Potential determinants in health sector influencing health care expenditure of the households: A mixed-methods study in Bangladesh

Technical Report
June 2023

CREDITS

Submitted to
Non-Communicable Disease Control Programme
Health Services Division
Ministry of Health and Family Welfare

Submitted by
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Year
June 2003

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Contents

A c r o n y m s

BMDC	Bangladesh Medical and Dental Council
BNHA	Bangladesh National Health Accounts
CC	Community Clinic
DM	Diabetes Miletus
HTN	Hypertension
HWF	Health Work Force
KII	Key Informant Interview
MOH&FW	Ministry of Health and Family Welfare
NCD	Non communicable disease
OOP	Out of pocket
SACMO	Sub-Assistant Community Medical Officers
UHC	Universal Health Coverage
USC	Union Sub-Centre
UzHC	Upazila Health Complex

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Draft Report

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1. Introduction

Bangladesh has made commendable progress in major health indicators over the last two decades including maternal and child health, life expectancy at birth, and contraceptive prevalence rate. The country is often cited as a success story with good progress against many of the Millennium Development Goals (MDGs), and multiple factors contributed to attaining such health gains in Bangladesh. Overall socioeconomic development during the last two decades and better access to communication, education and socio-economic status combined with political engagement and a range of health and health related interventions contributed to improved health outcomes. However, demographic, and epidemiological transitions are taking place and tackling the rising burden of non-communicable diseases (NCDs) and the burden of established and new communicable diseases are challenges in achieving universal health coverage (UHC) in the country.

The four major NCDs (cardiovascular diseases, cancer, diabetes, and chronic respiratory diseases) are adding to multimorbidity (overweight, obesity, mental stress, renal failure, osteoporosis, depression, disability, Tuberculosis, HIV / AIDS, etc.) in patients and creating health system and socio-economic burden to the country (1).

Though the national health budget supports health care, 74% of total health expenditure is met by households out of pocket (OOP). This is increased from 67% at previous estimate and is the second highest in South-East Asia (2, 3). It is recommended that integration and management of NCDs in PHC with the expansion of essential service packages (ESP) and healthcare financing are vital for achieving UHC (4).

Health care seeking behavior of the households also influences the health care expenditure. People often receive and pay for unnecessary care, unaware that it is medically unnecessary. Seeking health care from abroad by Bangladeshi nationals is also popular, which might also be a major factor behind the growth of health care expenditure, especially of the households residing in the border areas. However, this is a less researched area and limited is known about the dynamics of medical tourism in Bangladesh, and the impact of seeking care from abroad on overall health care expenditure by gender, income groups, and locations. High and increasing health care expenditure is one of the major public health challenges in many developing countries including Bangladesh. Impoverishment and indebtedness due to high health care expenditure is on the rise (5). An estimated 808 million people across 133 countries are said to have incurred catastrophic health spending (CHS) (6). High health care expenditure on medical care makes poor households poorer and drives non-poor households into poverty. It is important that decision makers are informed of the nature and dynamics of the health care expenditure. However, limited information is available about the factors in the health sector that influence the health care expenditure of

the households. There is also limited evidence on the coping mechanism of households by gender, income, and location, and by type of conditions.

The Government of Bangladesh (GOB) has consistently shown commitment in ensuring sustainable financing for health care (7). However, the high health care expenditure is on an increasing trend due to many nonfinancial reasons as well and a large proportion of OOP is spent on medicine and diagnostic tests.

Several supply side barriers at public facilities, such as a smaller number of staff, non-availability of wide range of investigations and inadequate supply of drugs, compel people to seek care from private providers, other informal providers and purchase drugs and laboratory investigations from private sectors, leading to high out of pocket health care expenditure.

Due to unavailability of preventive care including screening, advocacy and counselling at the primary health care level and the weak referral mechanism, people often seek care form the tertiary and specialized hospitals directly, which cause high health care expenditure. Weak or nonexistent surveillance system for diseases and the risk factors is a major gap in health program (8).

Several demand side barriers also influence the health care seeking behavior of the population, leading to high health care expenditure of the households. The barriers also leave people with unmet health care needs, especially for non-communicable diseases. However, limited research has been done to explore the potential determinants of high health care expenditure of the households, and the mitigation strategies.

1.1 Rationale

There is limited evidence on how and to what extent demand side factors and availability of staff, infrastructure, equipment, drugs, referral system and appropriateness of services from health care provider influence health care expenditure of the households. There is also limited evidence on the coping mechanism of households by gender, income, and location, and by type of conditions.

The study designed to identify the key drivers of health care expenditure of households and explore how the health system barriers and the health care seeking behavior of the people influence access to and utilization of health care, thereby influence the health care expenditure of the households.

This study specifically focused on potential determinants of NCD services (HTN & DM) rather than wider health sectors and focused on PHC facilities only. The study also identified causes of hypertension (HTN) and Diabetes Miletus (DM) related household expenditure and recommended to overcome this extra expenditure.

The findings of the study will help the policy makers to decide specific measures in strengthening health system, ensuring availability of quality health care, utilization of basic health facilities, strengthening preventive and promotive care, availability of quality ESP, essential drugs and diagnostics and influencing health care seeking behavior to reduce health care expenditure.

1.2 Objectives

General objective

The objective of the study was to investigate the potential determinants of health system influencing OOP healthcare expenditure of households for receiving healthcare services for HTN and DM case of households.

Specific Objectives:

- To assess the facility readiness to provide hypertension and diabetes care at PHC facilities.
- To estimate OOP health care expenditure related to hypertension and diabetes of households and explore the reasons.
- To recommend strategies to reduce OOP health care expenditure of households.

2. Methods

The study was conducted in Daudkandiupazila of Cumilla district from **Mayand June 2023**. We carried out a mixed-methods design using both quantitative and qualitative approaches.

2.1 Desk review

The first stage of the study involved a literature review of published written materials including books, journal articles, policy documents, and research reports to identify and discuss the basic concepts underpinning the research topic.

We carried out desk review and analyze the trend and determinants of health care expenditure related to hypertension and diabetes including both the health system factors and health care seeing behavior of the population which influenced the health care expenditure, coping modalities, and strategies across countries those succeeded in reducing OOP expenditure. We reviewed case studies to understand the opportunities and barriers in accessing and utilization of health care which influence health care expenditure related to hypertension and diabetes. We developed a protocol for the review.

2.2 Quantitative methods

The study conducted cross sectional surveys which included household survey, health facility survey and patient exit survey.

2.2.1 Facilities survey

One upazila was selected randomly from Cumilla district. Then purposively selected primary care facilities i.e., one UzHC which was DaudkandiUzHC, and within the catchment area, one Union Sub-Centre (USC) and one community clinic were surveyed. The reference period for facility data was previous 2 months. A checklist was used to collect this information from routine data.

We consulted with the relevant personnel and checked the documents to collect the routine data from the facilities on health system.

2.2.2 Patient exit survey

At the selected UzHC, an exit client survey was conducted among patients diagnosed with hypertension and diabetes with a semi structured questionnaire. The selection of clients was random. A total of 31 exit clients were surveyed.

2.2.3 Household survey

We conducted a cross-sectional household survey(9)with a structured questionnaire. The pre-tested questionnaire focused on two non-communicable diseases: a) diabetes; b) hypertension.

The data was collected on socio-demographic and lifestyles of households, total monthly income and expenditure of the household, total health care expenditure of last six months of all household members (Amount and area of household OOP health care expenditure) Sources of financing etc.

Sample sizecalculation

First, we estimated the sample size for HTN and/or DM cases in the households confirmed by physicians. Then we estimated the number of households to be visited in the study area to get the required number of HTN and/or DM cases in the households.

Based on earlier evidence of BDHS 2017-18 (10) and STEPS survey 2018 (11), we considered prevalence of type 2 diabetes as 10%, and hypertension as 25% among 18 years or old population, to estimate required sample size of HTN and DM cases in the household for the study. Considering 95% level of confidence, ±5% desired degree of precision and 5% non-response rate, the estimated sample sizes for the above two types of morbidities were found 145 and 300 respectively.

We considered 300 adult household members having type 2 diabetes and/or hypertension as the ultimate required sample size for the study.

The study considered cases of diabetes and/or hypertension whose diagnosis was confirmed by qualified registered doctor.
The evidence of BDHS 2018 (10) showed that every 9 households should be visited to get such single case of HTN and/or DM. Therefore, we estimated that to reach the sample size of 300 HTN and/or DM cases,minimum 2700 (300x9) households wouldneed to be visited.

Recruitment of data collectors for household survey
We calculated that each data collector should conduct a maximum of 5 successful interviews per day. Therefore, to complete the data collection in one week, the calculated number of data collectors became 14, and we added two supervisors to supervise each of 2teams of 7 data collectors. A day long interactive training with mock interview was conducted to train them.

Pre-test of questionnaire
Paper-based questionnaires were used to collect household survey data. The investigators arranged pre-tests of the draft questionnaires to check the consistency and integrity of the questionnaire. During pre-testing of the questionnaire, issues taken care of were a) The probing techniques, b) The language that was necessary to administer specific issues, c) The sequencing of questions, d) The technique, method, options for documenting responses, e) using appropriate skips in the questionnaire. After completing the pretest, inconsistency and difficulties of the questionnaire were identified, suggestions were incorporated, and the questionnaire was finalized.
Household eligibility criteria and recruitment
A household was eligible to participate if it had at least one member aged 18 and above with diabetes and/or hypertension. The person with HTN and/ or T2D was the main respondent whose information was collected with consent. In addition to that, basic information of all other household members were also collected.

The specific criteria of the respondents to be enrolled in the study were a) Diagnosed as hypertensive and/ or diabetic by doctor, b) Currently under medication for hypertension and/or diabetes), and c) Medical prescription or diagnostic test documents available.

In every attempted household, Interviewer checked first whether there were any adult diabetes or hypertensive patients diagnosed by doctor in the household, and if anyone of such adult household member is found then interviewer collected data for those members.

The survey started from the first household of the mouza of selected upazila as per sampling frame of 2022 Population and Housing Census (PHC) (12). The

survey was carried out till the calculated sample size was reached and was conducted from 3rd June to 9th June.

The data collectors visited a total of 2235 households to enroll minimum 300 respondents in 300 households. Thus, on average 8 households were visited to have andenroll singleHTN and/or DM cases and the study enrolled total 314 respondents from 300 households (Table A1).

Reference period for out-of-pocket (OOP)expenditure and unit of analysis

Out-of-pocket (OOP) expenditure - In this study the Out-of-pocket (OOP) payments were expenditures borne directly by a patient where neither public nor private insurance covered the full cost of the health good or service. They included cost-sharing and other expenditure paid directly by households.(13)

The study considered HH expenditure from two perspectives,

Cost for episodic event - For episodic or occasionally happening events, the reference period was the most recent event in "last 6 months" and unit of analysis was at the level of household. To reduce recall bias, a local calendar was used with memorable occasions to probe number of illnesses and any health care seeking in the last 6 months (14).In case of any household having more than one individual with episodic events, the costs of the episode was added to the total household level cost.

Monthly routine cost of the individual- The cost incurred by individuals to manage hypertension and/ or diabetes were recorded as a measure of routine cost. Routine and complications related to diabetes and hypertension cost of all household members were recorded.

Catastrophic health expenditure (CHE): CHE are estimated by dividing OOP healthcare expenditure by total household expenditure; or often by dividing OOP healthcare expenditure by total only non-food or food consumption expenditure (15). In this study, we used OOP healthcare expenditure as a proportion of total household expenditurefor estimating CHE for HTN and DM in Bangladesh. However, different studies use different threshold to estimate CHE. In this study, we used WHO definition for catastrophic health care expenditure (16) i.e. if the measured household health expenditure on hypertension and/ or diabetes exceeded the 10% of total expenditure or income, it was categorized as catastrophic for the household. Moreover, a 25% threshold was also used to determine CHE in Bangladesh. If a household's OOPE for HTN and DM were more than 10% of the THCE and more than 25% of NFE, then this was measured as a CHE incidence for that household.

The World Health Organization (WHO) defines catastrophic health expenditure as health spending that exceeds 10% of a household's total income or consumption(2).

Distress health financing for financial difficulties: Distress financing defines funding for OOPE by selling or mortgaging household assets/lands, borrowing money from lender/ banks/friends/relatives, and by receiving assistance from friends/relatives (17). If a household incurred OOPE and managed money from any of these sources then a dummy variable was coded "yes" as a measure of distress financing, and "no" otherwise. The incidence of distress financing was calculated for DM and HNT for hospitalization for this study.

2.3 Qualitative methods

The study adopted qualitative approaches and conducted key informant interviews (KII) of policy makers, program implementers, facility managers, service providers, representatives of civil society organizations, and community representatives to get a deeper insight and to explore the determinants in health system and the main reasons for OOP expenditure at HH level. We explored how the issues could be addressed and listened to the exit clients as well in addition to KII.

2.3.1 Key informant interview (KII)

The respondents for KII were selected purposively based on their knowledge and experience on the research issue, availability, and willingness to participate.

Pre-tested topic guide was used for data collection, which are expected to permit to change interviewing styles, sites, or participants, follow up of information and asking key participants to give more information on categories that seem central to the emerging theory. Topic guides were translated into Bangla and the interviews were conducted in the same language. Key informants included policy makers (n=3), facility manager (n=1), service providers (n=5).

We interviewed 15 key informants considering up to the point of saturationto understand the gaps and challenges in health system, reasons for OOP expenditure at HH levels, existing policies related to NCD control, preventive and promotive care, their implementation status including opportunities and challenges to decrease the expenditure of HTN and T2D at HH.We carried out interviews of patients (n=4)and public representatives in the study area (n=2) to explore the health care seeking behavior (e.g., reasons for seeking care from specialists, private sector, from abroad) of the population, and the impact on health care expenditure.

Quality of data collection: Monitoring and supervision team comprised of Investigators, Statistician of the study visited the study sites to ensure quality of

data collection. They talked with DM, HTN patients randomly selected from household and exit client survey, healthcare providers and interviewers to cross check the data collected.

2.4 Data management, cleaning, and analysis

Database designing and dataentryin software, codingof open ended responses, consistency checking of entered data, data cleaning weredonetoensurequality of the collected data. Univariate, bivariate analysis was carried out with clean data as per study objectives. Quantitative data were summarised with descriptive statistics, with mean, median, s.d. for continuous data and counts, and percentage for categorical data.Data management and univariate and bivariate analyses of quantitative data of the study were carried out using analytical software SPSS version 28.0 for windows.

For analyzing quantitative data of HH survey, data of patients were categorized into three groups, only hypertension, only diabetes, and having both diabetes and hypertension.

For creating wealth index as a measure of socioeconomic status, principal component analysis was carried out. For doing so following variables were considered:
Ownership of household on the following assets: Flush Toilet, Mobile phone, Television, Radio, Refrigerator, Car/Auto-Rickshaw, Moped/Scooter/ Motorcycle, Washing machine, Bicycle, Sewing machine, Almirah/ wardrobe, Table, Khat, Chair or Bench, Watch or Clock, Computer/ Laptop/ Tab, Chowki, Domestic Animal (Cow/Buffalo/Goat), Shallow Machine/ Power Tiller/ Tractor, Rickshaw.

Data on above variables were used to create dichotomous variables coded 0 or 1; 0 if the respondent indicates that no-one in their household owns the item and 1 if the respondent indicates that someone in the household does own the indicated item.

The more sophisticated approaches use the data from the survey to generate the underlying weighting scheme. As wealth and income increase, presumably the household will possess a greater percentage of the items listed above. Moreover, items associated with high-income will be owned by relatively few households. Items that are owned by most households are highly unlikely to signal significant wealth. This suggests that assets owned by relatively few households should be weighted more than assets possessed by a very high percentage of the reporting population.

Based on the indicator variables mentioned above, regression analysis was carried out as part of principal component analysis (PCA) for constructing a

wealth index. Detailed procedure of PCA are available in the referred document(18).

Qualitative data were collected considering saturation of issues of discussion guideline. Then transcript were prepared in Bengali from audio recording and then crosschecked and translated by the researcher of the study. Then content and thematic analysis were carried out for analyzing the qualitative data as per study objective and analysis plan.

2.5 Ethical approval

Ethical clearance was sought from the Institute of Health Economics (IHE), University of Dhaka, Bangladesh. Reference number of the ethical approval is IHE/IRB/DU/36/2023/Final.

3. Findings/ Results

The study findings obtained from literature review, quantitative data (facility survey, exit client survey, household survey) and qualitative data (KIIs) were organized into two major thematic areas which were,

3.1 Out of pocket (OOP) expenses at household (HH) level - for health care for hypertension and diabetes.
3.2 Facility Readiness and - for health care for hypertension and diabetes.

3.1 Out of pocket (OOP) health expenses at household (HH) level

3.1.1. Findings from the household survey

The Household (HH) survey was conducted in 300 households where 314 householdmembers were found having self-reported cases of hypertension and/or diabetes which was confirmed by physicians, or they were taking medicines.

In the last year, the average total monthly income of household was 30973 BDT, and expenditure was 26356 BDT.

Table 1: Socio-economic characteristics of household members

Indicator	**Findings**
Number of households surveyed	300
Total number of household members	1484
Gender: Percentage of female Percentage of male	 49.5% (734/1484) 50.5% (750/1484)
Mean age (years)	32.3
Average years of schooling	6.5
Education: No education Primary	 19.9% (295/1484) 26.5% (394/1484)

Secondary/higher	51.7% (767/1484)
Average monthly HH income*in last year	BDT 30,973
Average monthly HH expenditure*in last year	BDT 26,356
Average healthcare expenditure of HH in last month*	BDT 4,646

Notes: * = Excluding missing values

Among 314 respondents 92, 177 and 45 were found self-reported cases of only hypertension, only diabetes and both hypertension and diabetes respectively.

The mean (± SD) age of only hypertension, only diabetes and both hypertension and diabetes patients were respectively 51.2(± 16.6), 52.4(± 15.6), 54.5 (± 18.0) years.

Routine healthcare expenditure

Table 2: Household average routine healthcare expenditure per month for medicine, and diagnostic test for HTN and DM cases

Indicators	Only HTN (in BDT)	Only DM (in BDT)	Both HTN and DM(in BDT)
Average cost per month for medicine	2203 [1500]	2347 [2000]	4407 [3270]
Average costpermonth for diagnostic test	466 [200]	579 [200]	870 [500]
Note: Figure in parenthesis are median			

Average routine cost per month for medicine was found higher for households having members diagnosed with both HTN and DM followed by that of households having members diagnosed with only DM, only HTN. Similar scenario was observed in case of average routine costpermonth for diagnostic test (Table 2).

Health care expenditure for receiving outpatient services from only public and private facilitiesfor diabetes and hypertension

Table 3: Healthcare service utilization and average healthcare expenditure for receiving out-patient service from only public health facility for hypertension and/or diabetes mellitus in the visit throughout last 6 months respectively

Indicators	Only Hypertension Mean [Median]	Only Diabetes Mean [Median]	Both Hypertension and Diabetes Mean [Median]

Table 3: Healthcare service utilization and average healthcare expenditure for receiving out-patient service from only public health facility for hypertension and/or diabetes mellitus in the visit throughout last 6 months respectively

Indicators	Only Hypertension Mean [Median]	Only Diabetes Mean [Median]	Both Hypertension and Diabetes Mean [Median]
Average total healthcare expenditure for receiving out-patient service from only public health facility	6814 [2000]	4123 [2000]	4735 [4500]
Out-patient service doctor's fee from only public health facility	789 [75]	231 [10]	417 [225]
Out-patient service medicine cost from only public health facility	1888 [1000]	1295 [800]	1775 [1950]
Out-patient service lab test cost from only public health facility	1135 [450]	1287 [500]	954 [437.5]
Out-patient service transport cost from only public health facility	1231 [350]	373 [200]	690 [625]

Note: Figure in parenthesis are median

Median total healthcare expenditure per month from OOP for receiving out-patient service from only public health facility were found 333, 333 and 750 BDT for only HTN, only DM and both HTN and DM respectively(Table 3).

Median total healthcare expenditure per month from OOP for receiving out-patient service from only private health facility were found 667, 667 and 2002 BDT for only HTN, only DM and both HTN and DM respectively (Table 4)

Table 4: Healthcare service utilization and average healthcare expenditure for receiving out-patient service from only private health facility for hypertension and/or diabetes mellitus in the visit throughout last 6 months respectively

Indicators	Only Hypertension Mean [Median]	Only Diabetes Mean [Median]	Both Hypertension and Diabetes Mean [Median]
Average total healthcare expenditure for receiving out-patient service from only private health facility	5398 [4000]	5082 [4000]	12401 [12010]
Out-patient service doctor's fee from only private health facility	1001 [650]	761 [650]	1837 [1400]
Out-patient service medicine cost from only private health facility	2240 [1500]	1739 [1200]	5327 [5500]
Out-patient service lab test cost from only private health facility	1181 [500]	1703 [850]	3725 [2177]
Out-patient service transport cost from only private health facility	567 [200]	431 [200]	934 [1000]

Note: Figure in parenthesis are median

Health care expenditure for diabetes and hypertension services from public facilities

Average healthcare expenditure for receiving in-patient service from public health facilities were BDT 14,167, BDT 13,620 and BDT 50,663 for only HTN, only DM and both HTN and DM respectively over six months prior to the survey (Table 5)

Table 5: Household health care expenditure from public health facility for HTN and/or DM inlast 6 months

Indicators	Only HTN (in BDT)	Only DM (in BDT)	Both HTN and DM(in BDT)
Average health care expenditure for receiving **Inpatient services from public health facility**	14,167 [12000]	13,620 [7000]	50,663 [9750]
Average health care expenditure for receiving **Outpatient services from public health facility**	5,562 [2000]	3,966 [2000]	3,151[3000]
Average health care expenditure for receiving **Inpatient, outpatient services from public health facility**	10203 [4500]	7147 [3000]	28089 [5105]
Note: Figure in parenthesis are median			

Health care expenditure for diabetes and hypertension services from private facilities

Table 6: Household health care expenditure from private health facility for HTN and/or DM in last 6 months

Indicators	Only HTN (in BDT)	Only DM (in BDT)	Both HTN and DM (in BDT)
Average health care expenditure for receiving **Inpatient services from private health facility**	57,667 [42500]	31567 [20000]	57000 [37000]
Average health care expenditure for receiving **Outpatient services from private health facility**	5443 [4000]	5276 [4000]	11106 [8350]
Average health care expenditure for receiving **Inpatient, outpatient services from private health facility**	18332 [5550]	13257 [5000]	29577 [15500]
Note: Figure in parenthesis are median			

For receiving **in-patient, out-patient services for only HTN from private health facility** average out of pocket healthcare expenditure in last 6 months was found (18332/10203) 1.8 times higher than that of public health facility. While for receiving **in-patient, out-patient services for only DM from private health facility** in last 6 months average out of pocket healthcare expenditure was found (13257/7147) 1.9 times higher than that of public health facility.

For receiving in-patient, out-patient services for both HTN, DM from private health facility in last 6 months average out of pocket healthcare expenditure was found (29577/28089) almost equal compared to that of public health facility while **median out of pocket healthcare expenditure from private health facility was found (15500/5105) 3.0 times higher** compared to that of public health facility (Table 5-6)

Among average total healthcare expenditure from OOP (**in-patient, out-patient service from public, private facility) medicine** related expenditure (30.7%-36.4%)(varied in between only HTN, only DM, both HTN and DM) was found highest followed by **lodging cost of patient**(22.1%-28.3%), **hospital cost** (23.2%-26.3%), **lab investigation** cost (17.1%-22.6%), **food costof patient**during admission (10.1%-17.8%), **doctor's fee** (8.5%-14.7%), **transport cost** (5.5%-10.5%) etc. related expenditure irrespective of only HTN, only DM, both HTN, DM (Annexure Table 6)

Catastrophic health care expenditure

Catastrophic healthcare expenditure at 10% and 25% level of household total expenditure was found in 79.7% and 27.6% households. At 10% and 25% level household from low and medium socioeconomic status revealed higher catastrophic healthcare expenditure than their counterpart. (Table 7.1)

Table 7.1 Measurement of overall monthly OOP healthcare expenditure as catastrophic or not according to wealth index category

Socioeconomic status (Wealth index)	Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level
Low	83.8%	27.3%
Medium	79.4%	32.7%
High	75.0%	21.4%
Total	79.7%	27.6%

For receiving outpatient service from only private health facility for only HTN catastrophic healthcare expenditure at 10% and 25% level of household total expenditure was found in case of 5% and 2.5% households respectively. For only DM and both HTN and DM catastrophic healthcare expenditure at 10% level of household total expenditure was found in case of 5.7% and 21.4% household respectively. In case of household having members diagnosed with only DM and both HTN and DM cases household from high and medium socioeconomic status revealed higher catastrophic healthcare expenditure than their counterpart at 10% threshold level.

Table 7.2: Measurement of OOP healthcare expenditure for receiving outpatient service from only private health facility as catastrophic or not according to types of NCD and wealth index category						
Socioeconomic status (Wealth index)	Only HTN Healthcare expenditure out of household total expenditure		Only DM Healthcare expenditure out of household total expenditure		Both HTN and DM Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level	At 10% level	At 25% level	At 10% level	At 25% level
Low	6.7%	0.0%	5.0%	-	0.0%	-
Medium	7.1%	7.1%	0.0%	-	40.0%	-
High	0.0%	0.0%	10.5%	-	14.3%	-
Total	5.0%	2.5%	5.7%	-	21.4%	-

For receiving outpatient service from only public health facility for households having members diagnosed with only HTN catastrophic healthcare expenditure at 10% and 25% level of household total expenditure was found in case of 14.3% and 9.5% households respectively. For only DM catastrophic healthcare expenditure at 10% and 25% level of household total expenditure was found in case of 8.6% and 2.9% household respectively. For households having members diagnosed with both HTN and DM catastrophic healthcare expenditure at 10% level of household total expenditure was found in case of 14.3% household respectively. In case of households having members diagnosed with only HTN, only DM and both HTN and DM cases higher catastrophic healthcare expenditure were found higher in case of low, high and low socioeconomic status households respectively. (Table 7.2-7.3)

Table 7.3: Measurement of OOP healthcare expenditure for receiving outpatient service from only public health facility as catastrophic or not according to types of NCD and wealth index category						
Socioeconomic status (Wealth index)	Only HTN Healthcare expenditure out of household total expenditure		Only DM Healthcare expenditure out of household total expenditure		Both HTN and DM Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level	At 10% level	At 25% level	At 10% level	At 25% level
Low	33.3%	16.7%	0.0%	0.0%	33.3%	-
Medium	9.1%	9.1%	9.1%	0.0%	-	-
High	0.0%	0.0%	66.7%	33.3%	0.0%	-
Total	14.3%	9.5%	8.6%	2.9%	14.3%	-

For receiving inpatient outpatient service from private health facility for households having members diagnosed with only HTN catastrophic healthcare expenditure at 10% and 25% level of household total expenditure was found in case of 22.6% and 15.1% households respectively. In case of households diagnosed with only DM catastrophic healthcare expenditure at 10% and 25% level of household total expenditure was found in case of 27.5%

and 12.8% households respectively. In case of households diagnosed with Both DM and HTN catastrophic healthcare expenditure at 10% and 25% level of household total expenditure was found in case of 37% and 18.5% households respectively. (table 7.4.1-7.4.2)

Table 7.4.1 Measurement of OOP healthcare expenditure for receiving inpatient outpatient service from private health facility as catastrophic or not according to types of NCD and wealth index category

Socioeconomic status (Wealth index)	Only HTN Healthcare expenditure out of household total expenditure		Only DM Healthcare expenditure out of household total expenditure		Both HTN and DM Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level	At 10% level	At 25% level	At 10% level	At 25% level
Low	21.1%	15.8%	30.0%	16.7%	33.3%	0.0%
Medium	25.0%	15.0%	25.0%	11.4%	45.5%	27.3%
High	21.4%	14.3%	28.6%	11.4%	30.8%	15.4%
Total	22.6%	15.1%	27.5%	12.8%	37.0%	18.5%

Table 7.4.2 Measurement of OOP healthcare expenditure for receiving inpatient outpatient service from public health facility as catastrophic or not according to types of NCD and wealth index category

Socioeconomic status (Wealth index)	Only HTN Healthcare expenditure out of household total expenditure		Only DM Healthcare expenditure out of household total expenditure		Both HTN and DM Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level	At 10% level	At 25% level	At 10% level	At 25% level
Low	56.3%	25.0%	3.7%	0.0%	57.1%	0.0%
Medium	20.0%	6.7%	23.5%	5.9%	0.0%	0.0%
High	0.0%	0.0%	33.3%	16.7%	12.5%	12.5%
Total	33.3%	13.9%	14.0%	4.0%	26.3%	5.3%

Table 7.5: Measurement of OOP healthcare expenditure for receiving inpatient outpatient service from public private health facility as catastrophic or not according to types of NCD and wealth index category						
Socioeconomic status (Wealth index)	Only HTN Healthcare expenditure out of household total expenditure		Only DM Healthcare expenditure out of household total expenditure		Both HTN and DM Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level	At 10% level	At 25% level	At 10% level	At 25% level
Low	37.1%	20.0%	17.9%	8.9%	50.0%	0.0%
Medium	22.9%	11.4%	23.3%	10.0%	38.5%	23.1%
High	15.8%	10.5%	30.0%	12.5%	27.8%	16.7%
Total	27.0%	14.6%	23.1%	10.3%	36.6%	14.6%

Table 7.5.1: Measurement of OOP healthcare expenditure for routine healthcare medicine for HTN and/or DM as catastrophic or not according to types of NCD and wealth index category						
Socioeconomic status (Wealth index)	Only HTN Healthcare expenditure out of household total expenditure		Only DM Healthcare expenditure out of household total expenditure		Both HTN and DM Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level	At 10% level	At 25% level	At 10% level	At 25% level
Low	42.9%	14.3%	55.2%	12.07%	80.0%	40.0%
Medium	40.0%	11.4%	50.8%	11.11%	61.5%	30.8%
High	47.4%	10.5%	50.0%	3.85%	55.6%	16.7%
Total	42.7%	12.4%	52.0%	9.25%	63.4%	26.8%

Table 7.5.2: Measurement of OOP healthcare expenditure for routine healthcare lab test for HTN and/or DM as catastrophic or not according to types of NCD and wealth index category						
Socioeconomic status (Wealth index)	Only HTN Healthcare expenditure out of household total expenditure		Only DM Healthcare expenditure out of household total expenditure		Both HTN and DM Healthcare expenditure out of household total expenditure	
	At 10% level	At 25% level	At 10% level	At 25% level	At 10% level	At 25% level
Low	2.9%	-	6.9%	1.7%	20.0%	-
Medium	8.6%	-	6.3%	3.2%	0.0%	-
High	5.3%	-	1.9%	0.0%	11.8%	-
Total	5.6%	-	5.2%	1.7%	10.0%	-

Coping mechanism to cover out of pocket healthcare expenditure:
In case of households with hypertension 5% (2/41) reported about loan as primary source of OOP healthcare expenditure. Average amount of loan was found 30000 BDT. Reported sources of loan were friends and family, local money lender. Average interest rate of loan was found 2.5%. Property mortgaged was reported by 2.4% (1/41) households. Selling of property was reported by 7.3% (3/41) households. Reported types of property sold was land, flat. Average value of assets (land/flat) sold was reported as 50090 BDT.

In case of households with diabetes 1.7% (5/300) reported about loan as primary source of OOP healthcare expenditure. Average and median amount of loan were found 92500 BDT and 30000 BDT respectively. Reported sources of loan were local money lender, friends and family, bank/financial institution. Average interest rate of loan was found 7.3%. No property mortgage was reported. Selling of property was reported by 0.3% (1/300) households. Reported types of property sold was land, flat. Average value of assets (land/flat) sold was missing.

3.1.2. Findings from the patient exit survey

Patient exit survey was conducted among 31 patients at NCD corner of Daudkandi UzHC. Of them 11, 9, and 11 patients were suffering from only HTN, only DM and both HTN and DM respectively. 81.8% (9/11) only HTN, 66.7% (6/9) only DM and 90.0% (10/11) both HTN and DM cases reported of taking regular medication.

Among **only HTN cases** 18.2%, 54.5%, 27.3% reported of suffering from heart problem, vision problem and stroke problem respectively as complications related to HTN.

Among **only DM cases** 11.1%, 11.1%, 33.3% and 55.6% reported suffering from heart problems, kidney disease, vision problem, and foot damage problem as complications related to DM.

OOPE from patient exit survey

- Average expenditure from OOP for **registration fee/ticket** was 5 BDT only.
- Average OOP expenditure of exit clients for **lab investigation** were 44, 80 and 69 BDT in case of only hypertension, only diabetes and both hypertension and diabetes respectively.
- Average OOP expenditure for **transport** cost was 55 BDT in case of all exit clients (Annexure Table 4-5).
- Average total expenditure from OOP for that dayfor receiving outpatient services from public health facility (UzHC) were 91, 181 and 109 BDT in case of only HTN, only DM and both HTN and DM exit clients respectively
- Average expenditure from OOP for **food** cost were 11, 11, 19 and 14 BDT in case of only HTN, only DM, both HTN and DM and all exit clients respectively. (Table 7.1-7.2)

3.1.3. Findings from the KIIs

Reasons for high OOP healthcare expenditure
A number of respondents stated that service providers often prescribe expensive drugs, not as per national protocol, which leads to high OOP for medicine.A number of providers said that regulation of prescribing high-priced drug within PHC facilities instead of national protocol-based drugs which were supplied would reduce OOP expenses.

Patients often prefer private providers for seeking health care, which also increases their OOP health expenditure. One patient stated that:

> *'Some individuals prefer private doctors for better healthcare, leading to increased costs. Other than the visit to UzHC, patient of DM and/or HTN check their blood sugar or blood pressure at private health facility at their own cost' –(KII, patient 01)*

Another respondent said that:

> *"Unlike government hospitals, which have standardized price lists for various services, many private hospitals do not adhere to such guidelines, and patients have to bear unpredictable costs." – (KII, Local level healthcare provider 01)*

A number of respondents stated that in the community, some people did diagnostic tests for HTN and DM from private health facility. They argued that if thepeoplevisitcommunity clinic or UzHC and do the tests there, their OOP expenses would be reduced.

One policy maker stated that,

> *'If we could produce combo pill for required drugs of NCD (DM, HTN) treatment, then it may reduce the required number of drugs and thus reduce OOP healthcare expenditure'–(KII, Policy maker* 01)

Several respondents raised the problem of lack of awareness and information. They stated that people tend to be unaware of the benefits of government hospitals, while private hospitals are often seen as more commercial. One respondent opined that,

> *'This lack of awareness and the perception that private hospitals offer better services contribute to people's reluctance to seek care at government facilities' (KII, Local community leader 01)*

Another respondent stated that,

> *'Sometimes patients do not know actually whether they can get NCD medicine from NCD corner whenever it finishes – quoted by local level healthcare provider' – (KII, local level healthcare provider 02)*

A number of local level health care providers suggested to raise awareness as a fundamental step to reduce healthcare costs and encourage individuals to utilize government healthcare services. - quoted by local level health care provider

Challenges with medicine supply and diagnostic test and associated costs
"TheRosuvastatinis priced at 9 taka per piece; we buy that for 4.5 taka per piece." - quoted by health facility manager.

A number of respondents at the facility stated that delays in budget approval and procurement processes resulted in delayed arrival of medicine which caused crisis. During that period, the patients had to purchase medicines which causes OOP expenses.A number of patients also informed that they often do not get the full course of medicine from the UzHC, and are asked to visit again to the UzHC to get the remaining medicine. However, due to the distance of the UzHC from their home and also their busy work schedule, they often buy the medicine from the local pharmacy instead of going to the UzHC.

It was reported by a number of respondents that for prescribed but unavailable investigations at public health facility, patients had to spend for carrying out the investigations from private laboratories.

3.2 Facility Readiness

In this section, the findings are arranged into WHO health system building blocks thematic areas: Health service delivery, Health workforce (HWF), Health Management Information Systems (HMIS), Access to essential medicines, Health care financing, and Leadership and Governance.

3.2.1 Health service delivery

Through facility survey, the study checked facility readiness to provide hypertension and diabetes care and found that NCD corner was functional though there was lack of dedicated physicians, and auxiliary workforce including Senior Staff Nurse, to implement team-based care task shifting approach. In the NCD corner, digital BP machine was available, however, glucometer and test strips were not observed though service providers informed the availability of those.
In the catchment of the UzHC, there were four unions.Out of those, two unions were having USCs with poor physical structure,however, there were no physical structure of USCinthe other two unions.

The Community Clinic (CC) based screening were providing screening services for hypertension and diabetes which was paying a crucial role in reducing patient load in the UzHC and financial burden of patients.Also,CC based screening emphasized early diagnosis, and regular follow-up. A number of respondents suggested that refilling of NCD drugs through community clinic could reduce the patient load at UzHC further and reduce the transport cost and drug purchase cost of patients.

3.2.2 Health workforce (HWF)

Regarding the health workforce the facilitysurvey findings revealed that, at DaudkandiUzHC, the total number of medical officers posted were 6 and 1 position was vacant, and there were 25 Senior Staff Nurse available with one vacant position. There were two positions for Sub-Assistant Community Medical Officers (SACMO), and both were filled up.

For NCD corner,threedoctors were placed following roster, however, no dedicated HWF were there which was hampering quality of services.Team-Based approach to provide NCD care at the NCD corner reduced burden on the doctors and enhanced the quality of healthcare. However, overcrowding of patients and huge waiting time hindered patients to access quality healthcare.

One respondent stated that,

> *".....on an average, there are 400-500 peoplein the out-patient department (NCD corner) of an upazila health complex while there are only 2 doctors available for them. The accessibility in this case is very high but the quality of service is becoming the problem due to lack of doctors and allied healthcare workforce." – (KII, Policymaker 01)*

Anotherrespondent stated that,

> *"Currently, huge number of doctors are being recruited. However, the doctor to population ratio is still not sufficient which is hampering quality of care." (KII, Healthcare Provider at NCD Corner01)*

One respondent said that,

> *"I have encountered various challenges, such as long que and unbearable heat which aggravated my sickness".(KII, Exit patient at NCD Corner from UzHC 01)*

The MOH&FW recruited many doctors for providing healthcare services atUzHC. However, there was shortage of other support staff as well as field level volunteers at the community who may support patients to have smooth services.

"The number of doctors needs to be increased, and a schedule should be maintained to ensure that someone is always available." – (KII, Local Community Leader 02)

In the USC which was visited, all the positions were not filled up - pharmacist and MLSS positions were vacant, and the midwife was on deputation. The USC had no multipurpose health volunteer (MHV) to support community and domiciliary activities which is hampering the preventive and promotive care.

The service providers reported thatthe government was arranging training programs for healthcare providers working at different levels. The importance of comprehensive and integrated training remained high.

3.2.3 Health Management Information Systems (HMIS)

Regarding Health management information Systems (HMIS), the facility survey revealed that, all NCD management data were paper based and there was no electronic database neither for individual patient nor for the facility. There was demand for developing database for all different components of health systems such as service delivery, health workforce, status of medicine, equipment, and lab investigations. These would be helpful for the managers to take timely measures and better management of the facilities. The CHCPs provide some daily routine reports to the national database which was not sufficient.

One respondent stated that,

"In developed countries, we've witnessed a seamless integration where a test can be accessed by another physician with just a click of a computer. However, for such a system to work effectively here, regulatory measures must be put in place, overseen by higher authorities like BMDC or a new directorate." – (KII, Policy Maker 02)

3.2.4 Access to essential medicines

Regarding access to essential medicines, the facility survey revealed that, there was usually a gap of three to four months in supply of medicine for NCD every year. Usually medicine is provided for 7- 14 days to each patient. The protocol-based drugs for HTN and DM management were available in the UzHC (Amlodipin, Loasartam potassium, Thiazide, Metformin, Gliclazide, including aspirin and cholesterol-lowering medications). Any other drugs (e.g. insulin, alpha methyl dopa etc.) for HTN or DM were not available, though there was high demand of these drugs and patients had to purchasethose which increased their OOP expenditure.

Access to Essential Medicines and diagnostics

Required equipment for screening hypertension and diabetes was available at DadudkandiUzHC, and medicines for diabetes and hypertension were provided free of cost to the patients. However, all prescribed investigations

for diabetes and hypertension were not available there.Once the patient was gone for investigations, they usually prefer doing all from outside in a single prick which causes increased OOP expenditure for diagnostic tests.

Respondent stated that,

> *"Functional BP machine, glucometer and strips are available at UzHC for screening hypertension and diabetes. Butall types of tests and investigations are not available, including the hormonal tests***".** *(KII, Health Facility Manager 01)*

> *"They (physicians) tell us where to do the diagnostic tests, e.g., XX (a diagnostic center), on the other side of the UzHC. So, we pay more money and bring the results from there. If we could do it at the UzHC, it would cost only 70 to 75 taka." (KII, Exit Clients at NCD Corner from UzHC 03)*

> *"For diabetes, a key test that we prescribed in the last three months, called HbA1c test, isalso not available at our Upazila Health Complex…… if the tests for diabetes, like HbA1c, were easily available (at UzHC), the expenses would be significantly reduced." (KII, Healthcare Provider, 03***)**

> *"Every 15 days, I have to go back to UzHC for getting my medicines for diabetes. I used to receive six strips of two medicines, now I am receiving only one strip of each medicine from there.As a results, I have to purchase from medicine from pharmacy, which costs me money"- (KII, Exit Clients at NCD Corner from UzHC 04)*

> *"Insulin is not available at our hospital. If patients can obtain insulin from us, it would significantly reduce their expenses"* **-** *(KII, Healthcare Provider, 03)*

> *"We have taken initiatives for providing insulin through the Non-Communicable Disease Control (NCDC) program. This step is significant, as insulin is costly and requires regular administration, which is a financial burden for marginalized population". –(KII, Policy Maker 02***)**

3.2.5 Health care financing

A few respondents stated that Upazila Health Complex used to purchase medicines required for Hypertension and Diabetes directly from their revenue budget to meet up the demands when they didn't receive supply from NCDC, DGHS. At Daudkandi UzHC, only 8% of revenue budget was spent for purchasing NCD drugs in last year.

*"In our UzHC, 3-4 months every year.. there are shortage of HTN, DM drug supply from NCDC program of DGHS. To meet up the huge demand, we purchase small quantity of medicines from our revenue budget and continue medicine supply to patients"-(KII, Health Facility Manager 01***)***

Many respondents pointed out that in the past 30 years, out-of-pocket expenditure in healthcare has surged to 68.5%. They opined that maintaining diagnostic facilities and reliable supply chain of medicine along with following same national protocol for treating hypertension and diabetes in both private and public healthcare facilities could reduce the burden of out-of-pocket expenditure for the patients. The key informants also expressed concerns about the variation of cost for diagnostic tests and other services such as inpatient service from public to private healthcare facilities, which play crucial role in increasing out-of-pocket expenditure for the patients. Thus, it calls for a standardized protocol for all sectors and availability of required and desired services from Community Clinics to Upazila Health Complexes.

Respondents stated that,

"Cost of diagnosis differs in public and private hospitals, even if the test and machineries are similar. Costs can differ 3-4 times. Why the variation in costs if we use the same blood pressure machine, x-ray machine? I think this is a most important issue if we want to reduce OOP expenditure. The government has to bring them under regulations to keep the OOPexpenditure low." (KII, Policy Maker 02)

"We have discussed with associations for medical colleges and with private hospitals regarding agenda of following same national protocol. They also concurred that the consultation for diabetes and hypertension must start by following national protocol so that patients would receive the same care anywhere in the nation. If a patient is being treated under the same protocol, it will cost less for them comparatively if they go to a medical specialist." (KII, Policy Maker 01), NCDC, DGHS (DPM, NCDC)

"Each private hospital charges differently for each type of cabin or service. So, there should be a standard protocol or criteria for reducing these expenditures."- (KII, Health Facility Manager 01)

"If I get the service that I am supposed to get from the community clinic or from the union sub center or from the UzHC then I don't have to spend out of pocket anymore." –(KII, Policymaker 03)

3.2.6 Leadership and Governance

Regarding leadership and governance, the facility survey revealed that, the UHFPO took different initiatives to ensure HTN and DM related health care and one of the initiativeswas supplying the NCD drugs to the CC for refilling of drugs to NCD patients. This activity created high demand of drug supply among the patient. However, due to shortage of supply from central level, the initiative was not sustainable. The UHFPO also took the initiative to spent 8% of revenue budget in purchasing the NCD drugs in the previous year. The individual initiative might create an example though it was not sustainable without strengthening the existing system.

With the growing number of NCD corners, provision of continuous management with drugs and diagnostic care of hypertension and diabetes, patient load had been increased with the demand for medicines. Therefore, it became a challenge to ensure continuous supply of medicine and diagnostics through NCDC Operational Plan (OP).

Central level policy makers suggested that we need to develop gradually the comprehensive system of continuous procurement and supply with equitable distribution of all NCD drugs and diagnostics from revenue budget. Meanwhile, the other OPs like Community-Based Health Care (CBHC), Upazila Health Care may coordinate with NCDC program to synchronize the purchase of drugs and diagnostics.

> *"We need to try pricing adjustments, developing combination drugs to reduce number of pills which will reduce costs and increase compliance is also important".–(KII, Policy maker 02)*

Key informants advocated for a balanced system where financially capable individuals pay a certain amount, while economically disadvantaged individuals receive medicines at a nominal cost. This balanced scheme could be achieved through an insurance system, ensuring a consistent supply of medications to meet the high demand. They also suggested for combination medicines which could be a factor for reducing medication costs, where usually people spend much of their OOP.

> *"There's also room for pricing adjustments, especially considering the escalating costs of the medicines we supply. In some cases, combining multiple drugs into a single combination pill could reduce costs. India has successfully implemented such strategies, which have significantly lowered the government's expenditure on medicines. For instance, we've been able to reduce the cost of amlodipine, a first-line drug, to about 1/1.5 taka from its original 5/6 taka by purchasing in bulk. If we consider combination drugs like the polypill, which includes aspirin, atorvastatin, and antiplatelet drugs, the cost could be further reduced, ensuring sustained distribution. Where financially capable individuals pay a certain*

amount, while economically disadvantaged individuals receive the medicine at a nominal cost. By establishing a balanced scheme, possibly through an insurance system, we can ensure a consistent supply of medications to meet the current high demand." (*KII, Policy maker 02*)

A number of respondents emphasized on the need for improvements in the healthcare system, such as better equipment and a more efficient referral system. They emphasized that with proper government support and resource allocation, it is possible to address many of the challenges and reduce out-of-pocket expenditures for patients.

> *"There isn't a well-functioning referral system in place, instead, there exists an anatomical referral system centered around the Upazila Health Complex" --(KII, Policy maker 02*)

Concerns were raised regarding the lack of regulatory mechanisms for the private healthcare sector, leading to disparities in healthcare costs. The interviewee stressed the need for government intervention to regulate private healthcare institutions and standardize pricing to keep out-of-pocket expenses low.

> *"Private hospitals charge varying amounts from each patient without any specific criteria. Unlike government hospitals, which have standardized price lists for various services, many private hospitals do not adhere to such guidelines. As a result, patients have to bear unpredictable costs. In this scenario, individuals have to bear a significant burden of expenses." –(KII, Healthcare Provider at NCD Corner 03)*

The role of regulatory bodies, such as the Bangladesh Medical and Dental Council (BMDC), in promoting standardized treatment protocols was discussed. Adherence to national treatment guidelines, particularly for diseases like hypertension, diabetes was seen as crucial for reducing costs and ensuring uniform care across healthcare settings. The interviewee also advocated for software solutions to streamline processes and reduce the repetition of tests, ultimately resulting in cost savings.

> *"DGHS is tasked with regulatory oversight, but does it have the capacity to oversee the vast network of private GP centers? This is where BMDC comes in. A crucial role of BMDC is to ensure that physicians adhere to uniform treatment guidelines. This (following guideline) can significantly reduce out-of-pocket expenses and promote equitable distribution." --(KII, Policy maker 02*)

In terms of workforce development, the interviewee highlighted the need for incentivizing healthcare professionals and addressing income disparities to

attract and retain a committed team for patient care. The introduction of health insurance coverage was suggested as a potential solution to alleviate some of these issues.

> *"Since 2015, there hasn't been a salary raise in places where inflation has increased the cost of basics. Even after providing the advanced facilities and equipment, we are still unable to provide adequate services. We need to develop the workforce by training them and giving them remuneration for proper service delivery." – (KII, Policy Maker 03)*

Regarding government initiatives, the interviewee mentioned the implementation of pension programs for informal workers in specific upazilas as a step toward reducing out-of-pocket healthcare expenses. The goal was to provide social care services to elderly citizens and improve their quality of life.

> *"As far as I am aware, initially in two or three upazilas in Gazipur, the government has begun the process of pension programs to cut out-of-pocket expenses for informal workers. I believe that this initiative will soon start operating in a few more upazilas. If the universal pension program is successfully implemented, at least elderly persons from the informal sector will have pension funds to use for health care services, which was not the case for private sectors in the past. By doing this, we may begin providing them with social care services similar to those in industrialized nations." - (KII, Policy Maker 03)*

There was a call for an increased focus on preventive care for diseases like diabetes and hypertension, highlighting the importance of public health efforts to reduce the burden of curative care. The interviewee noted the absence of a government-run diabetes-specific hospital as an area that required attention.

> *"The system that the government has made for diabetes, hypertension is curative care. but diabetes, and hypertension, are preventable diseases. What the government should do is emphasize prevention. We also need diabetes-specific hospital as there is not yet a diabetes-specific hospital run by the government." (KII, Academician 01)*

Broker to influence patients for receive service from private health facility was raised as a concern.

> *"There are broker of private hospital and diagnostic centers who try to influence the patients at Upazila Health Complex to carry out investigations and receive treatment from private*

*diagnostic clinics and hospital outside ofUzHC."-(KII, Health Facility Manager 01***)**

The respondent added that:

> *"Government has introduced community clinic (CC) -based screenings to reduce the financial burden on patients. These initiatives emphasize the importance of early diagnosis, regular follow-up and refill the medicines, especially for managing conditions like hypertension and diabetes. Also, if the community people could refill their diabetes or hypertension medicine from their nearest community clinic facilities, that could also help them in terms of cost reduction and comfort.I took a trial initiative to provide NCD medicines at Community Clinics, where patients could refill their NCD medications. and we observed a surge of demand there beyond the enlisted NCD patients from UzHC and hence it wasn't possible to continue." - -(KII, Health Facility Manager 01***)***

Respondents also stated that to reduce the OOP for obtaining hypertension and diabetes care, the government can utilize successful examples of other projects or initiatives.

> *"The National Eye Care Program has introduced an exceptional model wherein well-trained nurses, without the presence of a physician, can utilize advanced equipment for diagnosis. They can provide eyeglasses free of cost. Undoubtedly, this has been of immense benefit to the people and has contributed to reducing out-of-pocket expenditures." –(KII, Policy Maker 02)*

5. Discussion

Evidence on out-of-pocket and catastrophic health expenditure (CHE) of patients suffering from diabetes and hypertension is limited in Bangladesh. This study finds that hypertension and diabetes cause very high OOP expenditures for households. We found that due to inadequate facility readiness, DM and HTN patients are often compelled to visit private facility, which increases their OOP healthcare expenditure. Findings from the study are found consistent with the findings from BNHA 2020. Among total health care expenditure for treating DM and/or HTN, major contributions are of medicine and lab investigation related expenditure. A recent study in Bangladesh found that the cost of medication was the main cost driver contributed for 75.43% of the total out-of-pocket cost. The incidence of CHE was 14.34%, and 5.86% of the study households for 10% and 25% of the threshold levels, respectively (19). Our findings are consistent with this study.

Previous studies in India also show high OOP health expenditure for DM and HTN, where hospital fees, cost of tests, cost of medicines, admissions fees, and travel expense remain the major cost components for the patients (20). A number of studies in India confirm that despite the fact that public health system provides essential primary health care at no cost, a considerable number of population faces relatively high OOP expenditure (20) (21) (22).

A study in Ethiopia found that that out-of-pocket health expenditure among adult patients with hypertension was high compared to the national per capita health expenditure. Sex, wealth index, distance away from hospital, frequency of visit, comorbidities, and health insurance coverage were factors significantly associated with high out-of-pocket health expenditure (23).

It therefore requires attention of the policy makers to take necessary measures to improve the facility readiness and take other measures to reduce the OOP health expenditure for DM and HTN management.

Recommendations:

- Digitization of patients' record might help prevention of repeated lab investigations within a short period of time which might save cost.

- Keep provision in the plan and carryout regular monitoring and supportive supervision to track and take necessary steps for remedy to address noncompliance of treatment protocol for NCD specifically HTN, DM

- Ensure follow of national management guideline for HTN, DM for screening, diagnosis, prescribing by healthcare providers

- Take necessary steps to ensure availability of prescribed medicines as per national protocol

- Take necessary steps to ensure availability of prescribed diagnostic tests at public health facilities
- Check feasibility and try to arrange provision for refilling of required drugs from nearby primary health care center for reducing waiting time, patient load and thus OOP healthcare expenditure
- Give priority for purchasing NCD drugs while allocating revenue budget in case of shortage of drug supply from NCDC office
- Check feasibility and if possible try to bring NCD patients under the coverage of health insurance scheme who cannot bear OOP healthcare expenditure

- Necessary steps have to be taken to ensure uninterrupted supply of drugs, reagents and make the prescribed investigations available at upazila health complex as much as possible.

- Take necessary steps to ensure allocation and disbursement of the required amount of budget to accomplish planned activities on time.
- Set a fixed standard charge for NCD diagnostic and treatment at private facilities.
- There is lack of required number of healthcare providers at public healthcare facility against the patient load to provide quality of care. To improve capacity of healthcare providers regular training are also required.
- Health service delivery related data of NCD patients should stored digitally and this may helpful for future follow up.
- Need individual NCD patient tracking through existing National HMIS.
- Create an interactive NCD dashboard in District Health Information Software-2 for facility health manager to easily understand the NCD case load at their facilities and tracking the NCD medicine status.
- To reduce patient load at UzHC and to provide quality of care, proper referral mechanism for refilling of NCD medicines have to be designed and followed accordingly.
- Regulate private healthcare institutions and standardize pricing.
- BMDC should strengthen to ensure every physician should follow the standardized treatment protocols
- Standardized pricing of NCD related investigations & treatment in private hospitals
- There is need to establish effective NCD referral pathway.
- Local level recruitment of guard may be one option to tackle influence of broker .
- Aware the mass population through print & electronic media including social media campaign regarding the NCD services with free medicines in government hospitals.
- Establish billboard in hospital premises displaying the NCD corner services for all the service recipient from the hospital.
- Use the field level health staff, community group & community support group to aware the community people regarding NCD prevention, early screening and care seeking from the nearest NCD corner.

- Need to ensure to follow the National protocol on NCD management for both for the government and private facilities.
- Need to ensure regular medicine supply to meet the demand throughout the year. Need to ensure all the investigations for NCD at the UzHC.
- NCD patients should be aware about NCD service provision at UzHC, CC, USc
- Arrange all prescribed investigations, medicines at public health facility
- Take necessary steps to increase awareness among community people in catchment area

Following suggestions were given by exit patients who received services for DM and/or hypertension which were related to improve quality of services and reduce out of pocket cost for healthcare service received and of them majorly were related to availability of medicine, lab investigation facility:

- Steps to be taken so that medicine need not to be purchased from outside of UHC / Provide adequate medication so that the cost is less / Arrangement of medicines/ Supply of medicine should be increased / if all treatments are given by doctors of UHC / There is one medicine for gas. Provide adequate medication inside UHC / It would be better if 2-3 month of medicines are available inside of UHC. Frequent visit to UHC for medicine is costly
- Conduct better quality in testing / Arrangement of medical tests inside UHC / It costs more when we must go outside for testing. if all treatments and tests are given by doctors of UHC / Sometimes test must be done outside of UHC which increase out of pocket cost
- Misbehavior of hospital staff should be addressed.
- It is difficult to stand for long serials, need to address this issue giving priority for the elder/ disable, pregnant & child bearing women.
- It would be better to give cards to those who come frequently instead of taking the hassle of getting tickets every time
- Oversight arrangements in front of the pharmacy can increase accountability to the hospital
- Equal rights should also be given to strangers
- Ensure RBS within the NCD corner along with the Blood pressure measurement as routine procedure.
- Need to ensure to follow the National protocol on NCD management for both for the government and private facilities.
- Need to ensure to follow the National protocol on NCD management for minimum and cost-effective medication.
- Concerned personnel may look into feasibility and scope of planning and arranging such combo pill for reducing required number of drugs

and thus reducing OOP healthcare expenditure for treating chronic NCDs specifically DM, HTN .

- Should involve other operational plan (CBHC, PHC) to ensure the huge drug demand.
- May involve local government (union parishad) to mobilize their health budget for the NCD corner
- Need to expand shastho Surokkha Kormoshuchi (SSK) or universal health insurance across the country.
- Keep provision in the plan and carryout regular monitoring and supportive supervision to track and take necessary steps for remedy to address noncompliance of treatment protocol for NCD specifically HTN, DM
- Ensure follow of national management guideline for HTN, DM for screening, diagnosis, prescribing by healthcare providers
- Take necessary steps to ensure availability of prescribed medicines as per national protocol
- Take necessary steps to ensure availability of prescribed diagnostic tests at public health facilities
- Check feasibility and try to arrange provision for refilling of required drugs from nearby primary health care center for reducing waiting time, patient load and thus OOP healthcare expenditure
- Give priority for purchasing NCD drugs while allocating revenue budget in case of shortage of drug supply from NCDC office
- Check feasibility and if possible try to bring NCD patients under the coverage of health insurance scheme who cannot bear OOP healthcare expenditure

6. Conclusion and Recommendations

Findings from the study are found consistent with the findings from BNHA 2020. Among total health care expenditure for treating DM and/or HTN at OPD major contribution are of medicine, lab investigation related expenditure.

In case of chronic non-communicable diseases specifically diabetes, hypertension if patients are diagnosed early, take medication regularly, receive follow up service regularly, follow healthy lifestyle then around 70%-90% such patients can live healthy and well. Generally, they do not require In-patient services. If government arrange required regular consultation, medicine, diagnostic tests from public health facility (UzHC at the time of referral cases from CC and at other times from CC) and bear the related expenses (median amount of expenditure 333, 333 and 750 BDT for only HTN, only DM and both HTN and DM respectively) and if the patients receive those services regularly then those patients can lead their life healthy and well and also their OOP healthcare expenditure can be reduced and maintained at a minimum level.

Need to ensure to follow the National protocol on NCD management for both for the government and private facilities. Have to ensure supply of

prescribed medicine and lab investigations. Based on the evidence, lessons learned from the study necessary steps are to be taken for addressing potential determinants of health system influencing healthcare expenditure of the households.

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Annexure

Table 1: Socio demographic characteristics of household members

Indicators	x/n (%) or n [Mean (SD) Median]
# of HH from which data collected (visited 2235 households)	300
# of HH members (300 households)	1484
# of adults (≥18 years) in 300 HH	1097
Gender: Male	750/1484 (50.5)
Female	734/1484 (49.5)
Age of HH members	1484 [32.3 (19.5) 32.4]
Years of schooling	1456 [6.5 (3.4) 6.0]
Level of education: No education	295/1484 (19.9)
Primary	394/1484 (26.5)
Secondary/Higher	767/1484 (51.7)

Note: The format x/n (%) have been used to represent results of categorical variables.
The format n [Mean (SD) Median] used to represent results of continuous variables.

Table 2: HH assets index, Average monthly income, expenditure, healthcare expenditure of HH

Indicators	x/n (%) or n [Mean (SD) Median]
Household assets index Low Middle High	 101/300 (33.7) 110/300 (36.7) 89/300 (29.7)
Total average monthly income of HH *in last year	277 [30973 (41569.5) 25000]
Total average monthly expenditure of HH *In the last year	290 [26356 (23990.1) 20000]
Health Care expenditure of HH in last month*	296 [4646 (4269.6) 3500]
% of HH healthcare expenditure out of total monthly expenditure of household [If we consider 10% as cutoff point the average amount of household expenditure (4646 BDT) on Health Care indicate catastrophic healthcare expenditure. But as per 20% cutoff point the average amount of household expenditure (4646 BDT) on Health Care does not indicate catastrophic healthcare expenditure.]	4646/26356 = 17.6%

Notes: * = Excluding missing values

Box 1: Self-reported HTN and/or DM mellitus cases confirmed by doctor and/or taking medication.

- The # of respondents with only HTN, only DM, both HTN&DM were 92, 177 and 45 respectively.
- Total # of respondents with HTN and/or DM mellitus cases were 314

Table 3: Socio demographic characteristics of HTN and DM cases

Indicators	Only HTN x/n (%) or n [Mean (SD) Median]	Only DM x/n (%) or n [Mean (SD) Median]	Both HTN&DM x/n (%) or n [Mean (SD) Median]
Age of HH members	92 [51.2 (16.6) 50]	177 [52.4 (15.6) 50]	45 [54.5 (18.0) 55]
Years of schooling	90 [5.8 (6.2) 5]	173 [5.9 (4.9) 5]	45 [5.9 (5.7) 5]

Indicators	Only HTN x/n (%) or n [Mean (SD) Median]	Only DM x/n (%) or n [Mean (SD) Median]	Both HTN&DM x/n (%) or n [Mean (SD) Median]
Level of education: No education	24/90 (26.7)	48/173 (27.7)	11/45 (24.4)
Primary education	29/90 (32.2)	49/173 (28.3)	15/45 (33.3)
Secondary/Higher education	37/90 (41.1)	76/173 (43.9)	19/45 (42.2)
Gender: Male	39/92 (42.4)	75/177 (42.4)	21/45 (46.7)
Female	53/92 (57.6)	102/177 (57.6)	24/45 (53.3)
HH assets index: Low	35/89 (39.3)	58/173 (33.5)	10/41 (24.4)
Middle	35/89 (39.3)	63/173 (36.4)	13/41 (31.7)
High	19/89 (21.3)	52/173 (30.1)	18/41 (43.9)

Table 4: HH Health care expenditure from public health facility for HTN and/or DM in last visit or visitsin last 6 months

Indicators	Only HTN n [Mean (SD) Median]	Only DM n [Mean (SD) Median]	Both HTN and DM n [Mean (SD) Median]
Average total healthcare expenditure for **in-patient** services	15 [14166.7 (11951.8) 12000]	15 [13620 (25035.2) 7000]	8 [50662.5 (121101.7) 9750]
Average total healthcare expenditure for **out-patient** services	26 [5562 (10123.7) 2000]	44 [3966 (7944.0) 2000]	14 [3151 (2420.3) 3000]
Average total healthcare expenditure for In-**patient, and out-patient** services	35 [10203 (12036.7) 4500]	53 [7147 (15482.8) 3000]	16 [28089 (86115.5) 5105]

Indicators	Only HTN n [Mean (SD) Median]	Only DM n [Mean (SD) Median]	Both HTN and DM n [Mean (SD) Median]
Average doctor's fee related expenditure for receiving **In-patient,** service	15 [635 (1282.5) 100]	14 [409 (584.8) 100]	8 [3850 (10566.5) 150]
Average doctor's feerelated expenditure for receiving **out-patient,** service	26 [628 (1686.7) 100]	44 [195 (448.6) 35]	14 [223 (343.5) 100]
Average doctor's feerelated expenditure for receiving **In-patient, outpatient**service	35 [738 (1642.3) 100]	52 [276 (509.8) 50]	16 [2120 (7455.1) 150]
Average medicine cost related expenditure for receiving **In-patient,** service	14 [4064 (3934.4) 2000]	15 [5440 (9919.6) 2400]	8 [21450 (51995.8) 3100]
Average medicine cost related expenditure for receiving **out-patient,** service	26 [1744 (1900.2) 1000]	44 [1169.0 (1612.2) 700]	14 [1568 (1130.8) 1625]
Average medicine cost related expenditure for receiving **In-patient,outpatient** service	35 [2921 (3107.0) 1500]	53 [2510.0 (5679.6) 1000]	16 [12097 (36875.2) 2475]

Indicators	Only HTN n [Mean (SD) Median]	Only DM n [Mean (SD) Median]	Both HTN and DM n [Mean (SD) Median]
Average lab test costs related expenditure for receiving **In-patient,** service	14 [4750 (6641.2) 2000]	15 [3367 (7541.2) 1000]	8 [6125 (13786.0) 1000]
Average lab test cost related expenditure for receiving **out-patient,** service	26 [988 (1468.4) 350]	44 [1150 (2339.3) 450]	14 [574 (787.5) 200]
Average lab test cost related expenditure for receiving **In-patient, outpatient**service	35 [2634 (4659.3) 500]	53 [1907.0 (4530.7) 700]	16 [3565 (9859.0) 237.5]
Average transport costs related expenditure for receiving **In-patient,** service	14 [1350 (1108.5) 1000]	15 [903 (1736.0) 200]	8 [2375 (5138.3) 300]
Average transport costs related expenditure for receiving **out-patient,** service	26 [981 (2394.5) 200]	44 [354 (447.0) 200]	14 [379 (426.2) 200]
Average transport cost related expenditure for receiving **In-patient,outpatient** services	35 [1269 (2131.1) 500]	53 [550 (1007.7) 300]	16 [1519 (3672.7) 500]
Average food cost related expenditure for receiving **in-patient, out-patient,** service	35 [1091 (2943.7) 0]	47 [642 (1627.0) 200]	16 [1285 (3688.9) 260]

Table 5: HH Health care expenditure from Private health facility for HTN and/or DM in last visit or visits in last 6 months

Indicators	Only HTN n [Mean (SD) Median]	Only DM n [Mean (SD) Median]	Both HTN and DM n [Mean (SD) Median]
Average total healthcare expenditure for receiving **in-patient** service	12 [57667 (67122.5) 42500]	32 [31567 (34642.6) 20000]	7 [57000 (41230.0) 37000]
Average total healthcare expenditure for receiving **out-patient** service	48 [5443 (4875.2) 4000]	100 [5276 (5457.7) 4000]	20 [11106 (7436.7) 8350]
Average total healthcare expenditure for receiving **In-patient, out-patient** services	52 [18332 (39171.0) 5550]	116 [13257 (22113.9) 5000]	21 [29577 (33599.2) 15500]
Average doctor's fee related expenditure for receiving **In-patient**, service	12 [9808 (13980.0) 4750]	30 [3595 (6689.7) 1500]	6 [4600 (6553.8) 2250]
Average doctor's fee related expenditure for receiving **out-patient**, service	48 [1036 (1042.7) 700]	100 [810 (597.9) 700]	20 [1481 (897.4) 1105]

Indicators	Only HTN n [Mean (SD) Median]	Only DM n [Mean (SD) Median]	Both HTN and DM n [Mean (SD) Median]
Average doctor's fee related expenditure for receiving **In-patient,outpatient** services	52 [3220 (7698.1) 900]	114 [1657 (3681.7) 800]	21 [2724 (3706.0) 1500]
Average medicine cost related expenditure for receiving **In-patient,** service	12 [15858.0 (27043.0) 9500]	30 [11317 (11479.0) 7500]	6 [9233 (6571.7) 9000]
Average medicine cost related expenditure for receiving **out-patient,** service	48 [2288 (2470.9) 1650]	100 [2159 (2945.3) 1500]	20 [4490 (3088.5) 3500]
Average medicine cost related expenditure for receiving **In-patient, outpatient** services	52 [5771 (14113.9) 2000]	114 [4872 (7879.8) 2000]	21 [6914 (5356.1) 5900]
Average lab test cost related expenditure for receiving **In-patient,** service	12 [12433 (13878.7) 9000]	30 [5463 (10007.0) 2000]	6 [9758 (9337.6) 8600]
Average lab test costs related expenditure for receiving **out-patient,** service	48 [1134 (1488.9) 500]	100 [1503 (2395.8) 950]	20 [3339 (3368.0) 2050]

Indicators	Only HTN n [Mean (SD) Median]	Only DM n [Mean (SD) Median]	Both HTN and DM n [Mean (SD) Median]
Average lab testcosts related expenditure for receiving **In-patient, outpatient** services	52 [3916 (8327.8) 650]	114 [2756 (5785.4) 1000]	21 [5968 (8335.7) 2177]
Average transport cost related expenditure for receiving **In-patient,** service	12 [5325 (6884.4) 3000]	30 [2560 (2994.2) 1000]	6 [3012 (1939.4) 3100]
Average transport cost related expenditure for receiving **out-patient,** service	47 [587 (973.5) 200]	100 [460 (491.1) 200]	20 [841 (714.3) 750]
Average transport cost related expenditure for receiving **In-patient, outpatient** service	51 [1794 (3995.0) 300]	114 [1077.0 (1848.0) 500]	21 [1661 (1928.1) 1000]
Average food cost related expenditure for receiving **in-patient, out-patient,** service	52 [1088 (2793.2) 100]	113 [781 (1715.6) 100]	21 [1684 (3288.1) 900]

Table 6: Healthcare service utilization and average healthcare expenditure for receiving in-patient, out-patient service from public, private health facility for HTN and/or DM mellitus in last visit or in the visit throughout last 6 months respectively (HH based)

Indicators	Only HTN n [Mean (SD) Median]	Only DM n [Mean (SD) Median]	Both HTN and DM n [Mean (SD) Median]
Average total healthcare expenditure for receiving **in-patient** service from **private, public** health facility	27 [33500 (49681.5) 21000]	47 [25839 (32726.6) 12500]	15 [53620 (89844.6) 18500]
Average total healthcare expenditure for receiving **out-patient** service from **public, private** health facility	74 [5485 (7099.6) 3000]	141 [4980 (6390.0) 3100]	32 [8320 (7022.4) 6025]
Average total healthcare expenditure for receiving **In-patient, out-patient** service from **public,private** health facility	87 [15062 (31357.1) 5000]	163 [11758 (20807.8) 5000]	35 [30587 (62326.8) 10000]
Average doctor's fee related expenditure for receiving **In-patient, out-patient** service from **public, private** health facility	87 [2222 (6140.7) 500]	160 [1270 (3182.0) 600]	35 [2604 (5685.0) 1000]
Average medicine related expenditure for receiving **In-patient, out-patient** service from **public, private** health facility	87 [4625 (11132.1) 2000][A]	161 [4276 (7466.9) 1500][B]	35 [9679 (24875.4) 3500]

Average lab test related expenditure for receiving **In-patient, out-patient** service from **public, private** health facility	87 [3401 (7078.8) 500]	161 [2580 (5514.3) 1000]	35 [5210 (9155.0) 2020]
Average transport cost related expenditure for receiving **In-patient, out-patient** service from **public, private** health facility	86 [1580 (3357.4) 400]	161 [944 (1673.2) 400]	35 [1691.0 (2826.7) 800]
Average doctor's fee related expenditure for receiving **In-patient,** service from **public, private** health facility	27 [4712 (10254.3) 500]	44 [2581 (5704.2) 900]	14 [4171 (8762.9) 450]
Average doctor's fee related expenditure for receiving **out-patient,** service from **public, private** health facility	74 [893 (1308.8) 500]	141 [636 (624.1) 500]	32 [1023 (948.8) 950]
Average medicine cost related expenditure for receiving **In-patient,** service from **public, private** health facility	26 [9507 (19125.6) 4750]	45 [9358 (11225.1) 6000]	14 [16214. (38881.0) 4950]
Average medicine costrelated expenditure for receiving **out-patient,** service from **public, private** health facility	74 [2097 (2288.2) 1500]	141 [1896.0 (2661.6) 1100]	32 [3492 (2821.7) 2650]
Average lab test costrelated expenditure for receiving **In-patient,** service from **public, private** health facility	26 [8296 (11088.0) 5000]	45 [4764 (9224.7) 2000]	14 [7682 (11804.8) 2250]

Average lab test costrelated expenditure for receiving **out-patient,** service from **public, private** health facility	74 [1083 (1473.3) 500]	141 [1425 (2409.9) 650]	32 [2338 (2990) 1300]
Average transport costrelated expenditure for receiving **In-patient,** service from **public, private** health facility	26 [3185 (5057.3) 1750]	45 [2008 (2737.1) 1000]	14 [2648 (3971.2) 1150]
Average transport costrelated expenditure for receiving **out-patient,** service from **public, private** health facility	73 [728 (1622.5) 200]	141 [437 (509.4) 200]	32 [692 (650.6) 475]
Average food cost related expenditure for receiving **In-patient,** service from **public,private** health facility	23 [2683 (4706) 500]	45 [1873 (2723.7) 700]	14 [3143 (5162.8) 1250]
Average food cost related expenditure for receiving **out-patient,** service from **public,private** health facility	74 [447 (1268.1) 100]	134 [255 (580.3) 0]	31 [385 (491.7) 100]
Average lodging cost related expenditure for receiving **In-patient,** service from **public,private** health facility	23 [4270 (8184.9) 1000]	45 [3220 (5999.5) 800]	14 [6907 (13790.7) 0]
Average hospital cost related expenditure for receiving **In-patient,** service from	24 [3967 (8435.0) 1250]	44 [2725 (5323.9) 500]	14 [7291 (13660.4) 0]

public,private health facility			
Average caregivers' cost related expenditure for receiving **In-patient,** service from **public,private** health facility	16 [15679 (28858.6) 6050]	24 [7642 (6092.7) 5500]	9 [20200 (44550.7) 4800]
Average caregivers' cost related expenditure for receiving **out-patient,** service from **public,private** health facility	74 [18 (139.8) 0]	132 [22 (115.9) 0]	32 [0 (0) 0]
Average caregivers' cost related expenditure for receiving **in-patient, out-patient,** service from **public, private** health facility	84 [3002 (13740.3) 0]	152 [1225 (3674.6) 0]	34 [5347 (23727.2) 0]

Note: A: Medicines used for treating HTN: [Telmipres, betaloc, renatab, ecosprin, osartil 50, thyrox 50, seclo etc.] ; B: Medicines used for treating DM: [lyric 50, insulin, lino, seclo etc.]

Table 7.1: Findings from **exit client survey** regarding medication use and complication status

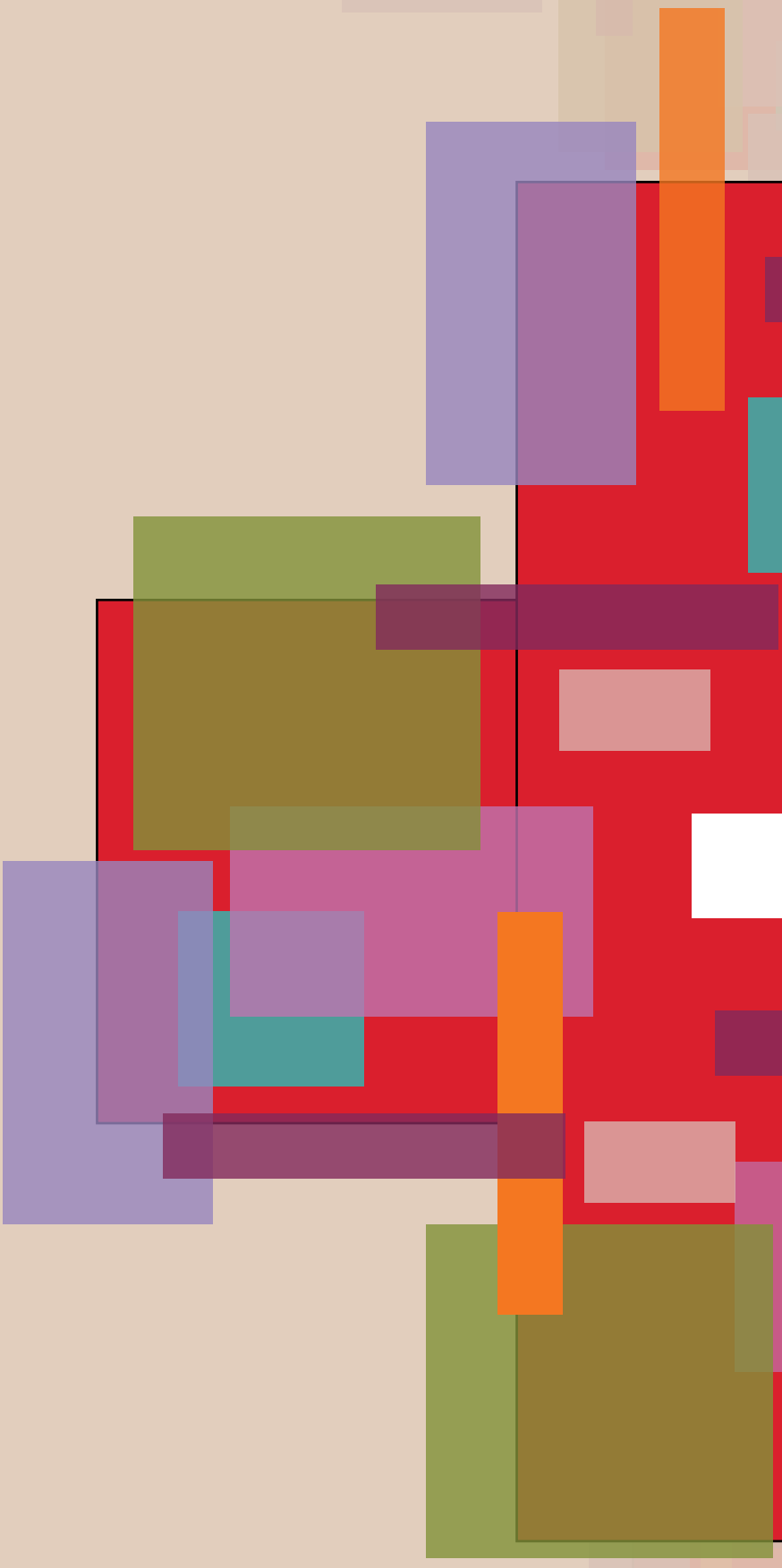
Indicators	**Only HTN x/n (%)**	**Only DM x/n (%)**	**Both HTN and DM x/n (%)**
Currently take regular Medication	9/11 (81.8)	6/9 (66.7)	10/11 (90.9)
Have/ever suffered from complications related to DM/HTN, Heart Problem	2/11 (18.2)	1/9 (11.1)	5/11 (45. 5)

Indicators	Only HTN x/n (%)	Only DM x/n (%)	Both HTN and DM x/n (%)
Have/ever suffered from complications related to DM/HTN,Nerve damage	-	0/9 (0.0)	-
Have/ever suffered from complications related to DM/HTN,Kidney damage/disease	0/11 (0.0)	1/9 (11.1)	2/11 (18.2)
Have/ever suffered from complications related to DM/HTN,Eye damage/vision problem	6/11 (54.5)	3/9 (33.3)	6/11 (54.5)
Have/ever suffered from complications related to DM/HTN,Foot damage	-	5/9 (55.6)	-
Have/ever suffered from complications related to DM/HTN,Stroke	3/11 (27.3)	-	-

Table 7.2: Findings from exit client survey regarding OOP healthcare expenditure for receiving outpatient services

Indicators	Only HTN n [mean (SD) median]	Only DM n [mean (SD) median]	Both HTN and DM n [mean (SD) median]
Average total expenditure from OOP for receiving the services	11 [91 (71.7) 65]	9 [181 (223.8) 125]	11 [109 (165.4) 55]
Average expenditure from OOP for doctor's fee for receiving the services	11 [5 (0) 5]	9 [5 (0) 5]	11 [6 (2.3) 5]
Average expenditure from OOP for medicine cost for receiving the services	10 [0 (0) 0]	9 [0 (0) 0]	11 [0 (0) 0]
Average expenditure from OOP for lab investigation cost for receiving the services	9 [44 (72.6) 0]	8 [80 (100.3) 60]	8 [69 (175.1) 0]

Indicators	Only HTN n [mean (SD) median]	Only DM n [mean (SD) median]	Both HTN and DM n [mean (SD) median]
Average expenditure from OOP for transport cost for receiving the services	10 [42 (25.3) 35]	9 [94 (127.5) 40]	11 [35 (23.8) 40]
Average expenditure from OOP for food cost for receiving the services	11 [11 (14.2) 0]	8 [11 (21.0) 0]	10 [19 (21.4) 12.5]



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