrophe, Economic Consequences, Logistic Regression

**JEL Codes:** C24, I11, I18, I38,

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<sup>1</sup> Department of Economics, University of Buner KPK, Pakistan.  
Email: Saleem.stkpk@gmail.com

<sup>2</sup> Technical Advisor, Social Health Protection Program, GIZ, Pakistan.  
Email: Gulrukhmehboob03@gmail.com

<sup>3</sup> Department of Economics, Government College University Faisalabad, Pakistan. Email: irfansial007@hotmail.com

## **1 Introduction**

Globally, health systems are envisaged to ensure universal health care services to all segments of the population (Chisholm et al, 2010). Galante et al (2012) figure out that the easy accessibility of quality health services to everyone is important in order to protect them from financial burden. For many families, the dependency on out-of-pocket health expenditures is one of the major factors of financial hardship. Health report published by World Health Organization in 2010 indicated that more than a hundred million people were pushed into poverty due to catastrophic health expenditures, while higher out of pocket health expenditures had put heavy pressure on the standard of living of more than a hundred and fifty million people (Chisholm et al, 2010).

Higher health care cost turns out to be catastrophic as it leads to decrease in the fundamental expenditures such as food, education, and other necessary consumptions of households. Health care costs become catastrophic if a household spent 40% of his disposable monthly income (WHO 2014 & (Wagstaff, Van Doorslaer, & Paci, 1991) or 10% of his total income on health care (World Bank, 2010). This has serious implications over the economy as it that pushes the households into poverty. In this study, spending 10 percent of total income on health issues is considered as catastrophic health expenditures because in the study area it was easy to know about total income as compared to other thresholds. The trickle-down of financial resources because of catastrophic health expenditures creates problems for a household to fulfil their basic needs. In fact, a financially weak household could not afford even smaller health expenditures. Because higher spending on one disease makes the household unable to spend on other minor diseases that can be easily financed by a relatively rich household(Chuma & Maina, 2012).

Like other developing countries of the world; Pakistan is also struggling to meet expenses of many fields including the health sector. Statistics show that life expectancy is 66 and 67 years for male and female respectively (WHO, 2016) and as per WHO, 2017) report mortality rate under five year is 75 (per 1000 live birth). On the other hand, Government of Pakistan spend only 0.6 per cent of the GDP on health, always lower than acceptable

health budget. Out of this health budget, major portion is allocated for the secondary and tertiary health care, while 15% of spending are allocated on the preventive and primary health care (Commission, 2016).

Health facilities in Pakistan are regressive in nature because it facilitates rich and urban households instead of rural and poor households except the preventive and immunization programs. Pakistan has a devolved health system where provincial governments are responsible for the provision of health care facilities to the masses in respective provinces, whereas the federal government is responsible for health facilities in federally administered areas along with policy making and planning for the health sector (Akram & Khan 2007).

Like a regressive health system, Pakistan is among the countries which have a higher reliance on out-of-pocket health expenditures. According to Pakistan's national health accounts 2015-16, the total health expenditures of the country is Rs 908 Billion. About 34 percent of these expenditures are financed by the public sector. Out of these public sector expenditures, 21.8 percent is paid by the federal government whereas 58 percent are accrued from its civilian part and 42 percent from its military setup. About 64.4 percent of the out-of-pocket expenditures are funded by the private sector and 89 percent are paid by private households (PBS, 2018). In Pakistan, public health expenditure varies across the provinces. As per Economic Survey 2017-18, Punjab had expensed Punjab has (84.8 percent) followed by Sindh (41.4 percent), Khyber Pakhtunkhwa (17.6 per cent) and Baluchistan (11.3 percent) on health out of their total public spending. Moreover, during fiscal year 2019, the cumulative health sector expenditures by the federal and provincial governments has increased from Rs 421.8 billion to Rs 416.5 billion; with a growth of 1.3 percent. This expenditure had reached 1.1 percent of the gross domestic product as compared to 1.2 percent (Pakistan Economic survey 2019-20).

The availability of health care facilities also varies across the country just like the variation in health expenditures (Akbari, Rankaduwa, & Kiani, 2009) . People settled in urban areas have relatively easy access to health care facilities as compare to the

people settled in rural areas like FATA. In these areas, quality and modern health care facilities are not easily accessible to the common people and they had faced great difficulties to avail them. The doctor-population and hospital bed-population ratio is 1/7670 and 1/2179 respectively in the tribal areas (PPAF, 2015). The condition of maternal health facilities in erstwhile FATA is much alarming as compared to the rest of the country. As per PDHS 2018 report, in these areas 49 per cent of the female delivered by a skilled provider as compare to the national level of 69 per cent and under five-year mortality rate is 104 as compared to the national level of 87 per 1000 live birth.

On the basis of the above facts and figures, this study analyzed the socio-economic impacts of health catastrophic expenditures in Tehsil Utman khel Bajaur. As these are remote areas and it is a challenging task to collect data from households. Therefore, this study presented the real picture of health expenditures in erstwhile FATA and to come up with required interventions to resolve the financial issues in accessing healthcare in Ex-FATA particularly in the wake of recent health care financing interventions in Pakistan.

## **2 Literature Review**

Health catastrophic expenditure is key area of research for health economists and a number of studies have been conducted on different aspects of this burning issue. World Health Organization (2014) Reported that, health care is called catastrophic when it brings reduction in the expenditures of basic needs like food and other necessary expenditures of the household. There are several factors that constitute out of pocket expenditures. The direct cost includes cost of medicines purchased, consultancy charges of the doctor, cost incurred on laboratory services, hospitalization and cost of diagnostic services. The compensation received from third party is subtracted from the total amount. The indirect cost of availing health care like transportation cost and earning lost are not counted in total cost. So most probably it results in the under estimation of the percentage of those families which face the problem of catastrophic health spending.

According to Galougah et al (2019), it is basic goal of health system to protect the community against health care cost. Health expenditures turns gets catastrophic when the expenditures on health care have considerable impacts on family life. Studies like World Health Organization (2015), (Wagstaff et al., 1991), Xu et al (2003) and Xu et al (2005) shows that catastrophic health expenditures occurs when a household spend a large share of its available income on out of pocket payment for availing health care services which pushes the household to poverty. Reports of World Health Organization show that health expenditures become catastrophic when a household spend more than 40 per cent of its income on availing health care facilities. This is more common in middle- and low-income countries; where people have to pay for their health expenditures at most of the times.

Quintussi and Pril (2015) found that in the absence of health care financing schemes, households use different strategies to cope with their health cost. These strategies include utilization of savings, taking loans and selling of available assets and each of them has negative impacts on long term welfare of the household. Among these coping methods, selling of productive assets has more devastating impacts because it is a compromise on future income generation. Based on their needs, the creditors provide them loans on high interest rate and sometime the household facing health issues compromise on certain necessities like food.

(Chuma & Maina, 2012), estimated that each year about 150 million people suffer financial catastrophe because of their health expenditures and out pocket expenditures pushes around 100 million people in to poverty. The problem of health catastrophic expenditures exists in both developed and underdeveloped countries but 90% of the affected people belong to low-income countries. The problem of health catastrophe can occur irrespective of the amount that the households pay for receiving health care facilities. Because some time large amount of health expenditures will have no adverse effects on rich households but at the other side relatively low health expenditures can create financial hardships for poor households which affect their livelihood.

(Gómez, 2011) found that health catastrophe expenditures are dependent on the nature of health facilities availed by the households that resulted in out-of-pocket spending. It is certain that when a family have an in-patient member, they will have more out of packet expenditures that results in health catastrophe. The study finds that health catastrophe was 36.6% more common in the families that have an in-patient member as compare to the family that have out-patient members and needs to spend only on purchasing of medicine. The probability of health catastrophic expenditures increases by 3.5% as the number of working individuals increase in the family. Income of the family is directly linked to the number of working family members therefore income of the household increases when the percentage of working individuals increases. However, the increase in income is not proportional to the average of household's out of pocket spending.

(McIntyre, Thiede, Dahlgren, & Whitehead, 2006) concluded that it is evident that people from low-income countries are pushed either in poverty or poverty trap when they faced with certain medical expenditures; especially when household is unable to earn income due to health problems. However, out-of-pocket expense doesn't affect same everywhere, instead they vary from household to household as every household has different disease expenditure financing capacity. In 1980, low-income countries, health reforms mostly focus to promote user fee in public hospitals and also to increase the role of private sector in the provision of health care services. However, these reforms pressurize the people with weak financial status. This change seems to exist although different countries and international bodies consider a deviation from their past agenda of supporting user fee.

Different studies show that presence of chronic illness results in higher health care costs in different countries like Nepal(Saito et al., 2014), China (Li et al, 2012), Kenya (Buigut et al, 2015), Ghana (Hansen et all, 2015) and (Sawyer & Sroczynski , 2017). This is because chronic illness leads to frequent patient visits to the medical centers leading to higher health expenditures and sometime it pushes the household in to poverty trap.

Ghiasvand et al (2014), Kusi et al (2015) and Barasa (2017) found that larger family size and the presence of old people also results in higher health expenditures in different parts of the world like Iran, Ghana and Kenya respectively. A large family is having more family members and the high probability of visits to health centers and thus it leads to higher health cost and health catastrophe consequently.

According to (Nishtar et al., 2010), the health system of Pakistan is composed of many institutional agents. About 26.33% of the total population are insured up to certain limit of their health costs, but majority of the people (73.68%) relies on out-of-pocket expenditures for their health issues. Even in public hospital, patients need to pay user fee and medicine cost from his own resources. In Pakistan, about 25% of the total population lives under poverty line, so huge health expenses either push them to poverty trap or they become unable to use medical facilities. During last three years, about two-third of the total population has faced the problem of health catastrophe and health related costs are responsible for more than 70% of the economic shocks. This problem is more common in rural areas and families with high female and old age ratio i.e., in families with more than 60 years household members. The people from poor financial background have greater probability of going into poverty trap even in case of minute health costs. Majority of the people meets their health catastrophe expenditure through selling their assets, borrowing from others or ignore the problem and remains untreated.

According to (Akbari et al., 2009), 67.4% of Pakistanis mostly consult to private doctors and medical practitioners for their health related issues and buy their prescribed medicines from private medical stores. Along with private medical facilities both rural and urban people also use the services of tabibs and homeopathic doctors but as compare to urban areas tabibs are more popular in rural areas. (PSLM 2004-05). The report further reveals that, Sindhis has greater dependency on private sector while the people of Baluchistan have the least dependence on Private medical services.

In Pakistan, ultimate and tertiary public health care facilities are unequally distributed among the rural and urban

areas. (Afzal, 2013). The poor people of rural areas are unable to get full advantage from ultimate and tertiary health facilities like even in case of publicly launched immunization programs for children. The overall role of publicly provided health facilities has been decreased due to poor condition of these facilities, leading to decrease in public sector role on the other hand role of private sector has increased significantly. According to 18th amendment of the constitution provision of health facilities is the responsibility of provincial governments but the division of responsibilities and sources of required revenue arrangements still remains unclear between federal and provincial Governments.

### **3 Research Methodology**

#### **3.1 Theoretical Framework**

When consumers have complete information, they try to maximize their utility, which is a function of consuming different goods based on relative prices, given income and preferences. Variations in income and prices affects the consumer behavior about the use of different commodities (Begg et al, 2000). Health care is a normal good and its demand is affected by several factors like income of the households, family size, presence of severe illness in the household, and Health insurance. Factors like larger household size and the presence of severe illnesses result in higher demand for health care services and higher health expenditures subsequently, which can lead to the problem of catastrophic health expenditures. Similarly, people with lower income face the problem of catastrophic health expenditures when they spent a substantial chunk of their income on health expenditures as defined by the World Health Organization.

#### **3.2 Study Area**

Bajaur is the most populated district of erstwhile FATA having a total of 1.173 million population spread over an area of about 1290 square kilometers. The district has 2 hospitals, 2 RHCs, 20 BHUs, and 8 dispensaries in the public sector. Bajaur does not have any registered and equipped health care facilities in the private sector. As far as human capital is concerned, Bajaur has Eleven Medical Doctors, 31 paramedics, and 2 nurses per one hundred thousand populations in public sector health facilities



(PPAF,2015). Tehsil Utman khel is situated in the east of Bajaur. The residents of Tehsil are Utman Khel tribe which are considered the most peaceful and less developed. Utman khel is composed of different villages i.e Matakko, Kulala, Bandagai, Manodehrai, Hayati, and Bado Arang. This study adopted random sampling technique to collect data from Bandagai, Manodehrai, and Bado Arang because these are the most populated and convenient villages for data collection in tehsil Utman khel, district Bajaur.

### **3.3 Sampling technique and instrument for data collection**

As we do not have any official record of the number of households in tribal areas, so this study adopted traditional approach<sup>[1]</sup> to estimate the number of households in the study area; Bandagai, Manodehrai and Bado Arang has about 500 households. This study used Solvin's formula for sampling estimation and on the basis of given formula our sample size was 84 households from each village but data was collected form 90 households of each village in order to have more accurate results. The data is collected from a total of 270 households through random sampling technique with the help of the semi-structured questionnaire, which was developed on the basis of insights from the pilot survey, key informative interviews, and available literature. The study variables included age, education, family size, source of income, and demography of households, health utilization patterns, and related expenditures.

### **3.4 Statistical Analysis**

Stata version 12 is used for analysis. In the first stage, total income was used as a proxy for calculating health catastrophic expenditures. For this purpose, the total health expenditures were divided by the income of the household. The catastrophic expenditures for health were calculated in the following formula:

$$\begin{aligned} Cexp &= Hexp/Tinc * 100 \\ \text{Catastrophic health expenditures} &= Cexp, \\ \text{Average monthly heath expenditures} &= Hexp \\ \text{Monthly income of the household} &= Tinc. \end{aligned}$$

A dichotomous choice (logistic) model was used to predict catastrophic health expenditures in households. A household would be considered as prone to the problem of health catastrophe

if it spends 10 percent of its total income on health care. The first group of independent variables comprised of nature of illness and its treatment pattern. The second group of variables was composed of household characteristics such as structure and size of the household and clean drinking water. While, the third group of variables included the education level of the household head, household economic status, source of income, and monthly income of the household.

The dependent variable of the study; Health catastrophic expenditure is a binary variable, therefore, the study adopted Binary logit model for econometric analysis. The probability of health catastrophic expenditure was calculated through Green's logit equation and The goodness-of-fit of the model was assessed through the (Akbari et al., 2009) test using STATA.

$$P(y = 1) = \exp(xi\beta) / 1 + \exp(xi\beta)$$

Where  $y$  shows us the presence of health catastrophic expenditures ( $y=1$  and other wise 0),  $x_i$  refers to pre-determined variables while  $\beta$  is a set of parameters to be estimated.

Econometric Model:

$$HCE = Edu + Fs + Mi + Tcost + Chi$$

Whereas HCE, Edu, Fs, Mi, Tcost and Chi represents catastrophic health expenditures, education level of household head, family size, monthly income, Total health cost and presence of chronic illness respectively.

## 4 Empirical Results

A total of 270 households of the study area participated in data collection. Based on responses of the respondents, the following results are derived for the groups of variables.

### 4.1 Definition of Variables

**Joint family:** The family where married sons are living in a combined home with parents or the households where brothers live together

**Improved drinking water:** The water that is obtained from secure source i.e personal well, tube wells, and water sources located in mountains and free from pollution and contamination.

**BHU:** Basic health unit in the village

Medical stores: these are the stores operated by medical technicians. These are the easily accessible source of primary health care because the area does not have any outreach services.

**DHQ:** District Head Quarter Hospital

**First aid kits:** This represents commonly used medicines that are kept by the villagers in their home and are used at the time of need.

**Education:** It represents the education level of the household head.

**Total cost:** It represents all cost i.e transportation cost, medicine cost, laboratory charges, and doctor fee paid by the households out of their pocket.

**Chronic illness:** It represents the diseases which require frequent visits to doctors and are long-lasting and cannot be prevented by vaccines or cured by medication, nor do they just disappear

**Family size:** This represents the number of family members in the household.

**Monthly Income:** Monthly income includes the income of household from all sources.

#### **4.2 Socio-economic status of the households and health facilities in the area**

Descriptive statistics (Table 4.1) show that 73% of the households live in un-structured houses i.e houses made of mud. Tribal people prefer houses made of mud because they are less expensive and suit the weather of the area. In the study area, 67% of the households are living in joint families whereas 91% of the households have more than five family members residing in houses having five rooms on average. Similarly, 68% of the respondents reported that they make their livelihood through private & government jobs, labor works i.e working in private schools, shops, and different kinds of labor activities or through remittances. Whereas 32% of the respondents are associated with agriculture as a profession for earning a livelihood by utilizing their own land. Average monthly income for 63%, 23%, and 14% of the respondents was found to be Rs. 10,000, more than Rs 10000 and less than Rs 10000 respectively.

***Table 4.1 Household Characteristics and Availability of the Basic Needs***

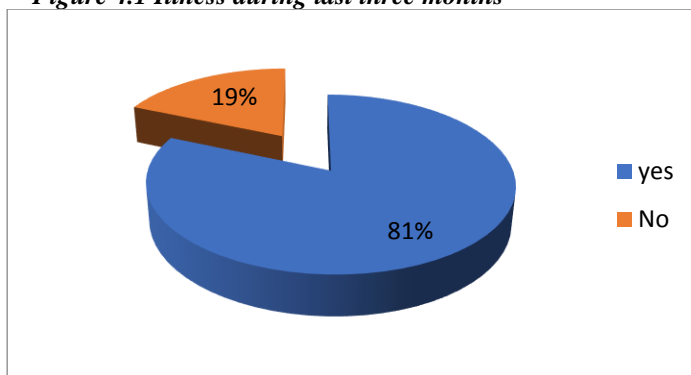
<b>Characteristic</b>	<b>Frequency</b>	<b>Percentage</b>
Literacy	93	34.4
Joint family	181	67
Clean drinking water	178	66
Presence of BHU in village	135	50
Medical store in village	164	60.7
Time to AHQ(more than one hour)	135	50
Availability of ambulance at the time of need	21	7.7
First aids kits available at home	27	10
Kacha house	197	73

It is a matter of fact that all tribal areas have almost the same socio-economic and demographic structure, therefore like the rest of the areas of erstwhile federally administrated tribal areas, only 7.7% of the population of the study area have access to ambulance facility at the time of need. About 60.7% of respondents reported that, they have private paramedics ( They are the people who claim that they have obtained a diploma in medical sciences but in reality the majority of them either fails to pass their exams or use the diploma of some else to run their shop or even some of them do not have any degree or certificate for running their store) in their villages who provide them medical facilities when needed, but, majority of them are non-qualified and thus resulting in health complications as well as a higher level of out-of-pocket spending for the patient. Similarly, 50% of the respondents stated that they have a basic health unit in their respective areas but they are unable to get benefit from them due to lack of facilities. A similar situation is reported for district headquarter hospital where the conditions are almost similar to the BHUs because like BHUs, the district headquarter hospital also lacks the availability of basic facilities and doctors remain absent from their duties. Therefore 76% of the households refer their patients to District head quarter hospital Dir - Lower which is located at a distance of about 26 km for which the people had to pay about Rs 1000 as transportation cost or other nearby districts of Khyber Pakhtunkhwa.

### **4.3 Health Expenditures & its management and Economic consequences**

In the study area 81% of households reported that one or more of their family members have got ill in the course of last three months (Figure 4.1).

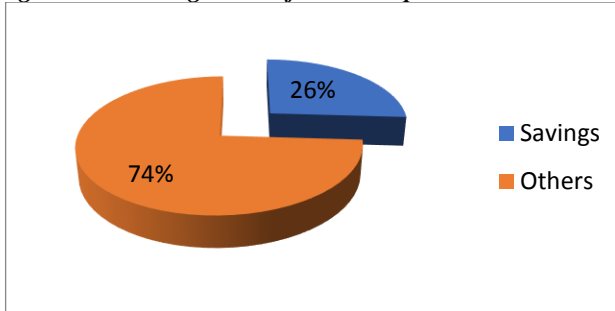
*Figure 4.1 Illness during last three months*



Among the respondents, 60% reported that children are the most vulnerable group for diseases in their families. Similarly, 83% of respondents stated that their medication cost was RS 1000[1] for the last health issue, they have faced due to unavailability of publicly available health care facilities at Tehsil level and the people had to pay the fee of the doctor out of their pocket. 92% of the respondents reported they have lost nine working days due to their own or health issues of their relatives. Among the respondents, 26% stated that they manage health care costs through savings and the rest of 74% of the respondents manage their health costs through mix strategies including loans and selling their valuable assets and livestock (Figure 4.2). Similar results are shown by studies from other similar settings where people of lower socio-economic background sell livestock or land for managing their health costs (Sauerborn, Adams, & Hien, 1996). However, the people of this area consider the selling of assets as the last choice for the treatment of their patients due to their higher dependency on agricultural land and livestock. In India, the households forego essential medical treatment in the absence of health insurance and financial resources, Quintussi et

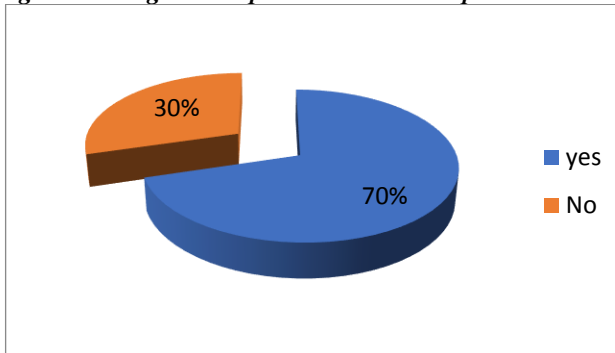
al (2015). Whereas in our study area, all of the respondents are of the opinion that they go for treatment of their patients either through using some precautionary measures, cash in hand, or loan. This is due to the fact that tribal people consider the delay or forgone treatment as an insult.

**Figure 4.2 Management of health expenditures**



About 70% of the respondents reported that their routine consumption has badly affected by health issues of the family members and 78% of the respondents reported that health expenditures had affected their food consumption. This result is in line with findings of (Chuma & Maina, 2012), who found that health care cost has negative effects on routine consumption of the household. This research study also indicates that health care cost has severe impacts on routine consumption pattern of households ranging from food to education of the children. In the study area 70% of the households stated that their health cost has affected routine consumption pattern of the households (Figure 4.3).

**Figure 4.3 Negative Impact on Routine Expenditures**



#### **4.4 Results of Logistic Model**

Results of the binary logistic model show that the probability of catastrophic expenditures decreases by 0.007 times with one unit increase in income and this is significant relationship on the basis of p-value which is less than 0.05. The result is in line with the findings of (Pal, 2012) in Burkina Faso who also found that there exists an inverse relationship between income and catastrophic health expenditures. It is because households with higher income have the capacity to pay their health expenditures as compared to the lower income people where relatively little health expenditures may consume higher portion of their earning.

Similarly, one unit increase in family size and transportation cost increases the probability of health expenditures by 0.45 and 0.0019 times respectively which is a significant relationship on the basis of respective p-values which are less than 0.05. On average, the households had to pay Rs 1200 for reaching to hospitals. Like monthly income, family size, and transportation cost, the variable chronic illness has also a significant positive relationship with catastrophic health expenditures based on p-values less than 0.05 and the probability of catastrophic health expenditures increase by 0.313 times when the household has members with chronic illness. This finding is in line with different studies which show that presence of chronic illness results in higher health care costs in different countries like Nepal (Saito et al, 2014) China (Li et al., 2012), Kenya (Buigut et al, 2015), Ghana (Hansen et al, 2015), (Sawyer & Sroczynski, 2017) and (Lara & Gómez, 2011). Because patients with chronic illness require more visits to health care centers and they are under treatment most of the time which results in higher health expenditures and sometimes pushes the household into the poverty trap.

Among the independent variables like education level of household's head has no significant relationship with health catastrophic expenditures because the p-value for this variable is 0.415 which is greater than 0.05 (Table 4.2). This is in contrast to the findings of (Ross & Wu, 1995) and (Su, Pokhrel, Gbangou, & Flessa, 2006) which reported a significant association between health expenditures and education. In the study area, formally educated people do not have enough knowledge about the

prevention of different seasonal and non –seasonal diseases and thus they are unable to prevent their selves and family members against different communicable, seasonal and non-seasonal diseases.

**Table 4.2**  
**Regression Model**

Marginal effects after logit					
Y= Pr (Catastrophe) (predict)					
Pseudo R <sup>2</sup> = 0.47					
Coef.	<i>dy/dx</i>	Std. error	Z	P> z	95% conf. interval
Education	0.067	0.83	-0.81	0.418	-0.23
F. size	0.545	0.062	8.77	0.000	0.423
M. income	-0.007	-0.001	-6.48	0.000	0.009
T. cost	0.000194	0.0005	3.64	0.002	0.0009
Chr. Illness	0.313	0.065	4.79	0.000	0.185

*dy/dx* is for discrete change of dummy variable from 0 to 1

## 5 Conclusion

This study focused on catastrophic health expenditures and its socio-economic consequences. Data is collected through a semi-structured questionnaire using a systematic random sampling technique. The binary logistic regression model is applied to assess the relationship between health catastrophic health expenditure and different socio-economic variables. Among the different socioeconomic variables like large family size, presence of chronic illness, lower monthly income, and higher health care cost are found to be responsible for catastrophic health expenditures. The higher health care costs in turn affect all aspects of the family’s routine consumption including education of the children and food causes to thrive them into the poverty trap. The study concludes that 61 percent of households are facing the issue of health catastrophic expenditures.

Based on its findings, the study recommends that the government and other stakeholders shall focus on the improvement of existing health care facilities through the provision of updated equipment, ensure the presence of doctors and paramedical staff along with the establishment of new health care centers in the particularly far-flung areas of the district. The



study recommends that concerned stakeholders shall focus on designing health promotion programs to aware the people about different communicable, seasonal, and non-seasonal diseases and possible prevention measures. The study urges the concerned stakeholders to focus on health insurance and alternate safety nets in letter and spirit because the government has provided health cards to some of the households under the prime minister national health program and Sehat Insaaf program, but it does not fulfill the needs of the people due to limited coverage.

The study has certain limitations. Firstly, the study does not incorporate the indirect cost associated with care-seeking, because healthcare-seeking also has an opportunity cost that is beyond any monetary prices like loss of income losses, indebtedness, and asset depletion. The dataset used in this study does not allow us to capture such costs, therefore we are not able—as would be possible in the case of a richer dataset to adjust measures of economic protection to disentangle the short term and long-term outcomes of coping with the health care cost. Secondly, the study is confined to a limited area and population. The study recommends that future studies shall focus on both direct and indirect costs to measure catastrophic health expenditures in the study area.

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