

CATASTROPHIC HEALTH EXPENDITURE AND ASSOCIATED
FACTORS AMONG HOUSEHOLDS OF NON CBHI DISTRICTS,
ILUBABOR ZONE, OROMIA NATIONAL REGIONAL STATE, SOUTH
WEST ETHIOPIA

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JIMMA, ETHIOPIA

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Abstract

Background: Out-of-pocket health expenditure is the proportion of total health expenditure that is paid by individuals and households at the time health service. According to World Bank report, OOP expenditure in Ethiopia was at 33.7% which is against the recommended OOP payment which is lower than in other Sub Saharan Africa countries (62.2 %).

Objective: To assess the incidence and intensity of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone, Oromia National Regional state, Ethiopia.

Methods: Community based cross-sectional study design was carried out. The study was conducted from mid-year 2017 to mid- 2018 to include all expenditures by households for health during one-year period. Out of seven non community based health insurance scheme district three district was included in the study multistage sampling was employed. During stage one clustering sampling method was used to select three district. Data was collected by using structured mix of open and close-ended pre -tested questionnaire by face to face interviewing of respondents from 334 households in August 2018 by trained diploma holder and above health professionals who can speak, write and read local languages. Micro-costing/bottom up approach was used to all household expenditure. To assess the incidence and intensity of catastrophic health expenditure, all household consumption expenditure was done by mathematical analysis using Microsoft excel . The predictors of catastrophic health expenditure was done by binary logistic regression analysis and all significant $p < 0.25$ variables were candidate for multi logistic analysis and the finally, $P < 0.05$ was used as significant level.

Results: The number of households which participated in the study were 333 with response rate of 99.7%. Out of 333 household surveyed 58 (17.4%) of them were in catastrophe which exceeds 10% of total household expenditure and after medical care expenses about 17(5%) the house hold moved downward from middle poverty line to extreme poverty. Factors significantly associated were, family size, out of pocket payment, average daily income distance from health facility, Ambulance service and chronic disease

Conclusion and recommendation: Among the predictors considered family size, average daily income, out of pocket payment and chronic diseases were statistically significant and independent predictors household catastrophic health expenditure. To overcome financial risk, Federal ministry of health should develop different guidelines and modalities by considering the household per capita and income to improve the enrolment of community based health insurance. Also regional health bureau should improve budget share of 10% for to increase the coverage of poor households.

Key words: out of pocket of payment expenditure catastrophic health expenditure, Impoverishment.

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LISTS OF ABBREVIATIONS OR ACRONYMS

APCE: Annual per capita consumption expenditure

CBHI: Community based Health Insurance

CHE: Catastrophic health expenditure

CSA: Central Statistical Agency

FRP: Financial risk protection

GC: Gregorian calendar

GDP: Gross Domestic Products

HSDP: Health Sector Development Plan

IQR: Inter Quartile Range

LMIC: Low and middle income countries

MFI: Master Family Index

MPI: Multidimensional poverty index

MPO: Mean positive overshoot

MPCE: Monthly per capita consumption expenditure

NHA: National Health Account

OOPE: Out of pocket expenditure

PPP: purchasing power parity

SES: Socio economic status

SDG: Sustainable Development Goal

SPSS: Statistical Packages for Social Sciences

SRP: Students Research Project

SSA: Sub-Saharan Africa

THE: Total health expenditure

UHC: Universal health coverage

US: United State

USD: United States Dollar

WHAR: World health assembly resolution

WHO: World Health Organization

CHAPTER ONE BACKGROUND

1.1. Introduction

Sustainable development goal focusing on the financial protection for Universal health coverage by emphasizing full access to and coverage of health services with financial risk protection. Many countries have weak health financing system that leads families to out of pocket payments and financial catastrophe or impoverishment at the time of illness (1).

Catastrophic health spending is defined as out-of-pocket spending exceeding 10% of total consumption or income by budget share approach with two thresholds, as well as out-of-pocket spending exceeding 40% of nonfood consumption. Impoverishment is defined as occurring when a household's consumption including out-of-pocket spending is more than the poverty line but its consumption excluding out-of-pocket spending is less than the poverty line. The idea is that a household that is impoverished by out-of-pocket spending was forced by an adverse health event to divert spending away from non-medical budget items such as food, shelter, clothing, etc. to such an extent that its spending on these items is reduced below the level indicated by the poverty line. Impoverishment can be computed as the change in poverty headcount with and without out-of-pocket spending included in consumption or income(2).

Anticipating the nature of ill-health against extraordinary healthcare expenditure that can lead to poverty requires systematic healthcare policies that can protect the society at risk. The aim should be to reduce inequality by ensuring better access to health services and have a pre-payment mechanism to avoid the risk of financial ruin. Equity is the fundamental principle in health financing. It is based on national solidarity and shared responsibility in which the healthy and rich share the economic burden in order for treatment to be available for the sick and poor (3).

Ethiopian health policy is committed to facilitate access to services by ensuring financial risk protection (4). Financial protection through community based health insurance (CBHI) is the one engine for the implementation of the health sector transformation plan (5).

1.2. Statement of the problem

Worldwide across countries, it is estimated that in 2010, 808 million people (11.7% of the world's population) incur catastrophic health spending defined as out-of-pocket expenditures exceeding 10% of household total consumption or income. At the 25% threshold, the figures are 179 million (2.6%). Latin America and Asia have the highest rates of people with out-of-pocket expenditures exceeding 10% or 25% of household total consumption or income. Latin America and the Caribbean has the highest rate at the 10% threshold (14.8%). Asia has the second-highest rate (12.8%), and it is the region where most people facing catastrophic payments are concentrated. And also 97 million people are impoverished by out-of-pocket spending at the 2011 PPP \$1.90-a-day poverty line, equivalent to 1.4% of the world's population. At the 2011 PPP \$3.10 a day poverty line, the figure is 122 million (1.8%). Africa and Asia have the highest impoverishment rates at the 2011 PPP \$1.90-a-day poverty line. Africa and Asia have 1.4% and 1.9% rates of impoverishment respectively at the \$1.90-a-day poverty line. These two regions account for 97% of the world's population impoverished by out-of-pocket health spending. (2)

Demographic and Health Surveys to explore the levels and determinants of out-of-pocket health expenditures in four African countries: Democratic Republic of the Congo (DRC), Liberia, Namibia, and Rwanda assessed the use of inpatient and outpatient services and estimated out-of-pocket expenditures for the care received in the most recent visit. The highest use of health care services was in Namibia at 18% for inpatient care and 41% for outpatient care, and the lowest was in DRC at 4% for inpatient care and 7% for outpatient care. Health care was provided predominantly by public health facilities, with private providers being used more for outpatient than inpatient care. Average out-of-pocket spending for health care was highest in Liberia and lowest in Rwanda. Health expenditures were highly skewed to large amounts, and many people received care but did not pay for the services. Health insurance coverage stands out as an important factor affecting the magnitude of out-of-pocket health expenditure in all four countries, but the results are mixed. In DRC and Rwanda health insurance coverage was associated with lower out-of-pocket expenditures for both inpatient and outpatient care services, while in Liberia and Namibia it was associated with higher out-of-pocket expenditures. (6)

In Ethiopia overall health care is under-financed both in absolute terms and when compared to Sub-Saharan Africa (SSA) standards. For instance, the per-capita national health expenditure for the country was reported to be US\$ 20.77 during the year 2011 while the SSA average was US\$ 93.65. This per

capita health expenditure for Ethiopia is also well short of the WHO's recommended US\$ 30-40 per person needed to cover essential health care in low-income countries. The budget committed for the different strategic health objectives during the 2011/12 financial year was 30% less than the required amount for that year. The total required budget for the delivery of quality health services was US\$ 12,661,000 and the total amount committed by the government was US\$ 7,157,000 at 34% gap. This suggests that the resources available may not be sufficient to deliver quality health care. In order to reduce the likelihood of catastrophic financial expenditures for health service users, the WHO recommends that direct out-of-pocket payments at the point of service should not exceed 15- 20% of total health expenditure.(7)

This OOPE with weak expenditure controls in place, the increased breadth of coverage, combined with low benefit levels, may have actually contributed to higher utilization rates and hence to increase chance for CHE and impoverishment. Under such circumstances increasing the breadth of coverage may not be enough to protect people from catastrophic health expenditure or impoverishment from medical expenses.(8)

In Ethiopia to enhancing access to health care and reducing the burden of OOP expenditure community based health insurance was started at June, 2011. To start CBHI service about 60% of the household should be enrolled and district and regional governments are expected to cover the costs of providing a fee waiver to the poorest 10% of the population or so called "indigent groups". Concerning importance of CBHI, finding showed that the risk of being impoverished by OOP health expenditure is 7 percent for CBHI members and 19 percent for non-members at the 15 percent threshold and is 3 percent for members and 9 percent for non-members at the 25 percent threshold.(9)(10)

Different literatures were where written concerning catastrophic health expenditure and done on document review. But no further studies on community level about knowledge and seriousness of catastrophic health expenditure.

Also according to the above WHO and different literatures including our country out of pocket payment and catastrophic health expenditure is interrelated. Community based health insurance was started in 50% of Ilubabor districts, but enrollment is very low. The reason why not being a member of community based health insurance is not clearly known. In my study the incidence and intensity of catastrophic health expenditure and factors associated with CHE was analyzed (10).

1.3. Significance of the study

Accurate knowledge about impoverishments and Catastrophic health expenditure is essential and helps us to formulate and prioritize health care policies and interventions and eventually to allocate health care resources in accordance with budget constraints in order to achieve policy efficiently. So, it is very important to understand how impoverishments and CHE are classified, measured and identified.

Identifying the incidence and intensity of Catastrophic health expenditure and impoverishments due to out of pocket payment is claimed to provide several useful pieces of information for government agencies, pharmaceutical industries, and medical professionals to know the quantity of resources need to supply. It would clearly be valuable to have some estimate of the impoverishments and CHE so that the economic consequences of its prevention could be predicted. Moreover, having information on impoverishments and CHE helps to guide the allocation of the financial resources in the health facility for poor society towards maximum benefit in health care coverage and used to encourage decision makers to plan and implement alternative ways of effective programs and services for households below poverty line.

It also helps for policy makers and the Health insurance governing boards to understand the extent of impoverishments and CHE in the non CBHI district community. This paper provides policy makers with the necessary information to enable them to evaluate if they are using the resources currently available for poor households effectively and efficiently, and how they can achieve sustainable development goals. Findings from this study can help policy-makers to identify the severity of households' CHE and impoverishments from out of pocket payment during service provision and forecast its associated factors with service expansion.

Therefore, the result of this study will be used to provide important information for program managers and other concerned bodies to enable them provide proper interventions. Moreover, it can be used as baseline information for further studies in this area.

CHAPTER TWO: LITERATURE REVIEW

Target 3.8 of sustainable development goal number 3 is achieving universal health coverage (UHC), including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all is the key to attaining the entire goal as well as the health-related targets of other SDGs. Target 3.8 has two indicators – 3.8.1 on coverage of essential health services and 3.8.2 on the proportion of a country’s population with catastrophic spending on health, defined as large household expenditure on health as a share of household total consumption or income. (11)

Out of pocket payments remain the primary source of funding in many lower middle income countries, where risk-pooling and pre-payment mechanisms both tend to play limited role out of pocket payments on health care can be a major cause of impoverishment. This can be monitored by measuring changes in the incidence of poverty and severity of poverty due to OOP payments using a poverty line of US\$ 1.90 per person per day. Such analyses of “impoverishing health expenditure” demonstrate the interdependency between different SDG targets – specifically, eradicating extreme poverty and achieving UHC. (12)

Incidence of catastrophic health expenditure

The global incidence of catastrophic spending at the 10% threshold was estimated as 9·7% in 2000, 11·4% in 2005, and 11·7% in 2010. Across 94 countries with two or more survey data points, the population-weighted median annual rate of change of catastrophic payment incidence was positive whatever catastrophic payment incidence measure was used. Incidence of catastrophic payments was correlated positively with GDP per person and the share of GDP spent on health, and incidence correlated negatively with the share of total health spending channeled through social security funds and other government agencies (13)

Based on the latest available household expenditure survey data by WHO for 117 countries as of March 2017 (median year 2008), around 9.3% of the population on average faced OOP payments in excess of 10% of their budget (total household expenditure or income), including on average 1.8% of the population who spent 25% or more of their budget on health care. (15)

The incidence of catastrophic payments has evolved differently across the various UN regions: the global rise in catastrophic payment incidence has been driven by increases in Africa and Asia; North and South America and for some indicators, other regions too have seen reductions. Incidence of catastrophic spending can vary across countries with similar types of health system. Armenia, Azerbaijan, Canada, and the UK all officially cover 100% of their populations automatically with national or regional health services. Yet the incidence of catastrophic payments was considerably higher in Armenia and Azerbaijan (16% and 8%, respectively, at the 10% threshold) than it was in Canada and the UK (3% and 2%, respectively, at the same threshold) (2)

Study done in Egypt and Kenya show that OOP health payments expose 6% and 6.57% of households to encounter catastrophic health expenditure at 10% threshold of total household expenditure (14) (15)

Study done in Egypt, Jordan and Palestine shows that at the 10% threshold, in Egypt, more than one-fifth of the population are encountering catastrophic health payments, which is followed by in Jordan 2.7% and in Palestine, 6.7% of the population is encountering catastrophic health payments(16).

Intensity of Catastrophic health expenditure

Study done in Kenya shows that, concentration curves for catastrophic payment and distress financing both lie above the line of equality, indicating a disproportionately higher concentration of catastrophic payment and distress financing in poor households than in rich ones. Significant differences in catastrophic payment and distress financing among poor and rich households were found in all three measures of inequality indices. The incidence of catastrophic health payment and distress financing among the richest households were 12% and 9% lower than poorest households respectively(11).

Study done in Egypt, Jordan and Palestine shows that based on \$3.10 poverty line suggests that 2.7% of the population in Egypt are impoverished because of the health payments, and the OOP have deepened the poverty gap and the normalized poverty gap by about 12 Egypt pounds, and by 0.6%, respectively(16)

Study done in Bangladesh shows that, the normalized poverty gap indicated the average amount by which the resources fall short of the poverty line as a percentage of that line. The normalized poverty gap increased from 10.9 to 12.3% if OOP payments were deducted from total expenditure.(17)

Predictors of Catastrophic health expenditure

Study done in 133 countries shows that, incidence of catastrophic health spending at both the 10% and 25% thresholds was significantly and positively associated with GDP per person. Income inequality also had a positive partial association with catastrophic spending at all income levels, which became stronger at higher income levels. A positive partial association was noted between catastrophic spending and the share of GDP spent on health, but this association became weaker at higher income levels. A negative partial association was recorded between catastrophic spending incidence and the share of THE channeled through social security funds and other government agencies. These effects were stronger at higher income levels per person. The results suggest that an increase in the share of THE channeled through social security schemes might offer somewhat less financial protection than an increase in the share of THE channeled through other government agencies.(13)

Study done in Egypt show that, rural households are less protected against catastrophic health expenditure than urban households. (Odd Ratio (OR) =1.73;95% Confidence Interval (CI) =1.38-2.17). Employment and insurance coverage are protective factors against catastrophic health payments and Large households are less likely to encounter catastrophic health expenditure than small households (OR=0.78; 95% CI = 0.72-0.84). One reason for this is that large households take advantage of economies of scale of household consumption. In addition, larger households have more working members than smaller households. Results show that having an aged member is a risk factor for catastrophic health expenditure (OR = 1.48; 95% CI = 1.12-1.96). Also having a sick member with chronic disease is a risk factor for catastrophic health expenditure (OR=5.08; 95% CI = 1.78-14.4). When impoverishment from medical expense was computed 7.4% of households were pushed below the poverty line after paying for healthcare.(14)

Study done in Burkina Faso indicate that, the illness episodes among household adults significantly increased the probability of catastrophic expenses. An increase by one for average illness episodes among adults increased the probability of catastrophic expense by 1.5 to 1.7 times at the different cut-off values. The number of treatment episodes and professional care illness ratio were positively associated, as expected resulting in catastrophic expenses and also among household characteristics, only household size had a positive association with catastrophic expenses (18)

Study done in Kenya show that household with an unemployed head had 75% more odds of incurring catastrophic expenditure due to direct healthcare costs compared to a household with an employed head (OR =1.75, 95% CI 1.42–2.16). Low social economic status also increased the odds of a household

incurring catastrophic expenditure. For example, households in the poorest quintile had 5.61 times more odds of incurring catastrophic expenditure due to direct healthcare costs compared to the households in the richest quintile (OR = 5.61, 95% CI 3.83–8.22). Other variables that increased the odds of incurring catastrophic costs due to direct healthcare costs include household with a larger number of household members (OR = 1.05, 95% CI 1.00–1.11), households with a household member with a chronic disease (OR = 2.24, 95% CI 1.87–2.68) or an elderly household member (OR = 1.31, 95% CI 1.02–1.68), and households that were located in a marginalized county (OR = 1.38, 95% CI 1.14–1.67). The same variables were significantly associated with an increased odds of the incidence of CE due to direct healthcare plus transport costs(19)

The 20 causes of mortality were ranked according to the level of medical impoverishment due to OOP direct costs they incurred, allowing us to infer what inputs might have the largest impact based on cause of death, OOP costs, and utilization. The three top drivers of impoverishment, defined OOP direct medical costs pushing households below the poverty line, were diarrhea, with approximately 164,000 poverty cases (95 % UR: 95,000–233,900; approximately 47 % (95 % UR: 32–58 %) of all 350,000 cases estimated); lower respiratory infections, with approximately 59,000 cases (35,800–98,400; 17 % (10–27 %) of all cases); and road injuries, with approximately 45,000 cases (24,200– 74,800; 13 % (7–20 %) of all cases). (20)

Per capita spending on health increased from US\$4.5 to US\$20.8 between 1995/96 and 2010/11. As a result of shift in funding sources, government expenditure contributes less than 20 percent of total health spending, while external assistance accounts for about 50 percent, and out-of-pocket spending for about one-third. Compared with other low-income countries, spending on health in Ethiopia is low, and relies heavily on external assistance and out-of-pocket spending. Notably the high out-of-pocket share undermines access for low- income households.(5)

Compared with other low-income countries, total health expenditure in Ethiopia appears low, and relies more on both external assistance and out-of-pocket spending. Out of 25 low-income countries in SSA with data available, Ethiopia ranks the 3rd lowest in per capita expenditure, the 5th lowest in the proportion of total health expenditure out of GDP, and the 12th in proportion of out-of-pocket spending. In addition, Ethiopia also ranks at high end in the proportion of external assistance out of total health expenditure. Public health programs are mostly financed by government spending 75.6% public hospitals are mostly

financed by out-of-pocket spending (more than half) and government spending (about one-third), while private providers are almost exclusively financed by out-of-pocket spending.(21)

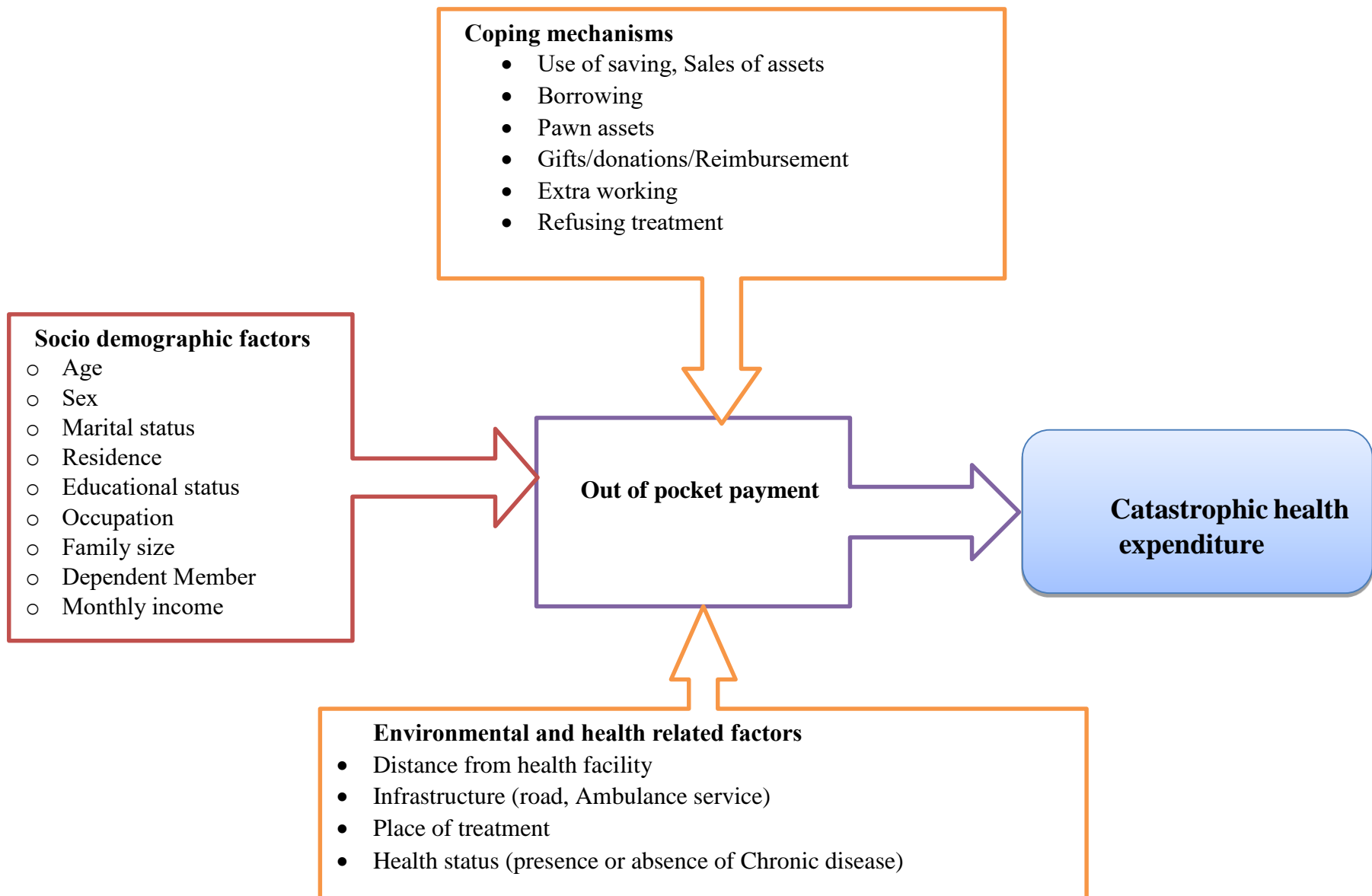


Figure 1. Conceptual framework of assessment of catastrophic health expenditure and associated factors from health service expenses in Ilubabor Zone, Southwest Ethiopia, 2018 GC. Adapted after reviewing((6), (18), (21), (22), (23), (24)

CHAPTER THREE: OBJECTIVES

3.1. General Objective

To assess the incidence and intensity of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone, southwest, Ethiopia, 2018 GC.

3.2. Specific objectives

- To estimate the direct cost of out of pocket payment expenditure among households of non CBH districts Ilubabor zone, southwest, Ethiopia, 2018 GC.
- To assess the intensity catastrophic health expenditure among households of non CBH districts, Ilubabor zone, southwest, Ethiopia, 2018 GC.
- To assess factors contributing to catastrophic health expenditure among households of non CBH districts Ilubabor zone, southwest, Ethiopia, 2018 GC.

CHAPTER FOUR: METHODS AND MATERIALS

4.1. Study area and period

The study was conducted in Ilubabor zone of Oromia regional state 600 Km west away from Addis Ababa and has a total population of 933325. The zone has 13 administrative District and one town and also a total of 194,443 house hold and out of 14 district 7 district and 20.2% (39239) of them not included in CBHI. Concerning potential health service coverage, the zone has one specialized Hospital, one general Hospital, one Urban Health center, 38 rural health center and 273 functional health post out of 23 urban and 263 rural kebeles. Ilubabor zone is one of the 20 zones of Oromia regional states, with important interims of resource endowment in the region. It has vast number of animals, fertile land, forests, and different types of drainages etc. However, the immense resource and vegetation of the area utilization and productivity level is still low and degradation of resource is higher. (23)



Ref. Ilubabor zone administrative report 2017 GC.

The large number of population in the zone is engaged in primary economic sector activities mainly on agriculture. Agricultural sector production is depending on rainy season; using traditional way of cultivation and it is not gone beyond subsistence level of the people except cash crops exported to the central market. Even if there is an improvement of Educational and Health services in the zone, a large number of the population is still under-served; having problems related to unemployment, drought, malnutrition and transportation. The main livelihood of the community

generally is derived from mixed farming. While maize, sorghum and ‘teff’ are the major crops produced in the area, cattle and sheep rearing are the major livestock standing out. Being naturally endowed, and has unexhausted potential for honey production. Cash crops such as coffee, pepper and chat play considerable role in the local economy.

The study period was from August 13 to September 2, 2018GC.

4.2. Study design

The quantitative community based retrospective cross-sectional study design was carried out.

4.3. Population

4.3.1. Source population

All households living non CBHI district of Ilubabor zone was the source population for this study.

4.3.23. Study Population

Households those randomly selected and involved in the study from none CBHI implementing districts was the sample population for this study.

4.3.4. Study unit

The study unit was selected households from the sample frame.

4.4. Eligibility criteria

4.4.1. Inclusion Criteria

All non CBHI scheme district and households who have been stayed for more than one-year period.

4.4.2. Exclusion Criteria

Those household who were members of private insurance were excluded.

4.5. Sample size and sampling technique/Sampling Procedures

4.5.1 Sample size

The sample size was obtained by using a single population proportion formula as indicated.

$$n = \frac{z_{(\alpha/2)}^2 * p(1-p)}{d^2}$$

The sample size n is calculated as $Z_{\alpha/2}$ 95% CI (1.96), P (the proportion of households who were in catastrophic due to health care expenses. Since there are different findings in African countries (6.57% in Kenya (16) and 11.7% world statistics (24) and the more appropriate was used to calculate household proportion. and margin of error to be tolerated (d) (5%) the most appropriate one is World statistics data.

Therefore, the sample size “n” was calculated as: $n = \frac{(1.96)^2 * 0.117(0.883)}{(0.05)^2} = 159$

Due to design effect of multistage sampling it was multiplied by 2 with selected value then the sample size was 318. Finally, by considering 5% non-response rate, the sample size is 334.

4.5.2. Sampling technique

According to the information obtained from Ilubabor zone office of Oromia regional state road authority the zone was categorized in to three categories. nearest to infrastructure and no road problem, medium distance and the road is accessible for ambulance service and motor only, at distant and not accessible during rainy season. Due to homogeneity of the woreda population cluster sampling was used by using geographic information in to Nono sal’e, Didu and Doreni are at distant, Ale and Halu are intermediate and Becho district and Mettu are nearest to hospital which is center of the zone. (25)

From those three categories three district was selected by simple random sampling and from three district two rural kebele and one urban kebele was selected from each district by simple random sampling techniques at PSU, 80% of the sample was drawn from rural and the rest was selected from urban kebele by simple random sampling proportionate to the number of households in the kebele. Finally, sample size was distributed to each kebeles with proportional allocation of households to respective kebele. Households those who can fulfill the inclusion criteria was listed by their household number from master family index (MFI) of family folders by using community

health information system (CHIS) and household's numbers was obtained and used as sampling frame. CHIS is developed and maintained by federal Ministry of Health since 2011. (26)

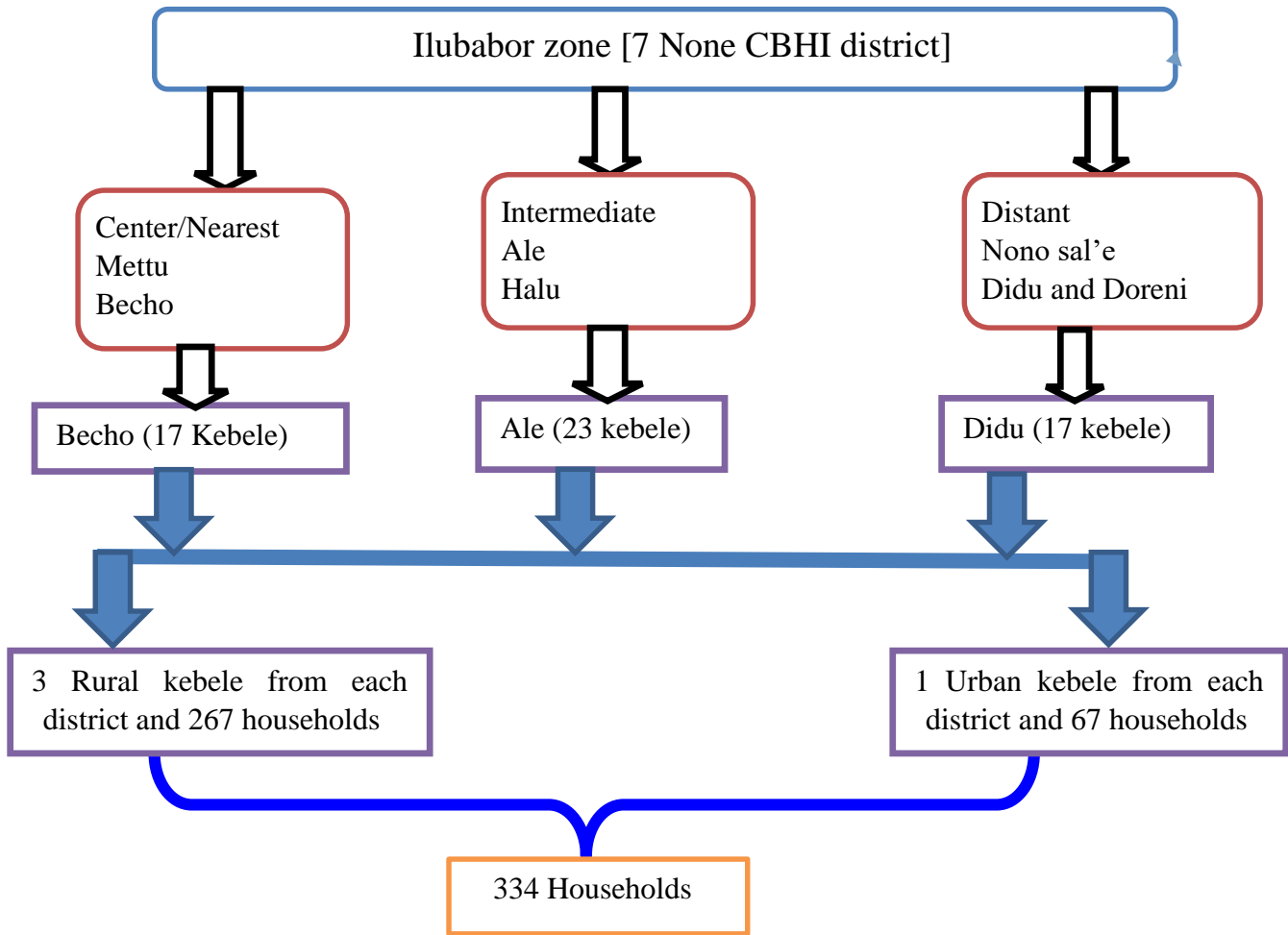


Figure 2. Schematic representation of sampling procedures for the study of catastrophic health expenditure and associated factors among household of non CBHI district, Ilubabor zone, Oromia region South west Ethiopia, 2018.

4.6. Data collection procedure

Data was collected by using structured mix of open and close-ended checklist pre -tested questionnaire by face to face interviewing of respondents from the household. The checklist was adapted after reviewing different literatures and first was prepared in English and translated to Afan Oromoo to minimize misinformation. (3), (19), (22)

For collection of data 6 diploma holder and above health professionals who can speak, write and read Afan Oromo was recruited and 3 MPH holder was recruited as a supervisor.

Training was given for data collectors and supervisor by the investigator for two days on the objective of the study, contents of the questionnaire, and issues of maintaining confidentiality and about informed verbal consent and techniques of interview.

The supervisor was closely monitor all field work alongside with the principal investigator and data collectors was cross-checked by using rapid convenience survey method (RCSM). For any questionnaire with missing or inconsistent data, it was returned back to the respective data collector for re-interview. In addition, re-visit was done to those households who were not available on the first day of interview.

Before the actual data collection, the questionnaire was pre-tested in out of study site but similar with study area, Halu district of two kebele 34(10%) household was interviewed to check validity and consistency of the tool. If any unclear information for data collectors or interviewer was observed the questionnaire was revised and modified. Changes on questionnaire households income from selling of vagatables and houserent and also consumption expenditure such as refreshment, social service such as contribution for relegiuos service and faith based organizations were modified.

Whenever possible household head was interviewed for estimation of total household expenditures on specific items. But if not convenient to get households head, spouse and any family member living with them more than one year and knows households' total expenditure was selected in priority.

4.7. Study variables

4.7.1. *Dependent variables*

- Catastrophic health expenditure

4.7.2. *Independent variables*

- ✚ Socio-demographic and socio economic variables.
 - ✓ Age
 - ✓ Sex
 - ✓ Residence
 - ✓ Marital status
 - ✓ Education status
 - ✓ Occupation
 - ✓ Family size
 - ✓ Dependent member
 - ✓ Monthly income
 - ✚ Environmental factors
 - ✚ Coping mechanisms
 - ✚ Health status

4.8. Operational definitions

Ability to pay; income remaining after spending on basic subsistence needs and if the households' income remains above poverty line after spending on health service.

Catastrophic health expenditure; out of pocket payment for health service exceeds 10% of total household expenditure.

Incidence of catastrophic health expenditure; prevalence of catastrophic health expenditure among non CBHI districts.

Intensity of catastrophic health expenditure; prevalence of catastrophic health expenditure at threshold above 20% of total household expenditure.

Consumption expenditure; preferred measure of living standards particularly food consumption expenditure accounts for a large proportion of household expenditure and the limited consumption of nonfood likely to be sensitive to household size and access to cash.

Direct costs: direct out of pocket payment made by the patients or their families for health service (Diagnosis, treatment, admission, professional service including direct nonmedical cost related to illness)

Durable expenditure (consumer goods); estimation of cost spent on as radio, television, refrigerator, bicycle, car, motorbike, farm equipment and agricultural land.

Floor material: *high quality* is finished floor with parquet, carpet, tiles, ceramic
middle quality is cement, concrete, raw wood,

low quality is none, earth, dung

Latrine facility; - *high quality* is any kind of private flush toilet;

middle quality is public toilet, improved pit latrine,

low quality is traditional pit latrine, hanging toilet, or no toilet facility.

Water supply; - *high quality* is bottled water or water piped into dwelling or premises;

middle quality is public tap, protected well, tanker truck,

low quality is unprotected well, borehole, spring, surface water, etc.

Food expenditure; estimation of cost spent on food items collectively used by household members.

Impoverishment; household that is impoverished by out-of-pocket spending was forced by an adverse health event to divert spending away from non-medical budget items such as food, shelter,

clothing, etc. In another way when the households' is declined from upper quartile range to lower and the lower one to below poverty line.

Large family size:- households family member greater than five.

Nonfood expenditure; estimates of amounts spent on housing, wood, charcoal, electricity, water, apparel, transportation, entertainment and education.

Nearest; - Households living in <10km away from HC and accessible for health service.

Medium; - Households living in >10km away from HC and accessible for transportation and health service.

Distant/hard to reach; - Households living in >10km away from HC and not accessible for transportation during summer and health service.

Poverty line; below 1.90-a-day USD purchasing power parity (PPP) for extreme poverty and PPP 3.10 - a-day USD for moderate poverty line by using average exchange rate for ETB and inflation rate. Poverty line ranges are categorized as extreme poverty below 1.90\$/day, lower middle income is range between 1.91 to 3.20\$/day, Upper lower middle income is range between 3.21 to 5.5\$/day, rich household is above 5.5\$/day (27).

Purchasing power parity (PPP) is the exchange rate of ETB with USD and purchasing power of normal goods and services. Average USD exchange rate with ETB between 4/10/2017 to 3/10/2018 was 27.059.(28)

4.9. Total Household expenditure valuation methods/Approach.

Different literatures use techniques of estimating costs of total household expenditures. Micro-costing/ bottom up approach method was used for individual household expenditures, healthcare spending, and individual level data on outpatient attendance (over six-month recall period) and inpatient hospitalization (over a 12-month recall period) was collected and computed as followed. By using total household expenditure then it was calculated as follows.

To determine cut point of catastrophic health expenditure there two assumptions, if health expenditure exceeds 40% of nonfood expenditure OR, if the health expenditure exceeds 10% of total household expenditure. In this article total expenditure was used.

households with Catastrophic if exceeds 10% of total household expenditure.

$CHE = OOPHE / THE > 10\%$ and not $OOPHE / THE < 10\%$,

OOPHE = Out of pocket health expenditure

THE= Total household expenditure

Yes=1, $OOPHE / THE > 10\%$

No= 2, $OOPHE / THE < 10\%$

4.10. Data analysis procedures

After data collection, each questionnaire was given a unique code by the principal investigator. CHE to households associated with health service OOP expenses was calculated by computing OOP expenditure incurred minus any reimbursements from third-party payers divided by annual households total expenditure.

Also one-way sensitivity analysis was done to check, variation done at 15%, 10% and 5% threshold and the finding was varied 13.2%, 17.4% and 23.4% respectively. At the lower thresholds of 5%, 10% and 15%, the likelihood of CHE is higher.

Cost analysis was done by using Microsoft excel. By SPSS 2023, binary logistic regression analysis was used to describe association of independent variables with CHE. All significant $p < .25$ variables were candidates of multi logistic analysis. Finally, $P < .05$ was used as significant level.

4.11. Data quality management

The questionnaire was developed and pre tested at similar district which is not included in CBHI scheme and was translated to local language Afan Oromo and Amharic. Two days training was given and also during data collection data collectors write unique number on the upper side of the households' door and the senior supervisor check 20% of study unit by using rapid convenience survey(RCSM). For any missing or inconsistent data, it was returned back to the respective data collector for re-interview and also re-visit was done to those households who were not available on the first day of interview. The principal investigator prepared the template and entered data using Epi Data version 3.1 then exported to SPSS version 23.0. Frequencies were used to check for missed values and outliers. Any error identified at this time was corrected after revision of the original data using the code numbers.

4.12. Ethical consideration

Prior to data collection, ethical clearance was obtained from Research and Ethics committee of Institute of health. Written permission letter was obtained from health management, economics and policy department. This letter obtained from Jimma University research and review committee was given to Oromia regional health bureau, then from ORHB to Ilubabor Zone Health Department and to respective districts and health facilities. During the training of data collectors and supervisors there were some additional ethical issues were raised and it was addressed as important

component of the research. Also during data collection for confidentiality of the respondent informed consent was prepared and the privacy of any respondent was protected.

4.13. Dissemination plan

The study is accomplished and it will be presented to Jimma University institute of Public Health, department of Health Economics, Management and policy. Subsequently, attempts will be made to present it for Oromia regional health Bureau and Ilubabor zonal health department.

Findings will be submitted to Jimma University institute of Health, department of Health Economics, Management and policy and to Oromia regional health Bureau, Ilubabor Zonal health departments and for concerning stakeholders.

Moreover, an effort will be made to present it on scientific conferences and publish it on national and scientific journals.

CHAPTER FIVE: RESULT AND DISCUSSION

Result

A total of 334 households were assessed and filled the questionnaire, the response rate is 99.7%. Therefore, analysis was made based on 333 households.

5.1. Socio demographic characteristics of the respondents

Majority 286(70.9%) of the household head was male. Regarding age of household head 96 (28.8%) of them age between 20 and 29 followed by 88(26.4%), 80(24%), 35(10.5%) and 25 (7.5%) households age between 30-39, 40-49, 50-59 and 60-69 years respectively.

Concerning household head educational status majority 165(49.5%) of them were completed primary (1-8 grade) education and also 64(19.2%) of them can't read and write.

Out of 333 household surveyed majority 255(76.6%) of the households were farmer, and followed by 29(9%), 18(5%) and 16(5%) of the household were merchant, daily laborer and governmental employee respectively.

Regarding households average daily income majority 164(49.2%) households get income between 1.91 and 3.20\$/daily, and followed by 74(22%), 70(21%) households get income less than 1.90\$/day and between 3.21 to 5.5\$/day.

Out of 333 house hold surveyed 267(80%) rural, 139(42%) have had under five children, 21(6%) have had pregnant mother, 28(8%) have had adult above 65 years and 173(52%) households have had less than five family size in average (Table 1).

Table 1. Socio demographic characteristics of the respondents for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018.

n=333

Variables		Catastrophic				COR, 95% CI (Lower, Upper)	P-Value
		Yes	No	Total	%		
Age	20-29	12	84	96	29	1	
	30-39	11	77	88	26	1.000 (0.417-2.398)	0.228
	40-49	18	62	80	24	0.492 (0.221-1.096)	0.083
	50-59 n=35	9	26	35	11	0.413 (0.156-1.088)	0.074
	60-69 n=25	6	19	25	8	0.452 (0.151-1.358)	0.157
	Above 70	2	7	9	3	0.500 (0.093-2.693)	0.941
Sex	Male	48	238	286	86	1	
	Female	10	37	47	14	0.746 (0.347-1.602)	0.453
Marital status	Single	3	13	16	5	1	
	Married	48	241	289	87	1.159 (0.318-4.222)	0.823
	Divorced	1	6	7	2	1.385 (.118-16.227)	0.796
	Widowed	6	15	21	6	0.577 (0.120-2.780)	0.493
Educational status	Can't read and write	9	55	64	19	1.645 (0.552-4.905)	0.372
	Only read and write	8	23	31	9	0.774 (0.243-2.467)	0.665
	Primary education	26	139	165	50	1.439 (0.566-3.662)	0.445
	Secondary education	8	32	40	12	1.077 (0.345-3.363)	0.899
	Above secondary	7	26	33	10	1	
Presence of <5 children	Yes	24	115	139	42	1.018 (0.573-1.809)	0.951
	No	34	160	194	58	1	
Pregnant. Women	Yes	1	20	21	6	4.471 (0.588-33.998)	0.148
	No	57	255	312	94	1	

Presence of Age >65yrs	Yes	5	23	28	8	0.967 (.352-2.660)	0.949
	No	53	252	305	92	1	
Household head Occupational status	Manager	1	1	2	1	1	
	Professionals GO.	2	14	16	5	7.000 (0.302-162.202)	0.225
	Professionals NGO	1	4	5	2	4.000 (0.117-136.957)	0.442
	Technicians associated	4	4	8	2	1.000 (0.045-22.175),	1.000
	Service and sales worker	7	22	29	9	3.143 (0.173-57.082)	0.439
	Farmer	40	215	255	77	5.375 (0.329-87.710)	0.238
	Daily laborer, cleaner	3	15	18	5	5.000 (240-104.147)	1.000
Place of residence	Rural	43	224	267	80	0.653 (0.337-.1.265)	0.206
	Urban	15	51	66	20	1	
Family size	<=5	7	166	173	52	1	1
	>5	51	109	160	48	11.096 (4.857-25.348)	0.000
Average household daily income \$	<1.90	27	47	74	22	0.073 (0.009-0.567)	0.012
	1.91-3.20	19	145	164	49	0.318 (0.041-2.487)	0.275
	3.21-5.5	11	59	70	21	0.223 (0.027-1.828)	0.162
	>5.5	1	24	25	8	1	

5.2. Health status and health service utilization of the respondents

Out of 333 household surveyed, 208(62.5%) of the household have had history of illness in the past one year during study period. Out of 208 households have health problem 94(45%) households' family members were get medical care.

At threshold of 10% total household consumption, 58(17.4%) of the household incur catastrophic health expenditure. And when the intensity of catastrophic health expenditure was computed 24(7%) of the households incur catastrophic health expenditure.

Out of 114 households not get any medical care, majority 49(43%) of the household answers due to financial barrier and followed by 30(26%), 20(17.5%) and 10(9%) of households were visiting health post only, perceiving the illness is not severe and using home remedy respectively. (Table 2)

Table 2 Health status and the reason why not seeking medical care 2018.

Variables		Frequency	Percent
Member of family encountered any illness	Yes	208	62.5
	No	125	37.5
	Total	333	100.0
Member of family seek any medical care	Yes	94	45.2
	No	114	54.8
	Total	208	100.0
The reason of household not going to any medical care	Visiting health post only	30	26
	Using home remedy	10	9
	Perceiving the illness is not severe and buying anti pain from pharmacy	20	17.5
	Because financial barrier	49	43
	Using traditional healers	5	4
	Total	114	100
Catastrophic health expenditure at 10% of Total house hold expenditure	Yes	58	17.4
	No	275	82.6
	Total	333	100

5.3. Environmental factors, place of health service and means transportation of the respondents

Concerning household's accessibility to health service all households were interviewed equally from nearest, medium and distant/ hard to reach area of kebeles. Out of 94 house holds 59(63%) of them gets the health service from health center and followed by 34(36%), 10(11%) and 4 of households gets the health service from both health center and general hospital, private facility and specialized hospital respectively. Regarding means of transportation 41(43.6%) of the households were using public transportation and 17(18%) of them gets Ambulance service. The majority 92(97.8%) of the

households' health expenditure was on drug followed by 85(90%) and 21(22%) of the household's health expenditure was out patient service and inpatient service respectively. Out of total respondents 28(8%) of the households claim history of presence of chronic disease (Table 3).

Table 3 Health status and environmental factors for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018. n=94

Variables		CHE				COR, 95% CI (Lower, Upper)		P-Value
		Yes	No	Total	%			
Distance to H/facility	Nearest	9	21	30	32	1		0.001
	Medium	20	5	25	27	6.767 2.341 – 19.557		
	Distant and hard to reach area	29	10	39	41	0.725 0.215-2.444		
Place of health service taken by household members n=94								
Health Center	Yes	36	23	59	63	1.081 0.456-2.561		0.859
	No	22	13	35	37	1		
Hospital	Yes	21	13	34	36	0.996 0.419-2.367		0.993
	No	37	23	60	64	1		
Referral Hospital	Yes	2	2	4	4	1.647 0.222-12.240		0.626
	No	56	34	90	96	1		
At private Facilities	Yes	8	2	10	11	0.368 0.074-1.838		0.223
	No	50	34	84	89	1		
Traditional treatment	Yes	3	1	4	4	0.524 0.052-5.238		0.582
	No	55	35	90	96	1		
Means of transportation n=94								
On foot	Yes	3	22	25	27	1		0.000
	No	55	14	69	73	0.035 0.009-0.133		
Motor bicycle	Yes	5	0	5	5	0.000 0.000		0.999
	No	53	36	89	95	1		
Bajaj	Yes	11	12	23	24	2.136 0.822-5.549		0.119
	No	47	24	71	76	1		
	Yes	3	14	17	18	1		

Ambulance service	No	55	22	77	82	0.086	0.022-0.328	0.000
Minibus	Yes	8	10	18	19	2.404	0.847-6.825	0.099
	No	50	26	76	81		1	
Car	Yes	28	13	41	44	0.606	0.258-1.421	0.249
	No	30	23	53	56		1	
Horse / Mule	Yes	17	9	26	28	1.244	0.485-3.193	0.650
	N0	41	27	68	72		1	
Health expenditure by type of health service n=94								
In patient/ Hospi.	Yes	18	3	21	22	0.202	0.055-.746	0.016
	N0	40	33	73	78		1	
Out patient	Yes	52	33	85	90	1.269	0.297-5.427	0.748
	N0	6	3	9	10		1	
Drugs	Yes	57	1	58	62	0.614	0.037-10.134	0.733
	N0	1	35	36	38		1	
Traditional	Yes	3	2	5	5	1.078	0.171-6.788	0.936
	N0	55	34	89	95		1	
Chronic disease	Yes	20	8	28	30	0.040	0.004-0.370	0.005
	N0	38	28	66	70		1	

5.4. Coping mechanisms of the households in response of health expenditure.

Concerning household's coping mechanisms related to health expenditure 56(59.6%) of the household using direct out of pocket at the time of service and followed by pawn their assets, extra working, borrowing from others and drew money from their savings and pensions/salary at the time of health service were 26(27.7%), 25(26.6%), 19(20%), 14(15%) and 12(13%) respectively to overcome the burden of out of pocket payment (Table 4).

Table 4 Coping mechanisms of households for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018. N=94

Variables		CHE				COR, 95% CI (Lower, Upper)		P-Value
		Yes	No	Total	%			
Saving	Yes n=14	3	11	14	15	1		
	No	55	25	80	85	0.124	0.032-0.484	0.003
Selling d/t items	Yes	4	1	5	5	0.386	0.041-3.595	0.403
	No	54	35	89	95	1		
Extra working	Yes	17	8	25	27	0.689	0.262-1.814	0.451
	No	41	28	69	73	1		
Borrowing	Yes	10	9	19	20	1.600	0.579-4.422	0.365
	No	48	27	75	80	1		
Pawn assets	Yes	21	5	26	28	1		
	No	37	31	68	72	3.519	1.188-10.422	0.023
Out of pocket	Yes	49	7	56	60			
	No	9	29	38	40	22.556	7.589-67.036	0.000
Pension or Salary	Yes	3	9	12	13	1		
	No	55	27	82	87	0.164	0.041-0.654	0.010
Re-imbursement	Yes	5	3	8	9	1		
	No	53	33	86	91	1.038	0.233-4.632	0.961

5.5. Impoverishment status from medical expenses

Out of total household surveyed, 37(11.1%) of the households get health service were from moderate poverty line and followed by 28(8.4%) and 22(6.6%) of the household get health service were from extreme poverty and above poverty line respectively.

After health service expenditure, 45(13.5%) of the household were in extreme poverty line 35(10.5%)of them were in middle income. When the impoverishment data was computed about 17(5%) the house hold moved downward from middle poverty line to extreme poverty.

Table 5 distribution of households get health service and impoverishment from health service expenses. 2018.

Households average daily Income in \$	Distribution of Household		Household get health service		Impoverishment after treatment	
	Frequency	%	Frequency	%	Frequency	%
<1.90	74	22	28	30	45	48
1.91-3.20	164	49	37	39	30	32
3.21-5.5	70	21	22	23	15	16
>5.5	25	8	7	7	4	4
Total	333		94		94	

5.6. Annual household income and expenditure by USD

Out of total household surveyed majority 206(62%) of the households average annual income was between 1000 and 2000 USD and 57(21%) of them above 2000\$. When their average annual consumption was computed 183(55%) of the households expend between 1000 and 2000\$ and 133(40%) of the household consumption was below 1000\$.

Regarding the annual health service expenditure computed the summation of direct medical and nonmedical cost, 36(38%) of the household total health expenditure was above 200\$, and 31(33%) of the household were expended on health between 100 and 200\$.

Out of total health expenditure when medical cost computed 38(41%) of the households expended on direct medical cost was below 100\$ and 36(38%) of the household between 100 and 200\$. Out of total non medical cost 38(40%) of the households spent on direct nonmedical cost was below 15\$ and 29(31%) of the household was spent above 30\$.

Regarding nonfood expenditure, majority, 157(47%) of the households expended between 100 and 150\$ and 90(27%) of them below 100\$. Also when annual food expenditure was computed 121(36%) of the household spent on food above 1000\$ and 106(32%) of the household expended below 800\$ annually (Figure 3 to 7)

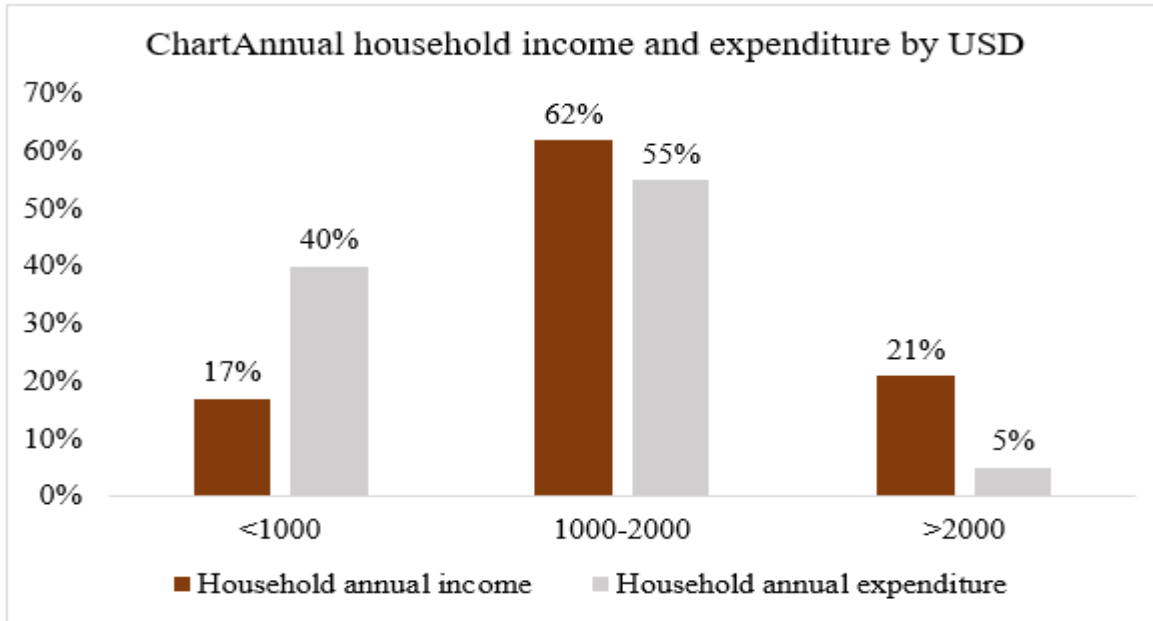


Figure 3. The households average annual income and total expenditure distribution by USD of the respondents for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018.

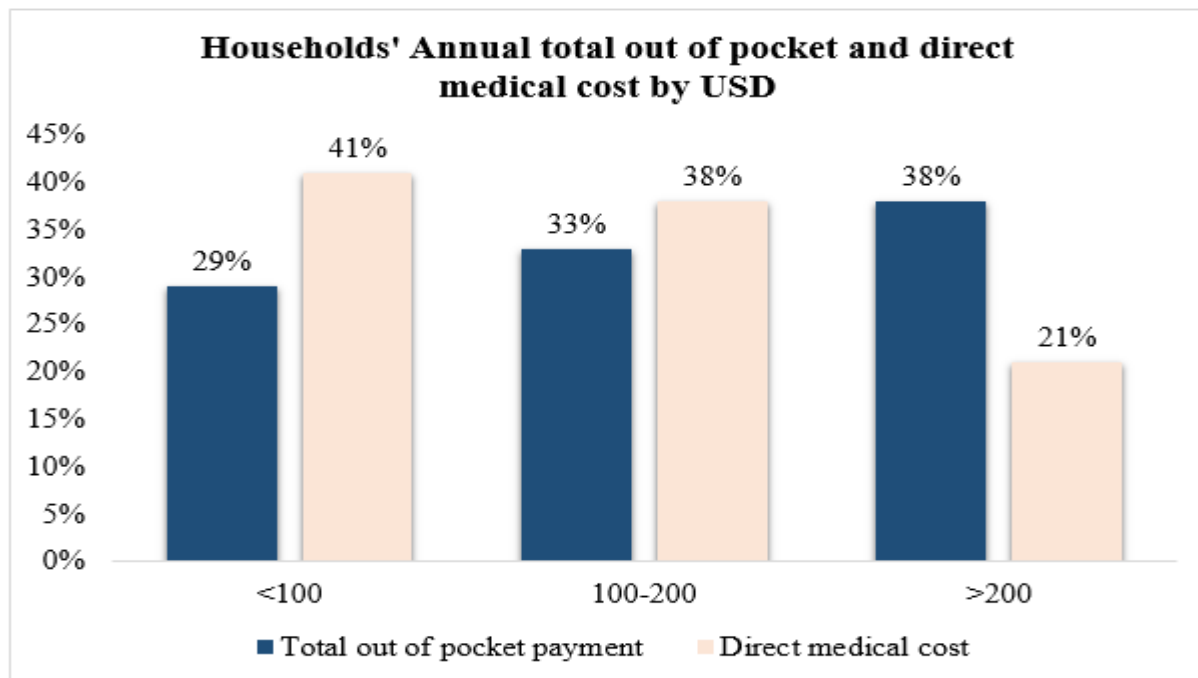


Figure 4. Distribution of average annual total out of pocket health expenditure and direct medical cost by USD for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018.

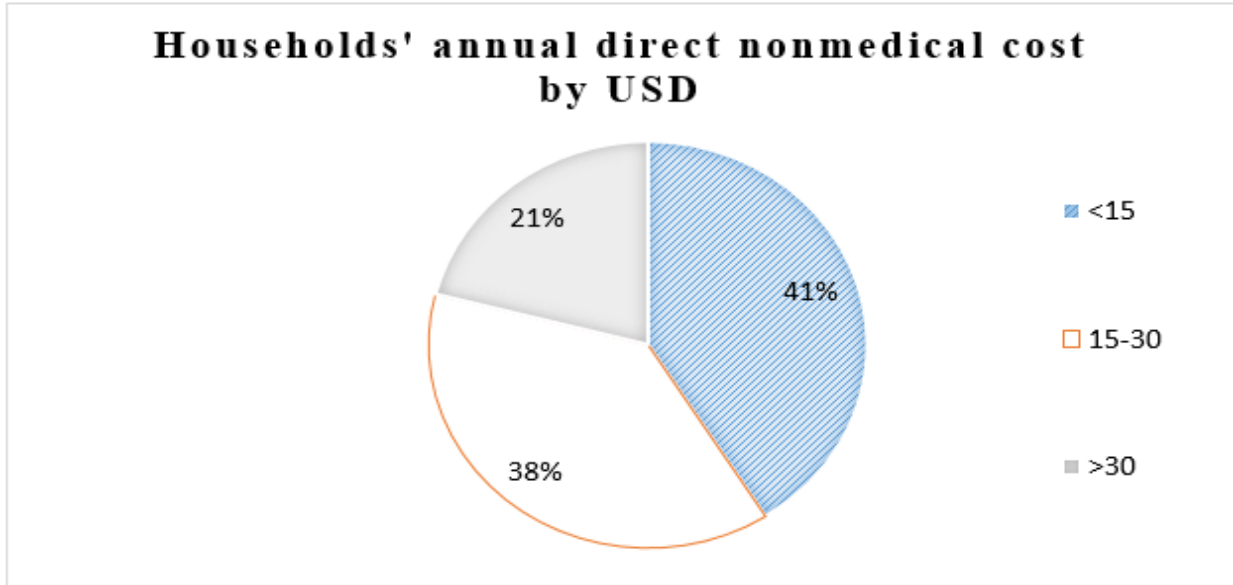


Figure 5. Distribution of direct nonmedical cost for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018.

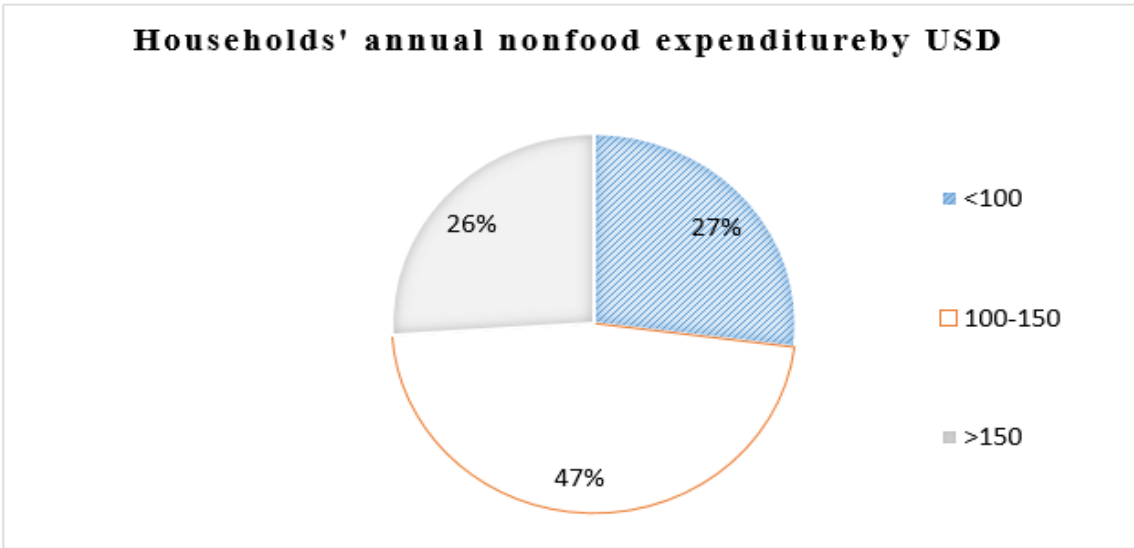


Figure 6. Distribution of household annual nonfood expenditure by USD for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018.

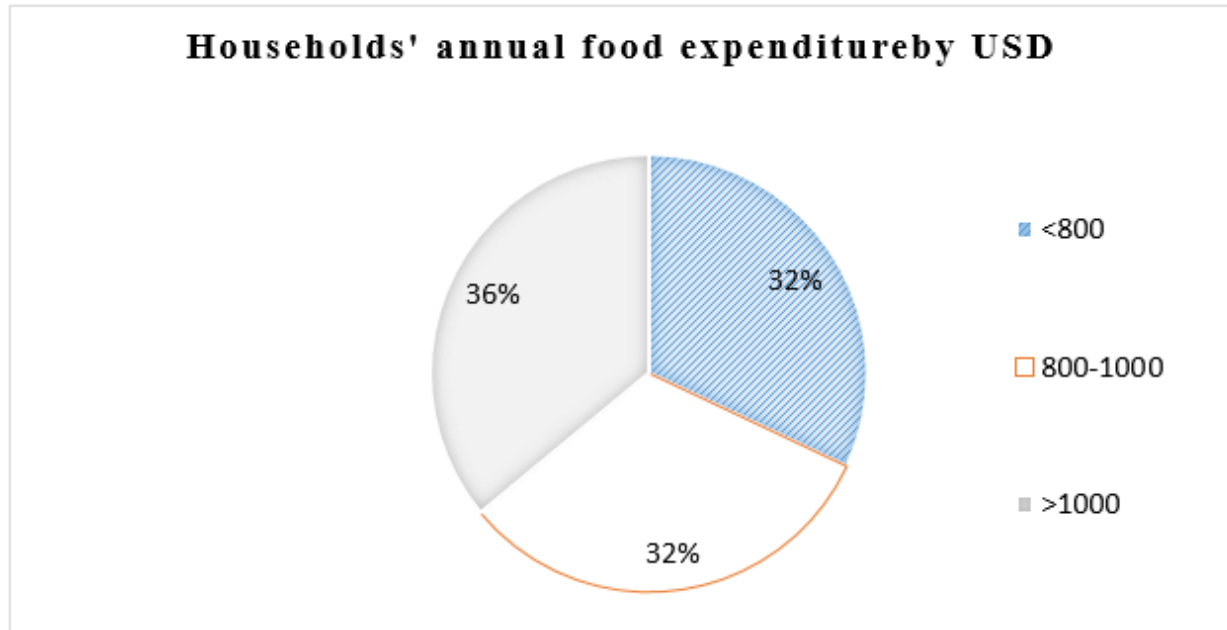


Figure 7. Distribution of out of pocket share of household annual food expenditure by USD for the study of catastrophic health expenditure and associated factors among households of non CBH districts, Ilubabor zone; 2018.

5.7. Predictors of catastrophic health expenditure

In bivariate logistic regression, from variables under socio demographic, environmental factors, health service utilization types and health facility, coping mechanism and health related variables associated with catastrophic health expenditures were age of household head, household occupation, family size, presence of pregnant mother, place of residence, distance from health facility, average daily income, health service at private facility, transportation by foot, ambulance, Bajaj, car and minibus, payment made from saving and pension, out of pocket payment, pawn of asset for medical expenses, inpatient service and presence of chronic disease were significant at $P < 0.25$ and selected as candidate for multivariable logistic regression. Finally, family size, average daily income, distance from health facility, presence of chronic disease, out of pocket payment and transportation by Ambulance service were significantly associated with catastrophic health expenditure at $P \leq 0.05$ (Table 6)

Table 6. Bivariate logistic regression of socio-demographic, environmental factors and coping mechanisms of households for the study of catastrophic health expenditure and associated factors in Ilubabor Zone; 2018.

Variables		CHE				COR, CI 95% Lower-Upper	P-Value	AOR, CI 95% Lower-Upper	P-Value
		Yes	No	Total	%				
Family size	<=5	7	27	34	36	1	1	1	
	>5	51	9	60	64	11.096 (9.857-18.348)	0.001	10.069 8.290-20.307	0.001*
Average daily income \$	<1.90	21	7	28	30	2.073 (1.009-3.567)	0.012	2.081 1.010-3.670	0.020*
	1.91-3.20	24	13	37	39	0.318 (0.041-2.487)	0.275	0.387 0.047-3.183	0.377
	3.21-5.5	12	10	22	23	0.223 (0.027-1.828)	0.162	0.220 0.025-1.912	0.17
	>5.5	1	6	7	7	1		1	
Distance from health facility	Nearest	9	21	30	32	1		1	
	Medium	20	5	25	27	4.008 5.797-18.941	0.001	6.219 1.632-15.418	0.016*
	Distant and hard to reach area	29	10	39	41	1.609 0.846-3.061	0.147	4.538 0.493-8.773	0.182
Ambulance service	Yes	3	14	17	18	1		1	
	No	55	22	77	82	0.086 0.022-0.328	0	0.007 0.001-0.291	0.009
Out of pocket	Yes	49	7	56	60	22.556 7.509-41.032		31.201 12.965- 49.673	0.001**
	No	9	29	38	40		0		
Chronic disease	Yes	24	4	28	30	6.040 2.004-23.370	0.005	5.647 1.764-18.075	0.004
	NO	34	32	66	70	1		1	

Discussion

At threshold of 10% total health expenditure, the incidence of catastrophic health expenditure in this study is 17.4% which is greater than studies done in Kenya(6.57%), Palestine (6.7%) and Jordan (2.7%) and nearest to Egypt which was 20% of households incur catastrophic health expenditure. Households in lower middle income were affected by 7% more than in upper middle income households ((22), (17), (15)).

The households' average daily income has the inverse relationship with catastrophic health expenditure. The OR of those household who had average daily income less than 1.90 USD 2.081: 95% CI (1.010-3.670) $P < 0.020$ when compared with those household lower middle income (1.91 and 3.20\$) incurring catastrophic health expenditure.

Also comparative finding was observed with studies done in Kenya, Egypt and Bangladesh ((22), (17), (18))

This might be due to the probability of increment of total households expenditure as average daily income is increased such as buying extra assets.

Households who were living in medium distance had OR of 6.219 at 95%CI:1.632-15.418, $P < 0.016$) when compared to those who leaving nearest to health facility by increasing transportation cost which is indicated by house hold members using ambulance service for transportation less likely affected by catastrophic health expenditure. AOR=0.007: 95% CI (0.001-0.291) $p < .009$.

Similar finding was observed with study done in Kenya which shows transportation cost has significant association with catastrophic health expenditure (22).

This might be when patients travel a long distance to visit health facilities they incur additional transportation and food costs.

The OR of households with large family size is 10.069, at 95% CI (8.290- 20.307, $P < 0.001$) when compared with less than five family members.

This result is similar with study done in Kenya but opposite finding was observed from study done in Egypt. ((22), (17)).

This is probably in large family size if total household expenditure not increased with family size and the health care cost increased because of large family size there may be increase the chance of CHE.

But study in Egypt, large family size is less likely affected by catastrophic health expenditure

because of large households take advantage of economies of scale of household consumption.

The OR of household who were using out of pocket payment for health service during time of service is 31.201, at 95% CI: 12.965-49.673: $P < 0.001$) when compared to those households not using out of pocket payment during health service.

Comparative finding was also observed with studies done in Kenya and Egypt ((17), (22)).

The OR of households with Chronic disease is 28.805 at 95% CI (1.087-763.144: $P < 0.044$) when compared with households without chronic disease.

This finding was similar with study done in Kenya, Egypt and Bangladesh which shows family member of households who had chronic disease more likely affected by catastrophic health expenditure than households without chronic diseases ((17), (19), (22)).

The OR of households with Chronic disease is 5.647, at 95% CI (1.764-18.075: $P < 0.004$) when compared with households without chronic disease.

This finding was similar with study done in Kenya, Egypt and Bangladesh which shows family member of households who had chronic disease more likely affected by catastrophic health expenditure than households without chronic diseases ((17), (19), (22)).

This is probably the presence of chronic disease in the family increase the consumption of health expenditure and may have chance of increasing out of pocket health expenditure.

Limitation of the study

Due to the duration of the study there may be recall bias on households total expenditure. So, to minimize recall bias, bottom up costing and six month history of illness and one year period history of hospitalization was used for analysis.

During costing the study consider only costs associated with direct medical and nonmedical cost. Provider side cost and indirect cost related to any health service, wage loss, productivity loss due to chronic disease, disability or death not considered.

CHAPTER SIX CONCLUSION AND RECOMMENDATION

6.1. Conclusion

In the result the incidence of catastrophic health expenditure was 17.4% at cut point of 10% total household expenditure and 5% of households were impoverished due to medical expenses.

The intensity of catastrophic health expenditure in this study was 7% which shows households other expenditure was declined by 20% due to out of pocket health expenditure and 5% of household impoverished from lower middle income to below poverty line.

Different factors were studied to identify the predictors of catastrophic health expenditure due to out of pocket payments. Among the predictors considered family size, average daily income, distance from health facility, presence of chronic disease, out of pocket payment and transportation by Ambulance service were statistically significant and independent predictors households catastrophic health expenditure due to out of pocket payments.

All households in different income level will be affected by catastrophic health expenditure and impoverished. Households above poverty line can borrow money, sell assets or pawn assets for other households to get health service. But households living below poverty line highly affected by health service expenses and they don't have more option to sell assets or pawn assets the final option is decreasing their food expenditure.

6.2. Recommendations

Depending on the finding the following recommendations were forwarded.

Ministry of Health (MOH)

- Previously community based health insurance was started in the country to fulfil quality and equity. According to this finding catastrophic health expenditure significantly associated with high out of pocket expenditure and ministry of health should avail different modalities of financial risk protection.
- Provide a legal basis for networking of CBHI schemes to create larger risk pools for the purposes of reinsurance and future integration of CBHI into SHI as a vehicle for UHC.

Oromia regional health bureau (ORHB)

- According to this finding catastrophic health expenditure is significantly associated with out of pocket payment. So, Oromia regional health bureau should focus mechanisms of financial risk protection.
- RHB should revise the community based insurance modalities by preparing the guidelines with FMOH and regional government to inforce the enrollment of CBHI.
- By discussing with Oromia regional government improve budget allocation for free premium from 10%.

References

1. World Health Organization. Six lines of action to promote health in the 2030 agenda for sustainable development; world health statistics. 2017;(1):1–28.
2. Tracking Universal Health Coverage : 2017 Global Monitoring Report. 2017.
3. Ezat S, Puteh W, Almuallm Y. iMedPub Journals Catastrophic Health Expenditure among Developing Countries. 2017;1–5.
4. FDRE; Ministry of Health. National Health Policy;draft 1. 2015;(Draft 1).
5. FDRE; Ministry of Health. The Health Sector Transformation Plan (HSTP) Strategic themes of HSTP.
6. Wang W, Temsah G, Carter E. Levels and Determinants of Out DHS ANALYTICAL. 2016;(August).
7. Health I, Financing C. IMPROVING HEALTH CARE FINANCING IN ETHIOPIA Full Report. 2014;(August).
8. Ethiopia Federal Ministry of Health. Fifth National health account. Addis Ababa, Ethiopia.; 2014.
9. Hague T. Enrollment in Ethiopia ' s Community-Based Health Insurance Scheme. 2015;74:58–60.
10. Health E, Agency I. Evaluation of community based health insurance pilot schemes in Ethiopia: final report. 2015;(May).
11. Dhan J, Jyoti J. Sustainable Development Goals (SDGs), Targets, CSS, Interventions, Nodal and other Ministries. 2016;1–30.
12. World health statistics 2017: monitoring health for the SDGs SDGGWHO 2017. World Health Statistics, Monitoring Health for the SDGs. 2017;116.
13. Wagstaff A, Flores G, Hsu J, Smits M, Chepynoga K, Buisman LR, et al. Articles Progress on catastrophic health spending in 133 countries : a retrospective observational study. 2018;169–79.
14. Rashad AS, Sharaf MF. Catastrophic and Impoverishing Effects of Out-of-Pocket Health Expenditure : New Evidence from Egypt. 2015;5(5):526–33.
15. Chuma J, Maina T. Catastrophic health care spending and impoverishment in Kenya. BMC Health Serv Res. 2012;12:413.
16. Rashad AS, Sharaf MF. Catastrophic Economic Consequences of Healthcare Payments:

- Effects on Poverty Estimates in Egypt, Jordan, and Palestine. 2015;216–34.
17. Khan JAM, Ahmed S, Evans TG. Catastrophic healthcare expenditure and poverty related to out-of-pocket payments for healthcare in Bangladesh- A n estimation of financial risk protection of universal health coverage. Health Policy Plan. 2017;
 18. Su TT, Kouyaté B, Flessa S. Catastrophic household expenditure for health care in a low-income society: a study from Nouna District, Burkina Faso. Bull World Health Organ. 2006;8484(1):21–7.
 19. Barasa EW, Maina T, Ravishankar N. Assessing the impoverishing effects , and factors associated with the incidence of catastrophic health care payments in Kenya. 2017;1–14.
 20. Verguet S, Memirie ST, Norheim OF. Assessing the burden of medical impoverishment by cause : a systematic breakdown by disease in Ethiopia. BMC Med [Internet]. 2016;1–11. Available from: <http://dx.doi.org/10.1186/s12916-016-0697-0>
 21. Group W bank. Ethiopia public expenditure review 2015. Report. 2016;166.
 22. Central Statistical Agency [Ethiopia] and ICF International. Ethiopia Demographic and health survey. 2016;551.
 23. Department I zone health. Gabaasa Hojii bara 2010. 2010;
 24. WHO. World health stastics, Monitoring health for the SDG. 2017.
 25. Ilubabor zone road authority. Ilubabor Zone Road Authority 2009 report [Internet]. Ilubabor Mettu; 2009. Available from: Un Published
 26. Recording D. Community Health Information System Data Recording and Reporting User ' s Manual. 2011;
 27. Bank W. List of countries by percentage of population living in poverty. Africa; 2015.
 28. Convert US Dollars into Ethiopian Birrs_ History 2018.
 29. World Health Organization. ACCESS TO HEALTH CARE AND THE FINANCIAL BURDEN OF OUT-OF-POCKET HEALTH PAYMENTS IN LATVIA. 2009;
 30. Amakom U, Ezenekwe U. Implications of households catastrophic out of pocket (OOP) healthcare spending in Nigeria. 2012;1(November):136–40.

ANNEXES

Annex1. English Version Questionnaire

QUESTIONNAIRE FOR A RESEARCH ON CATASTROPHIC HEALTH EXPENDITURE AND ASSOCIATED FACTORS AMNOG NONCBHI DISTRICT, ILUBABOR ZONE, SOUTHWEST ETHIOPIA, 2018

Introduction

Good Morning/Good Afternoon.

My name is _____ I come here just to collect a data for a thesis title named catastrophic health expenditure and associated factors among none CBHI districts of Ilubabor Zone, Southwest Ethiopia 2018” which is going to be carried out by Mr. Hailu Shigut, who is a postgraduate student of Jimma University, Institute of Health, department of health economics, management and policy

The aim of this study is to identify associated factors of catastrophic health expenditure and in households of Ilubabor Zone, Southwest Ethiopia 2018. Your household is selected for the study by probability and it requires your trust for any information concerning socio demographic variables and direct out of pocket payment. Since your response is highly crucial I encourage you to participate on the study.

However, concerning your confidentiality your response is used only for study purpose, your personal information is not disclosed for third party. Even though after completion of the study the finding was presented as summary, your household information or name not mentioned.

If you are comfortable to continue with me, you may take 40 minute to one hour to accomplish an interview. For any difficulty during the interview you have right to not to give the response for some interview or you can withdraw without any forfeiture.

If you are agreeing with me shall I continue?

Yes (Continue)

No (Stop)

I appreciate you for your cooperation!!!

Kebele _____ Gote _____ House No/Household Code _____ / _____

Part I: Socio-demographic data checklist

1. Age of households _____
2. Households sex 1. male 2. Female
3. Households marital status 1. single 2. Married 3. Divorced 4. Widowed
4. Households education status 1. Can't read and write 2. Only Read & Write
3. Primary education (1-8) 4. Secondary education (9-12) 5. Above secondary education
5. Households occupation 1. Manager 2. Professionals (Government employee)
3. Professionals (Nongovernmental Employee) 4. Technician and associated professionals
5. Service and sales workers 6. Farmer 7. Elementary operations (daily laborers, cleaners)
7. Family size _____ male _____ Female _____ Total
8. Are there under 5 years' children in the family? 1. Yes 2. No
9. Number of children under 14 years _____
10. Are there Pregnant women in the family? 1. Yes 2. No
11. Are there adults above 65 years? 1. Yes 2. No
12. Place of residence 1. Urban 2. Rural
13. Distance from health service 1. Near 2. Medium 3. Distant

Part II Distribution of household total Income and expenditure by micro-costing bottom up approach

1. The household's average annual income from the following by ETB. _____

Type of product	Unit of measure	Quantity	Sold in ETB	Type of product	Unit of measurement	Quantity	Sold in ETB
Milk cows/ oxen				Honey from modern beehives			
Other animals/ cattle's				Honey from traditional beehives			
Horses				vegetables/fruits			
Mules				Teff			
Donkeys				Sorghum			
Sheep				Average monthly income			

Goats				Salary/Pension			
Chickens				House rent			
Maize				Bajaj/ motor bicycle rent			
Wheat				Food and drinking establishments			
Bean				Micro industries such as milling			
Peas				Super market			
Chickpeas				Grocery			
Khat				Hotel			
Coffee				Total			
Total				Grand total			

2. Does your household have?
 - 2.1. Modern bed 1. Yes 2. No
 - 2.2. Functional radio 1. Yes 2. No
 - 2.3. Functional television 1. Yes 2. No
 - 2.4. Mobile 1. Yes 2. No
 - 2.5. Cotton/ sponge spring mattress 1. Yes 2. No
 - 2.6. Refrigerator 1. Yes 2. No
 - 2.7. Stove 1. Yes 2. No
3. Roof of the House (observe) 1. Thatch roof 2. Corrugated sheet 3. Others specify
4. Wall of the residence 1. Concrete 2. Wood with mud 3. Others specify
5. Number of room of the house _____
6. Is there separated kitchen? 1. Yes 2. No
7. Is there separated room for cattle? 1. Yes 2. No
8. Is it your own house? 1. Yes 2. No
9. Toilet facility (Observe) 1. VIP 2. Improved latrine 3. Traditional 4. None
10. Water source for drinking 1. River 2. Protected spring 3. Unprotected spring 4. Protected hand well 5. unprotected hand well 6. Pipe water

11. Source of energy for cooking 1. Electric, wood and charcoal 2. Kerosene 3. wood and charcoal 4. Wood only
12. Has any member of the family encountered any illness during the past 12 months? 1. Yes
2. No if no skip to **Q23**
13. If yes, has any medication? 1. Yes 2. No, if yes skip to **Q15**
14. The reason of not being get any medical care?
 1. Only we use home remedy
 2. We perceive the illness is not severe and only we buy anti pain from pharmacy?
 3. Because of inability to pay for medical service
 4. We use traditional healers
15. If yes to **Q14**, place of health care given to family members
 - 15.1. Health post 1. Yes 2. No
 - 15.2. Nearby health center 1. Yes 2. No
 - 15.3. Nearest hospital 1. Yes 2. No
 - 15.4. Specialized hospital 1. Yes 2. No
 - 15.5. Specialty center 1. Yes 2. No
 - 15.6. At private facilities 1. Yes 2. No
 - 15.7. Homemade (traditional) 1. Yes 2. No
16. Means of transportation 1. Foot 2. Bicycle 3. Bajaj
4. Ambulance 5. Minibus 6. car 7. Horse/Mules 8. Others
17. Financial sources used by households for paying for health services

- 22.4. Nongovernmental charity organization 1. Yes 2. No
- 22.5. Others specify _____
23. Is there any case related to asthma, hypertension and diabetes mellitus and other related chronic disease? 1. Yes 2. No
24. Out-of-pocket share of monthly household expenditure for food items _____
- _____
- _____
25. Out-of-pocket share of monthly household nonfood expenditure.
- 25.1. Expenditure on clothes/shoes of all family member _____
- 25.2. Expenditure on cosmetics of all family member _____
- 25.3. Expenditure on housing related equipment, furniture, _____
- 25.4. Expenditure on transportation other than health purpose _____
- 25.5. Expenditure on repair and maintenance _____
- 25.6. Expenditure on social obligation (iddir, donation for religious purpose, taxes levies, voluntary contribution, rent of land, house, shop, hotel, grocery,) _____
- 25.7. Expenditure on agricultural inputs and livestock (fertilizer, Pesticides, seeds and young plants, labor for crop production, transport related to crop production and sales, animal feed, veterinary services/ medications, _____
- 25.8. Death related expenses (Funeral, Teskar, Sedeka) _____

Informed Consent form

I understood the aim of the study and my participation is important for your colleague's study and I am volunteer to your questions to respond.

I understand that any information I provide will be kept confidential to the researcher and the supervisor the published results will not use my name, and that no opinions will be attributed to me in any way that will identify me. I agree to take part in this research

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Office; - Ilubabor Zone health department Planning, budgeting, monitoring and evaluation department

Participant's signature: _____ date: _____

Respondent's number/ code _____

Annex 2. Afan Oromo Version Questionnaire

Gaaffii qoo'annoo "godina Iluabbaaboor aanaalee inshuraansii fayyaa hawaasaa hin eegalle sadarkaa manaatti kaffaltii yaaliidhaan walqbatuun miidhaa qaqqabuu fi ulfaatina isaa sakatta'uuf" naannoo Oromiyaatti kibba lixa Itoophiyaatti, 2018"

Seensa

Kabajamoo hirmaataa An maqaan koo _____jedhama. Garee qo'annoo Yuunivarsiitii Jimmaa waliin hojjachaan jira. Isin dhimma waa'ee fayyaa mana keessanii fi baasiiwwan garagaraa ilaalchisee gaafannuuf deebii quubsaa nuuf kennitu jennee abdanna. Qo'annoon kun barattoota digirii lammaffaa Yunivarsiitii Jimmaatiin geggeeffamu keessaa obbo Hayiluu Shugguxiin kan adeemsifamu yoo ta'u iddoon qo'annoo immoo aanolee godina Iluabbaaboor insuuraansii fayyaa hawaasaa hin eegalle keessatti argaman irratti yaammuu taasifamu gaaffii kana xummuruuf tilmaaman daqiiqaa 30 hin caalu.

Gaaffin gaafatamus waa'ee:

- ✓ Ji'oota darban 12 keessatti miseensa manaa dhukkubsate yookin nama dhukkubsatu
- ✓ Baasiiwwan yaalaf ba'e
- ✓ Baasiiwwan waliigalaa akka mana keessaniitti jiruu fi qabeenyaa manaa irratti

Iccitii eeguu fi walii galtee

Ragaan isin kennitan tilmaama ulfaatina faayinaansii dhibee godina keessaa qofaaf kan ooluudha. Qo'annoon kun rakkina faayinaansii dhukkubaan walqabate irratti jijjiirama mul'ataa ni fida jennee amanna. Ragaan isin kennitan iccitiin isaa kan eeggamuu fi qo'annoo kana qofaaf kan oolu ta'a. Maqaani fi eenyummaan keessan gaaffii kana irratti hin ibsamu. Koodii addaa qofatu fayyadama. Hirmaannan keessan guutumatti fedhaan kan ta'ee fi yeroo barbaaddanitti dhaabuu dandeessu. Garuu ragaan isin kennitan milkaa'ina qo'annoo kanaatif gumaacha ol'aanaa nuuf kenna. Waa'ee qo'annoo kana irratti gaaffii yoo qabaattan (Yuunivarsiitii Jimmaa yookin Hayiluu Shuggux; Lakka bilbilaa. +251-961858187 ykn +251-917120261) bilbiluun qunnamuu dandeessu.

Qorannoo kana keessatti hirmachuuf fedhii ni qabdaa?

1. Eeyyee , **itti fufi**

2. Miti, **dhaabi**

Mallattoon gaafataa hirmaatan afaanin himaachuf murteessuu agarsiisu _____

Lakk. Manaa _____/Koodii _____

Gaafataa: Maqaa _____ Mallattoo: _____

Supervaayizara Maqaa _____ Mallattoo: _____ Guyyaa _____

Kutaa 1: Dhimma hawaasummaa fi uummataa manaa ilaalchisee

1. Umurii abbaa/haadha warraa _____
2. Saala bulchaa manaa 1. Dhiira 2.. Dubartii
3. Haala gaa'elaa 1. Hinfuune/heerumne 2. Kan fuudhe/heerumte 3. Kan waliihiikan 4. Kan irraa du'e/duute
4. Sadarkaa barumsaa 1. Kan hindubbisne/hinbarreessine 2. Barreessuuf dubbisuu kan danda'u
3. Sadarkaa tokkooffaa (1-8) 4. Sadarkaa 2ffaa 5. Sadarkaa 2ffaadhaa ol
5. Walitti dhufeenya maatii 1. abbaa/haadha warraa (bulchaa maatii) 2. Haadha warraa 3. Mucaa 4. Fira abbaa/haadha warraa
6. Gosa hojii 1. Hojjetaa mootummaa (oogummaadhaan) 2. Hojjetaa miti mootummaa (oogummaadhaan) 3. Hojjetaa teekinikaa 4. Daldalaa 5. Qonnaan bulaa 6. Hojjetaa oogummaa maachinoota adda addaa 7. Hojjetaa guyyaan kaffalamu
7. Baay'ina maatii dhiira _____ dubartii _____ ida'ama _____
8. Daa'imman waggaa shanii gadii mana kana jiruu 1. Eeyyee 2. Miti
9. Baay'ina daa'imman waggaa 14 gadii _____
10. Dubartoota ulfaa mana kana jiruu ? 1. Eeyyee 2. Miti
11. Namootni umuriin isaanii 65 ol ta'an jiruu? 1. Eeyyee 2. Miti
12. Iddoon jireenyaa 1. Magaalaa 2 Baadiyyaa
13. Fageenya iddoo tajaajila fayyaa irraa 1. Dhihoo 2. Giddu galeessa 3. Fagoo

Kutaa 2: Dhimma hawaasummaa fi qabeenya abbaa warraa ilaalchisee

1. Giddu galeessaan galii armaan gadii argame Qarshii _____
- Xaafii waggaatti (kuntaalan) _____ Qarshii _____ Boqqoolloo waggaatti (kuntaalan) _____ Qarshii _____ Misingaa (kuntaalaan) _____ qarshii _____ Jimaa/caatii waggaatti (Kilograaman) _____ Qarshii _____ Midhaan Dheedhii waggaatti (kuntaalan) _____ Qarshii _____ Kuduraa/Fuduraa waggaatti (Kilograaman) _____ Qarshii _____ Waggaatti sa'a aannanii _____ Qotiyoo _____ qarshii _____ Kotte duudaa (farad, Harree, Gaangee) _____, _____, _____ qarshii _____ Re'ee waggaatti _____ Qarshii _____ Hoolaa waggaatti _____ Qarshii _____ Lukkuu waggaatti _____ Qarshii _____ Gaagura aadaa irraa damma waggaatti _____ Qarshii _____ Gaagura ammayyaa irraa damma waggaatti _____ Qarshii _____ Kiraa mootoraa ji'aan _____ Qarshii _____ Baajaajii ji'aan _____ Qarshii _____ Suphaa mootoraa/bajaajii ji'aan _____ Qarshii _____ Kiraa manaa ji'aan _____ Qarshii _____ Mana miidhaginaa ji'aan _____ Qarshii _____ mana nyaataaf dhugaatii ji'aan _____ Qarshii _____ Suuqii gara garaa ji'aan _____ Qarshii _____ Mana

maashina midhaan daaku _____ Qarshii _____ mindaa/Soorama ji'aan _____ hojii guyyaa
Guyyaadhaan _____ Ida'ama walii gala waggatti _____

Agarsiistuu qabeenyaa

1. Maatiin keessan televisiiyoona, raadiyoo, bilbila, Firiijii, Stoovii qabaa (kan jiru jala sarari)
2. Ijaarsi manaa maalirraati 1. Caffee 2. Qorqorroo 3. Kan biro ibsi _____
3. Ijaarsi girgiddaa manaa 1. Bilookettii 2. Mukaa fi dhoqqee 3. Kan biro ibsi
4. Manni keessan kutaa _____ qaba (ilaali)
5. Kushiinaa qofaatti qabduu(ilaali) 1. Eeyyee 2. Miti
6. Manni horii qofaatti jiraa (ilaali) 1. Eeyyee 2. Miti
7. Manni kun kan keessanii 1. Eeyyee 2. Miti
8. Mana fincaanii keessan gosa kami (ilaali) 1. Mana fincaanii fooliihinqabne(VIP)
2. Mana fincaanii fooyya'aa 3. mana fincaanii fooyya'aa hintaane 4. Hin jiru
9. Madda bishaan dhugaatii 1. Laga yaa'u 2. Madda qulqulluu 3. Madda qulqulluu hintaane
4. Boolla qulqulliinnisaa eegame 5. Boolla qulqullina hin qabne 6. Bishaan sararaa (boombaa)
10. Madda humnaa ittiin waa bilcheeffatan
- 10.1. Ibsaa 1. Eeyyee 2. Miti 10.3. Kasala 1. Eeyyee 2. Miti
- 10.2. Gaazii adii 1. Eeyyee 2. Miti 10.4. Qoraan 1. Eeyyee 2. Mit

Baasiwwan fi dhukkuboota ilaalchisee

11. Bara darbe kana keessa maatii keessan keessaa nammni dhukkubsate jiraa? 1 Eeyyee 2. Miti
Eeyyee yoo ta'e itti fufii gaafadhu miti yoo ta'e gaaffii **22**ffaatti ce'i
12. Mana yaalaa deemani yaalii argataniiruu? 1 Eeyyee 2. Miti, Eeyyee yoo jedhani lak. **14** ce'i
13. Sababa mana yaalaa utuu hindeemin hafameef maali? 1. Manatti yaalii laatneef
2. Dhibee cimaa hinturre manatti qoricha mata bowwuu bitneef
3. Qarshii ittiin mana yaalaa deemnu hin argatne 4. Yaaltota aadaa biratti fayyine
14. Gaaffiin 12ffaan eeyyee yoo ta'e, dhaabbilee fayyaa namootni kun itti yaalaman
- 14.1. Kellaa fayyaa 1 Eeyyee 2. Miti 14.5. Dhaabbilee fayyaa dhuunfaa fooyya'aa
14.2. Buufata fayyaa 1 Eeyyee 2. Miti (specialty clinic) 1 Eeyyee 2. Miti
14.3. Hospitaala 1 Eeyyee 2. Miti 14.6. Mala aadaatiin 1 Eeyyee 2. Miti
14.4. Hosptaala Ispeshaalaayizdii 1 Eeyyee 2. Miti
15. Mala geejjibaa mana yaalaa ittiin deeman
- 15.1. Miilaan 1 Eeyyee 2. Miti 15.4. Ambuulaansii 1 Eeyyee 2. Miti
15.2. Mootoraan 1 Eeyyee 2. Miti 15.5. Miiniibaasii 1 Eeyyee 2. Miti
15.3. Baajajii 1 Eeyyee 2. Miti 15.6. Konkolaataa hawaasaa 1 Eeyyee 2. Miti

- 15.7. Fardaan/ gaangee 1 Eeyee 2. Miti
16. Madda qarshii kaffaltii yaaliitiif fayyadu maal fa'i?
- 16.1. Qusannoo 1 Eeyyee 2. Miti
- 16.2. Meeshaalee gara garaa gurguruun 1 Eeyyee 2. Miti
- 16.3. Fira ykn hiryaa biraa liqeeffachuun 1 Eeyyee 2. Miti
- 16.4. Namoota beekumsaa biraa liqeeffachuun 1 Eeyyee 2. Miti
- 16.5. Liqeeffachuun akkasumas meeshaa gurguruun 1 Eeyyee 2. Miti
- 16.6. Qarshii harka jiruun 1 Eeyyee 2. Miti
- 16.7. Mindaa /soorama irraa 1 Eeyyee 2. Miti 7.8. Kan biro ibsi _____
17. Gost baasii ati yaaliidhaaf baaste kamiidhaa ?
- 17.1. Mana yaalaa ciisaniif 1 Eeyyee 2. Miti
- 17.2. Deddeebiin mana yaalaatti yaalamaniif 1 Eeyyee 2. Miti
- 17.3. Qorichaaf 1 Eeyyee 2. Miti
- 17.4. Qoricha aadaatiif 1 Eeyyee 2. Miti
18. Bara kana keessa baasiin ati yaaliidhaaf baaste naa ibsitaa(kan ciisanii yaalaman yoo ta'e baasii waliigalaa waggaa, kan deddeebiin yaalaman yoo ta'e kan ji'a jahaan darbanii addaan baasii akka yaadachuu danda'anuun qalbeeffachuun gaafadhu) Walii gala _____
- 18.1. Yaaliidhaaf Qarshii _____ mana kaardii _____ qorichaaf _____
laaboraatooriidhaaf _____ dhiheessii gara garaa yaaliin walqabatanu _____ kan
mana yaalaa itti ciisan(siree)_____
- 18.2. Yaaliin kan walqabatu qarshii _____ Geejjibaaf _____ nyaataaf _____ kan biro _____
19. Qarshii yaaliif baastan kana qaamni bakka isinii buuse jiraa? 1 Eeyyee 2. Miti miti yoo ta'e 13tti darbi
20. Yoo bakka isinii buuse meeqa ture? _____
21. Qaamni qarshii kana bakka isinii buuse eenyu?
- 21.1. Mootummaa 1 Eeyyee 2. Miti
- 21.2. Iddirii 1 Eeyyee 2. Miti
- 21.3. Dhaabbilee amantaa 1 Eeyyee 2. Miti
- 21.4. Dhaabbilee mitimootummaa gargaarsa laatanu 1 Eeyyee 2. Miti
- 21.5. kan biro ibsi _____
22. maatii keessan keessaa bara kana dubartiin ulfaa duute jirtii 1 Eeyyee 2. Miti
23. maatii keessan keessaa bara kana daa'imni waggaa shanii gadii du'an jiruu? 1 Eeyyee 2. Miti
24. maatii keessan keessan dhibee namarra turan dhiibbaa dhiigaa, sukkaara, aasimii fi dhibeen onne jiraa? 1 Eeyyee 2. Miti

25. baasii meeshaalee tajaajila _____

Gabatee Meeshaalee mana keessaa bara kana bitaman agarsiisu

T/L	Maqaa Meeshaa	Baay'ina	Gatii tokkoo	Gatii waliigalaa
T/L				
	Uffata/ Caamaa miseensa maatiitiif			
	Meeshaalee dibata bareedinaaf			
	Meeshaalee mana jireenyaatiin walqabatanu			
	Baasii geejjibaa yaaliidhaan alaa			
	Meeshaa mana keessaa suphuudhaaf			
	Baasii hawaasummaan walqabatu (buusii iddirii, kennaa mana amantaa, kaffaltii gibiraa, buusii deegarsa hojii misoomaaf kan gara garaa, kaffaltii kiraa lafaa, suuqii, hoteela, girooserii)			
	Baasii bu'aa qonnaan walqabatu (bittaa madaabaraa, gibira mootummaa, keemikaala aramaa, ilbiisaa, bittaa sanyii fi biqiltuu garagaraa, kaffaltii geejjibaa gurgurtaa midhaanii, fi oomisha garagaraa, yaalii horii,)			
	Baasii du'aan walqabatu (awwaalaaf, taskaara, sadaqaa)			
	Ida'ama waliigalaa			

26. Baasii meeshaalee tajaajila nyaataatiif oolan kan ji'aan bitaman /midhaan mana keessaa yoo ta'e tilmaama isaan itti fayyadaman addaan baasuun qarshiidhaan adda baasi (yaadachuuf akka tolutti bakka duwwaatti maqaa meeshaa fi gatii isaa barreessi) _____

T/L	Maqaa Meeshaa		Gatii tokkoo	

