Addis Ababa University

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The Financial Burden of Out of Pocket Payment for Medicines among Households in Ethiopia

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This is to certify that the thesis prepared by Getahun Asmamaw, entitled: *The Financial Burden of Out of Pocket Payment for Medicines among Households in Ethiopia* and submitted in partial fulfillment of the requirements for the Degree of Master of Science (Pharmacoepidemiology and Social Pharmacy) complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Abstract

Background: In Ethiopia, more than half of all out-of-pocket (OOP) health expenses are for medicine. However, there is a scarcity of information on the cost impact of medicine on households.

Objective: This study aims to investigate the financial implications of OOP payment for medicines for Ethiopian households.

Methods: A sequential mixed methods explanatory design was employed in this study. The quantitative part involved a secondary analysis of the national household consumption and expenditure surveys of 2010/11 and 2015/16. Catastrophic OOP expenditures for medicines were measured using the "capacity to pay" method. Logistic regression models were used to determine the factors of catastrophic medicine payment. In-depth interviews were used to collect qualitative data from key informants working in relevant government agencies. The framework analysis approach was used also to analyze qualitative data.

Results: From 2010 to 2016 the total percentage of households facing catastrophic medicine payments decreased from 1% to 0.73%. This means payment for medicines pushed 11,132 households into poverty in 2015/16. The majority of disparities were explained by economic status, place of residence, and type of health services. The qualitative analysis identified four major themes in the areas of the current context of medicine OOP payment, aggravating factors for medicine OOP, failures to implement planned interventions, and plans.

Conclusion: The findings show that, despite improvements over the years, OOP payment for medicines pushed thousands of Ethiopian households to poverty. Hence, introducing and strengthening the implementation of pro-poor policies are recommended.

Keywords: *catastrophic medicine expenditure, Ethiopia, financial risk protection, out-of-pocket payments, poverty, universal health coverage.*

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Abbreviation and Acronym

CBHI	Community Based Health Insurance
CHE	Catastrophic Health Expenditure
CSA	Central Statistical Agency
EHIA	Ethiopian Health Insurance Agency
EPSA	Ethiopian Pharmaceutical Supply Agency
ETB	Ethiopian Birr
FMoH	Federal Ministry of Health
HCE	Household Consumption and Expenditure
HH	Household
IMF	International Monetary Fund
LMICs	Low-and middle-income countries
OOP	Out-of-Pocket
PI	Principal Investigator
PPP	Per Person Payment
SE	Sample Estimation
SHI	Social Health Insurance
SPHMMC	St. Paul's Hospital Millennium Medical College
SSA	Sub-Saharan Africa
TASH	Tikur Anbesa Specialized Hospital
UHC	Universal Health Coverage
USD	United States Dollar
VIF	Variance Inflation Factors
WHO	World Health Organization

1 Introduction

In the context of healthcare, out-of-pocket (OOP) payment is the direct payment made by patients for the costs of healthcare services (David and Evans, 2005). This payment could be part of a service that is partially covered by insurance, or it could be covered by other payers (Marzban *et al*., 2015). Coinsurance, copayments, and deductibles are examples of healthcare services not covered by insurance (Okoroh *et al.,* 2018). Expenditure on healthcare services can make it difficult to meet a household's basic necessities. According to the WHO, catastrophic healthcare expenditure (CHE) occurs when healthcare services account for more than 40% of non-food expenditure. (Ke Xu *et al*., 2005; Okoroh *et al*., 2018). To estimate CHE, a cut-off point of 10% of total spending is sometimes also employed (Pradhan, 2002; Ranson, 2002).

OOP is regarded as a major contributor to the inaccessibility of healthcare for households, particularly those from low-income households (Ke Xu *et al*., 2005). According to some estimates, the unaffordability of healthcare services causes financial catastrophes for up to 150 million people each year, with up to 100 million being forced into poverty as a result (Ke Xu *et al*., 2005; Marzban *et al*., 2015). The vast majority of those affected by CHE are from developing countries (Shahrawat, 2011). According to studies, a large number of people endure financial hardships as a result of the high cost of medicines. In the Philippines, for example, atenolol brand and generic medications caused 22% and 7% of the population to live on less than USD 1.25 per person payment (PPP) per day (below poverty level), respectively (Mourik *et al*., 2010). In India, OOP for medicines drove 3.1% (38 million) people into poverty between 2011 and 2012 (Selvaraj *et al*., 2018).

Medicine costs account for a large portion of healthcare spending in underdeveloped countries. Unfortunately, free medicines provided by the government are frequently

unavailable (Cameron *et al.*, 2010; Gutema *et al*., 2018). The likelihood of CHE is influenced by factors such as availability, ability to pay, and the lack of effective protection mechanisms (e.g. health insurance) (WHO, 2010). Higher household income is not enough to keep catastrophic health costs to a minimum (Ke Xu *et al*., 2005). In this sense, OOP payments for medicines are a major issue, and they frequently account for a significant portion of healthcare spending (Marzban, 2015). For example, in Ethiopia, much of (63%) the 10.4 billion ETB pharmaceutical expenditure in 2011 was covered by the households' OOP payments (EHIA, 2015a). While some studies suggest that OOP expenditures for healthcare push about a million individuals into poverty, little is known about the impoverished consequences of OOP payments for medicines in the country (Obse and Ataguba, 2020). Ethiopia is now working on introducing financial protection measures, mostly through Community-Based Health Insurance (CBHI), for the majority of the country's rural population. (EHIA, 2015a; Hailemichael *et al.*, 2019). The consequences of such interventions are also little understood. As a result, the current study intends to investigate the impact and financial burden of high OOP spending on medicines at the household level in Ethiopia.

1.1 Statement of the problem

Health OOP payments are a common form of health financing all throughout the world. According to the W HO and other comparative studies, developing countries (such as Africa) are recognized for having a large share of OOP payments in their healthcare financing system. (WHO, 2017; World Bank, 2016). According to the Ethiopian FMOH report, OOP health spending was 18.2 billion Ethiopian birrs (ETB) in 2015/16, compared to 21.7 billion ETB in overall health spending (FMOH, 2017). When compared to other healthcare service costs, medicine accounts for the majority of OOP payments. For example, the Ethiopian FMOH estimated that the OOP of households covered roughly 63% of pharmaceutical costs. (FMOH, 2017).

Medicine A financial load (catastrophic payment) from an OOP expense might push a family into poverty. The impact of CHE is especially pronounced in developing nations (such as Ethiopia), which often have a poorly funded healthcare system and a large percentage of poor households unable to afford health-care costs (World Bank, 2016; WHO, 2017). Medicine is not only the largest but also the most expensive type of health service, according to findings from 36 studies in Africa (Beogo *et al.*, 2016; Cherny *et al.*, 2017). Furthermore, in Ethiopia, the majority of routinely prescribed drugs were costly and unaffordable (Gutema and Engidawork, 2018; Teni *et al.*, 2018). According to a study conducted in 16 low to middle-income countries, the cost of medicines has pushed a significant percentage of households into poverty (Khatib *et al*., 2016). For instance, in India, by 2011/12, around 29 million people had incurred catastrophic spending and 38 million people had been forced into poverty due to medicine OOP payment, respectively (Selvaraj *et al*,. 2018). The situation is exacerbated by the fact that most people in middle- and low-income nations lack financial risk protection (Miljeteig *et al.*, 2019).

It is suggested that an inclusive range of health financing is required to resolve OOP payment issues, such as government budget allocation, health insurance, increased external funding, and reduced private OOP spending to finance healthcare (Marzban, 2015). The Ethiopian government has a concern for the affordability of the healthcare system (USAID, 2016). In this subject, the role of insurance companies is also considerable. Ethiopia has launched the health insurance system since 2010/11 (CBHI) (EHIA, 2015a). Despite the fact that the number of people enrolling in health insurance plans is growing, the proportion is still small. As a result, a huge percentage of Ethiopian households rely on OOP payments for medicine (Hailemichael *et al.*, 2019). As a result, existing evidence from all over the world, as well as Ethiopia, shows a high rate of catastrophic health expenditure and impoverishment as a result of a rise in household OOP health payments (Kiros *et al.*, 2020; Obse and Ataguba, 2020).

Ethiopian research, on the other hand, revealed a gap in addressing the burden of specific medicine OOP costs as a percentage of total household OOP expenses. Furthermore, the impact of medicine payment on household poverty was not well explored. This may make financial protection policy efficacy, decision-making, and impact on decision making for policymakers and other concerned entities more complicated and difficult. While a result, as the country considers policy solutions for universal health coverage and poverty reduction, healthcare financing and the health market should be studied.

1.2 Significance of the study

Evidence from Ethiopia indicated that catastrophic health spending, its predictors, and the protective effect of health insurance were all present (FMoH, 2015; Mekonen, 2018). Two studies, for example, found that the incidence of CHE increased in 2015/16 and that CHE had an impoverishment impact in 2010/11 at the household level. (Kiros *et al.*, 2020; Obse and Ataguba, 2020). These studies, on the other hand, did not illustrate the financial impact of the CHE trend over time, the status of established financial protection policies, or the specific impact of medicine payment.

To evaluate the financial burden of medicine OOP payments in terms of household expenditure, many measurements, including as composite methodologies and statistical approaches, are required. Understanding the importance of OOP medicine payments in CHE is critical for the implementation of appropriate policies and initiatives, as medicines account for more than 60% of Ethiopia's health expenditure (EHIA, 2015a). As a result, the findings of this study will fill up this information gap. Furthermore, analyzing CHE patterns and the poverty consequences of OOP payments for health in general, and for medicines in particular, would aid us in better understanding the impact of policy changes through time. The evaluation of policy measures will also aid in identifying the barriers to and facilitators of implementing financial protection mechanisms in Ethiopia.

2 Literature Review

In this chapter, the approaches of healthcare financing and the burden of OOP payments for healthcare and medicines, measurements of CHE, determinants of CHE globally and in the Ethiopian context will be discussed. The chapter will lay the theoretical and empirical background for the study.

2.1 Healthcare Financing and OOP Payments

WHO advises a country's health system to implement equitable health finance in order to alleviate the financial burden of healthcare costs (Gupta, 2009). Thus, governments implement different healthcare financing systems to improve the healthcare accessibility of citizens (WHO, 2013). The health-financing system's global goal is to promote accessibility by providing finance for the poor, make resource mobilization smoother, and share risks with a poor (Carrin *et al.*, 2010). The finance system could set priorities based on a patient's ability to pay for healthcare or insurance in a particular country. As a result, health financing schemes based on solidarity and non-solidarity are widely employed around the world (Normand and Thomas, 2008; Carrin *et al.*, 2010).

However, principally, solidarity-based financing systems have a goal to share risk and enhance accessibility for clients with lower incomes. Accordingly, the system has to rise a fund from either government tax (Akin *et al.*, 1987), community prepayment, or social health insurance (SHI) (Paolucci, 2010). Governments of some developed and most developing countries choose to use one of those approaches (Normand and Thomas, 2008; Carrin *et al.*, 2010). The second method of health financing is relied on direct payment by the clients for healthcare services. Private risk-based health insurance (Ezat Wan Puteh and Almualm, 2017), medical savings accounts (Sun, 2019), OOP

payments (for Latin America *et al.*, 1999), and casual fees (Normand *et al.*, 1994; Thomson S, 2020) are commonly used methods under non-solidary financing system.

Concerning OOP payment, it is a direct or indirect cost by the patient for health services in public or private health sectors. Payment for medication, laboratory, and other tests, surgery, hospitalization, consultation are some examples of direct healthcare costs. Related costs include transport costs for health-seeking, unproductivity costs due to diseases, etc.(Ezat *et al*., 2017).

Countries such as Africa, Asia, some parts of Europe (Central and Eastern), and other countries were largely financed with this system (Normand and Thomas, 2008). Particularly, developing countries depend heavily on OOP payment for public health expenditure (Ezat *et al*., 2017). However, high-income countries more depend on the general revenue system and SHI (Cameron, *et al.*, 2010). However, according to a WHO report, OOP payment accounts for more than 40% of total public healthcare expenditures among 60% of countries with less than $1,000 per capita income (Boasberg *et al.*, 2019). Whereas, less than 30% of middle and high-income countries relied so heavily on this type of health financing (Boasberg *et al.*, 2019).

Over the last two decades, patient out-of-pocket spending on prescription medicine has increased globally, accounting for a larger fraction of household and national health spending (Council *et al.*, 2011). According to a study conducted in Australia, per capita medicine spending by Australian patients increased from $16 in 1971 to $62 in 2007 (Kemp *et al*., 2019). In many African countries, OOP medicine expenses are still the primary means of payment. According to one study in Nigeria, almost 69% paid OOP for medicines (Oyibo, 2014). The significant expense item was fees for medicines (~62.3%) (*Congo*) (Laokri, 2018) and the same was true in Ethiopia (Teni *et al.*, 2018).

According to a study done in 32 African countries, the medicine expenses were the greatest expensive type of health expenditure across public and private outlets with an average of 25.5USD (Beogo *et al.*, 2016; Cherny *et al.*, 2017). Medications for non-communicable diseases were more expensive than infectious medicine. The medicines cost was calculated to be (median = 0.62 USD) (*Ethiopia*) (Teni *et al.*, 2018). For instance, antihypertensive drugs such as enalapril and hydrochlorothiazide are highly expensive combinations among all prescribed medicines with a mean annual cost of US$ 43.7 (95% CI, 29.2-58.3) (*Kenya*) (Oyando *et al.*, 2019). These data suggest that the concern is more personal for homes with chronic patients who have a poor socioeconomic status (Ke Xu *et al*., 2005).

What are the drivers for high OOP expenditure?

The high cost of the medicines could be explained by lack of price regulations, absence or poor utilization of health insurance schemes, the limited local pharmaceutical industries to produce generic medicines, and lack of public and private copayment initiatives to reduce medicines prices (Kibirige *et al*., 2019). Additionally, the professional level of prescribers is another factor for high expenditure. Furthermore, A study done in Iran shown a health professional could also expose patients to high OOP payments. For example, subspecialists enforced higher expenditures on patients and insurance organizations. Patients who referred ophthalmologists waged less OOP payment (Zarif *et al.*, 2019).

2.2 Impacts of OOP payments and catastrophic expenditures on healthcare and medicines

The effect of OOP payment could be expressed as either economic, health, or psychological impacts on households (Wagner *et al*., 2011). For instance, patients, as well as patient's family, has shown stress due to OOP expenditure. It also pushed vulnerable groups to poverty and caused health complications due to missing vital medical care due to the inability to afford health expenditure (Lexchin, 2004; Wang and Zhang, 2006; Wagner *et al*., 2011). Accordingly, OOP health payments are well known to result in a high inequitable health service access when compared to other non-solidary approaches (Wagstaff and Doorslaer, 2003).

Catastrophic payments result from the sum of OOP payment, poverty, inadequate access to healthcare services, and lack of minimizing the risk strategies (Ezat *et al*., 2017). As reported in the survey of 33 developing countries, even though OOP expenditure is not the only cause, it contributed to half of the household's health expenditure in 2007 (Boasberg *et al.*, 2019). Evidence from several countries of the globe agrees that health utilization expenditure is catastrophic for households. A study done in Tehran also revealed a higher intensity of catastrophic healthcare expenditure is seen among healthcare user households (Rezapour *et al.*, 2013). A study done amongst 59 countries, revealed catastrophic payments are common in middle to lower-income countries (Xu *et al.*, 2003). In India, in the year 2011-12 direct payments for healthcare services and medicines were catastrophic to 18% and 11.2% of households, respectively (Selvaraj *et al*., 2018).

The impact of OOP health payment is also a concern in Sub-Saharan Africa (SSA) since it is the key source of the health financing system (Normand and Thomas, 2008). For example, OOP health payment was catastrophic for about 61% of insured households

in Togo (Atake and Amendah, 2018), (0.73%) households in Malawi (Mchenga *et al*., 2017), Nigeria (13.7%) (Aregbeshola and Khan, 2018) at 40% of cutoff point and (1.52%) in Kenya (Buigut *et al*., 2015) at 30% threshold level. Moreover, it was also being disposing a considerable number of people to under poverty in SSA countries till now (Doorslaer *et al.*, 2006; Njagi, *et a*l., 2018). As a result, OOP payment also affected the accessibility for quality care in SSA. For example, studies in Nigeria revealed Over more than half of (63.6 %) of respondents who relied on OOP payment reported their difficulties in accessing quality healthcare services as a result of financial hardship (Oyibo, 2014).

Cornering the impact of medical expense, its effect is high particularly for low-income households as medicine shares the largest OOP expenditure (Lexchin, 2004; Wang and Zhang, 2006; Wagner *et al*., 2011). The cost of medications might be unaffordable and contribute to non-compliance (non-adherence) to medical recommendations (Klein *et a*l., 2006). For instance, according to a study done on diabetic patients, about 19% of respondents reported using less of one or more of their medications during the prior year due to cost, and 15% reported underusing some medication (John *et al*., 2004).

Determinants Catastrophic Medicine Expenditure

Several factors have been identified, these include, topography, sociodemographic, types of illness, types of health facilities, and providers are significant. (Saksena *et al*., 2010; Ezat and Almualm, 2017; Azzaniey *et al*., 2019).

The households with CHE in Myanmar were rural (22.7%) and urban (25.2%) areas (Khaing *et al.*, 2015). CHE for households from urban communities was 39% lower than their rural counterparts in 2011in China. Even though, it showed no difference in 2013 (Li *et al*., 2018). In India, the proportion of OOP expenditure in rural areas of

poor states is higher (87%) than in the richest states (67%) rural areas (Gotsadze and Zoidze, 2009). The intensity was also high in these rural areas than in urban areas. Households who are under the poverty line are more vulnerable to high OOP payment by 44.3% as reported Nigerian survey in 1998 (Ichoku, 2009). In China, rural residents were more susceptible to CHE since the majority of the rural populations were involved in farming sectors that do not have access to health insurance. Usually, the rural population was not insured in several countries. For example, in China, many rural residents participate in agriculture practice which has no insurance coverage (Dogan *et al.*, 2019).

The frequency of utilizing healthcare services also varies for the poor and high-income groups. Rich households use healthcare services frequently but catastrophe and however, poverty is induced among poor income households. Only 8% of the richest households from developing countries faced CHE (Russell, 2004). The lesson behind low utilization among poor households remains prioritization for some basic needs expenses (Russell, 2004). In Burkina Faso, CHE is increased 1.5 to 1.7 times in every increase in illness among people especially among adults (Azzani *et al*., 2019). Furthermore, healthcare utilization faced CHE 6-15% of households even though the level of utilization is low in Burkina-Faso. One study revealed that CHE increases 15 to 25 times when all illness is treated by professionals *(*Ezat *et al*., 2017). It is illustrated that healthcare is bringing households to high OOP expenditure which implies its extent of a financial burden on peoples (Xu *et al.*, 2003).

2.3 Measurement of catastrophic expenditures on healthcare and medicines

The impact of the healthcare expenses on people's lives should be estimated as much as feasible (Wagstaff and Doorslaer, 2003). As a result, multiple methods for estimating the impact of health payments exist. When health expenditures account for a significant amount of a household's expenditures or income, the expenditure is referred to as catastrophic (Wagstaff and Doorslaer, 2003; Xu *et al.*, 2003). The principal concept is that the budget share of health payment could overtake a place of other needs of the people (Ezat *et al.*, 2017). Health OOP payment and household resources are the fundamental components in catastrophic payments measures (Xu *et al.*, 2003). Household resources include household income, spending, consumption, or subsistence expenditure (Wagstaff and Doorslaer, 2003; Xu *et al.*, 2003; Azzani *et al.*, 2019). Those methods are preferred based on the type of collected data and the inclination of studies (Mchenga, *et al.*, 2017). Every method has advantages and disadvantages. Measuring a household's income has a benefit that cannot be measured through health-care spending. (Wagstaff and Doorslaer, 2003). So, the estimation is indirect when compared to the other methods (Atake and Amendah, 2018). But it has a weakness with the need for consistent income data and could perform largely for the formal sector workers or whose income is reported low (Xu *et al.*, 2003). Therefore, it is not a preferable method for middle to lower-income countries since most of their citizens are rely on farming and other irregular income activities (Ezat *et al.*, 2017; Mchenga *et al.*, 2017). Moreover, when OOP payment is divided by the total household expenses, the direct relation of budget share of household expenditure and health payment could be defined. However, this method is not feasible for middle to lower-income countries again (David and Evans, 2005; Buigut *et al.*, 2015). The poor households in these countries, largely

spend on basic needs such as food which makes their expenditure for health services very low (WHO, 2010). As a result, people who could not afford health payments and households who far from the catastrophic thresholds usually get unnoticed (Xu *et al*, 2005; Baird, 2014). The third option is to define catastrophic payments by considering the non-food expenditure. This approach is prefeed for low-income countries. Moreover, identifying the rich and poor is possible with the "capacity to pay" of households (Wagstaff and Doorslaer, 2003; Wagstaff A, 2008). The drawback with the approach is the uncleared definition of subsistence expenditure (Russell, 2004).

2.4 The healthcare financing situation in Ethiopia and OOP payments

Since 1996 Ethiopian government has been taken a measure to enhance health accessibility in the country. Valuable achievements were perceived after the implementation of a two-decade health sector development plan. Particularly, the expansion of health sectors in every corner of the country was remarkable (FMOH, 2005; FMoH, 2010).

The Ethiopian healthcare financing system, on the other hand, was unable to significantly contribute to the achievement of universal health coverage targets. Because the system is frequently faced with a scarcity of health resources and is heavily reliant on OOP payments, there is an unresolved equity in resource usage (FMoH, 2010; WHO, 2010). The Ethiopian government has devised a strategy to restructure the health financing system by the year 1998, in acknowledgment of the underfunding of the healthcare sector. The main features of the reform were the introduction of health insurance, the retention of collected revenue at health facilities, the development of a scheme for distinct payment mechanisms for the poor, the empowerment of public health facilities to focus on clinical services, and the revision of health payment systems (FMOH, 2008, 2010; USAID, 2012).

According to a review study done in Ethiopian health financing's impact related to meeting essential medicine accessibility, the executed reform has been indicated remarkable progress in health financing of the country (Ali, 2014). In 2008, FMOH had also prepared a health insurance policy, intending to mobilize the healthcare financing by introducing the health insurance schemes in the system. The scheme is composed of CBHI, SHI, and private health insurance which is targeted to capture a diverse group of societies. SHI has designed to target at least 20% of people in informal sectors and prisoners with compulsory membership. However, CBHI is characterized by voluntary-based and government subsidizing poor; targeted to cover 80 85% of people in informal sector health insurance scheme. Both schemes had settled a goal to reach >80% of woredas in the country. The latter was implemented as a pilot in 13 woredas and progressed to scale up due to its effectiveness in sustainable financing of health facilities and proven to reduce the burden of beneficiaries. The amount of contribution of CBHI members has increased from 14.6 million ETB to 1.15 billion ETB in 2012 and 2019, respectively. Even though the coverage has increased to 509 woredas, only 28% (22.6 million) people were enrolling members that are far from the target population, in 2019. Furthermore, it was indicated that only 41% of eligible poor were getting the service (EHIA, 2019).

In Ethiopia, OOP at the point of health service continues to be the highest means of the healthcare financing system. Based on the FMOH report in 2013-2014, the financing system raises funds OOP payment by households (33%) (FMOH, 2017). In Ethiopia, health OOP payment is catastrophic for 20% (4.4% insured), of households from a total of 400 study participants (Mekonen *et al*., 2018). The other study comparing insured versus uninsured households illustrated OOP health payment was catastrophic for 3% and 9% of insured and uninsured, respectively (EHIA, 2015b). Similarly, at the yearly

10% of income threshold; nearly 27% of cardiovascular patients incurred CHE during utilizing health services in Addis Ababa (Tolla *et al.*, 2017). The 2015/16 Ethiopian household expenditure survey-based study also revealed about 2% of households experienced CHE (10% cut-point of total household expenditure), and nearly 0.9% of them pushed to poverty due to high health OOP payments. Likewise, OOP health payment impoverished more than 957,169 people in the 2010/11 survey year (Obse *et al*., 2020). Even though, the importance of medicine OOP payments in Ethiopia, the lack of pieces of evidence is there in the estimation of a specific impact of medicine OOP payment.

2.5 Catastrophic health expenditure and impoverishment

Impoverishment results when the catastrophic expenditure make a household under a predefined poverty level (Xu *et al*., 2005). The high CHEs headcount is usually reported in countries that majorly depend on OOP payments. Even though CHE is also reported in developed countries, Low-and middle-income countries (LMICs) are susceptible to impoverishment due to healthcare expenditure (Doorslaer *et al*., 2007). Several reports also strengthen the above idea. For instance, Analyses of 11 middle-income Asian countries showed that absolute poverty is more prevalent among 7.16 million people when OOP for healthcare is considered (WHO, 2010). Health expenditures impoverished 4.8% of households in Tehran (Rezapour *et al.*, 2013). Direct payment for healthcare forced about 20,000 people into poverty in Mongolia (Dorjdagva *et al.*, 2016). The proportion of poverty is increased from 57% to 64% due to health OOP in Nigeria (Ichoku, *et al*. 2009). Concerning medicine expenditure, the survey data from 51 countries show that OOP on medicine was the main cause of financial catastrophe for 6.1% of households on average. Furthermore, among all included countries in the study; spending on medicine is more reason to financial catastrophe when compared to

expenditure to inpatient and outpatient (Saksena, Xu and Durairaj, 2010). In 2011-12 paying for medicines pushed 38 million people to poverty in India (Selvaraj *et al*., 2018).

Moreover, the poverty due to health expenditure is sometimes ignored during the estimation of the poverty level in a specific country. For example, in India, it is illustrated that, due to ignoring health OOP payments, poverty among hospitalized peoples is underestimated by 8% points. Because, payments to health are usually unnoticed due to coping which hides 8% poverty by adjustment (Flores *et al*., 2008).

In general, WHO claims meeting the universal health coverage objectives is difficult in presence of liable peoples for catastrophic payment and impoverishment (Etienne, *et al*., 2010).

2.6 Review summary

Households' usage of health services is influenced by OOP payments and CHE. Because of the financial strain of out-of-pocket expenses, the poor and other vulnerable household groups are at a higher risk of falling into poverty. The situation is exacerbated by the fact that most people in middle- and low-income nations lack financial risk protection. Many scholars believe that different techniques should be used to combat CHE and poverty. removing financial barriers to healthcare (for example, prepaid packages and borrowed funds), improving financial policies (social health insurance or population-based tax-funded health systems), and expanding healthcare services availability (Ezat, 2017; Mekonen, 2018). Hence, Consistent evidence has also shown that reduction or removal of OOP payment at the point of use enhances the utilization of healthcare services (Nolan and Turbat, 1995).

Most of the countries worldwide including Ethiopia have national household expenditure survey data to determine CHE and impoverishment. Existing studies on health expenditures in Ethiopia only revealed information on the CHE headcount, poverty impact, and its drivers. During the review, the study that was conducted to analyze the specific impact of medicine payments was not found in the Ethiopian setting. Furthermore, despite research demonstrating the protective effects of insurance schemes in the country, the health insurance program is insufficient to safeguard the financial burden without other complementing financial protection techniques (Baird, 2014). In the Ethiopian context, however, the state of complete policy execution in terms of medicine access has not been investigated.

3 Conceptual framework

The household OOP medicine payments were defined to be catastrophic when the OOP expenditure exceeds certain thresholds such as 40%, 25%, 10%, or 5% of monthly non-food expenditure of household (Wagstaff and Doorslaer, 2003; Xu *et al.*, 2003). Therefore, households who scored beyond the predefined cutoff point were assumed to be CHE headcount for medicine expenditure. Factors related to catastrophic medicine expense were studied by (Xu *et al.*, 2003; Saksena *et al*., 2010; Baird, 2014; Ezat *et al*., 2017; Azzani *et al*., 2019).

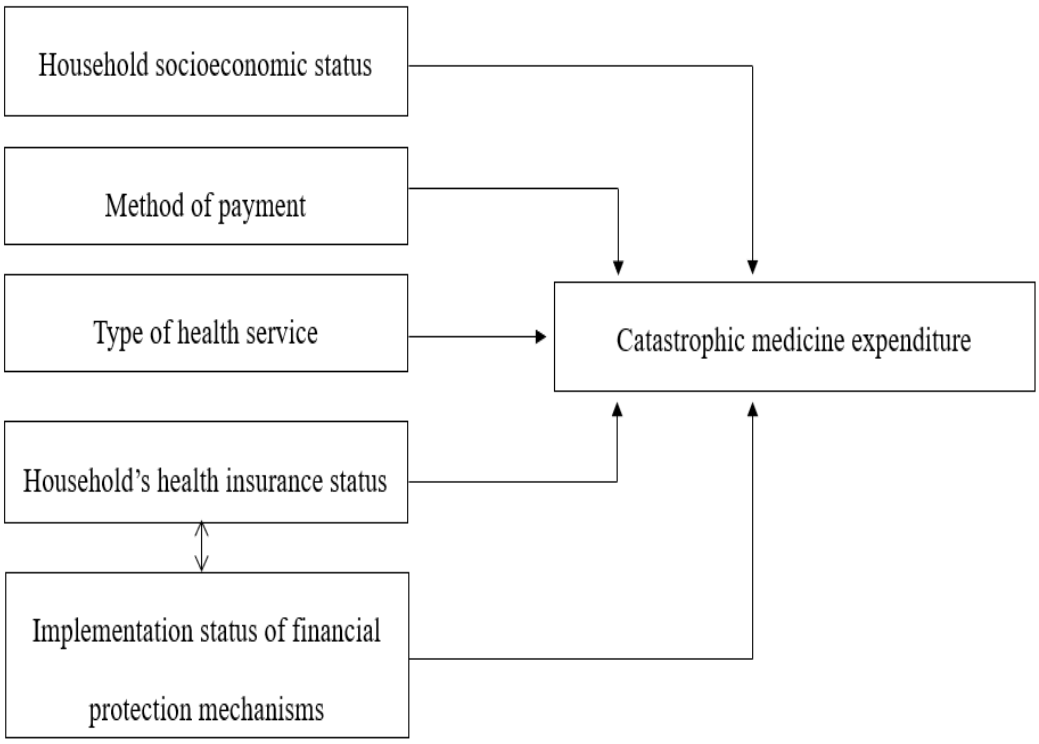

Figure 3.1: A multidimensional framework predictors influencing the burden of patients' OOP payments.

4 Objectives

4.1 General objective

- ✓ To evaluate the extent, trend, and determinants of and government interventions on catastrophic OOP expenditure on medicines among households in Ethiopia.

4.2 Specific objectives

- ✓ To assess the extent, intensity, and trend of catastrophic OOP expenditure on medicines among Ethiopian households
- ✓ To identify the determinants of catastrophic OOP expenditure on medicines among Ethiopian households
- ✓ To examine government interventions to deter the impact of catastrophic OOP expenditure on medicines among Ethiopian households

5 Methods

5.1 Study design

A mixed-methods sequential explanatory design encompassing both quantitative and qualitative methods of data collection was used. The two approaches were adopted to complement each other. The quantitative analysis was done first and involved a secondary analysis of the national household consumption and expenditure surveys of 2010/11 and 2015/16. Then, a qualitative in-depth interview was conducted with key informants from various government agencies to understand possible policy changes and perceived impacts in the past ten years (Annex VI). The quantitative part of the study used secondary data of 2011 and 2016 Ethiopian national expenditure surveys. Such surveys are deemed better to get all the required information (Xu *et al.*, 2003). The qualitative data collection was conducted from January to February 2021 G.C.

5.2 Study setting

5.2.1 Quantitative study

Ethiopia is a landlocked country located in East Africa and borders Kenya, Sudan, South Sudan, Eritrea, Djibouti, and Somalia. There are ten regional states and two city administrations in the country. The July 2020 Ethiopian population is projected to be more than 108 million out of which, 80% live in rural areas (WFB, 2020). The national household consumption and expenditure surveys of 2010/11 and 2015/16 were used for secondary analysis. These surveys collected data from various parts of the country including includes households from urban and rural settings except the pastoralist part of the country using a multistage sampling design. The country was divided into four categories by the Household Consumption and Expenditure (HCE) survey: rural, major urban centers, medium towns, and small towns. This is required in order for the sample

to be representative. For example, rural and major urban-rural categories used a two-stage cluster sampling design hence selecting primary sampling units Enumeration Areas (EAs) followed by selecting systematically 12 & 16 households as secondary sampling units respectively. Whereas, it used a three-stage sampling design to town categories that add towns as a primary sampling unit. It emphasizes household expenditure includes food and non-food items, OOP health, and medical expenses. The survey year's data collection period encompasses all months of the year. This may allow it to deal with seasonality. Activities for the collection of data in a single EA take 15 days. The data has been collected from each sample household twice in the survey week.

The recall period used in these surveys is depending on the nature and types of expenditure. Health and medication expenses use 30 days' reference period for outpatient service and 1 year for inpatient care expenses. To compensate for the missing data of quantity price side by side survey from the nearby marketplace is undertaken. Furthermore, technologies for ease of data collection are introduced in each round of surveys such as digital data collection is used in the 2015/16 survey. National census data was used to determination of sample size (number of households) using Probability Proportional to Size (PPS) methods. A total of 27,834 and 30,229 households were surveyed in 2010/11 and 2015/16 respectively, that conducted by Central Statistics Agency (CSA) (CSA, 2018). In 2010/11, an estimate of households was 15,975,055 (Sample Estimation (S.E)=155,400) and estimate of population was 76,100,054 (S.E=873,638) (CSA, 2012). In 2015/16, an estimated number of households and population were 19,399,161 (S.E=166,503) and 89,453,119 (S.E=896,884) respectively (CSA, 2016a).

5.2.1 Qualitative study

Addis Ababa is a capital city of Ethiopia hosting the government federal ministers. So, relevant governmental institutions locating in Addis Ababa city such as FMOH, Ethiopian Health Insurance Agency (EHIA), Ethiopian Pharmaceutical Supply Agency (EPSA), and public hospitals such as Tikur Anbesa Specialized Hospital (TASH) and St. Paul's Hospital Millennium Medical College (SPHMMC) are widely functioning federal institutions in meeting universal health care coverage of Ethiopia.

5.3 Data source and collection

5.3.2 Quantitative study

The compiled HCE data set of both surveys was physically obtained from the headquarter office of Ethiopian CSA in Addis Ababa. The data was handled in SPSS data format.

5.3.2 Qualitative study

The qualitative part of the study involved a purposive sampling strategy to identify key informants from FMOH (policy and planning and health service quality directorates), EHIA (finance and investment, member affairs and contributor collection, and research and plan directorates), EPSA (Quantification and market-shaping, pharmaceuticals & medical supplies procurement contract management, distribution and fleet management directorates) and public hospitals (TASH and SPHMMC) (administrative office and pharmacy departments) located in Addis Ababa. A semi-structured, open-ended interview guide with flexible probing techniques was employed (Annex V). This was done to investigate participants' views and practice regarding catastrophic out-of-pocket health as well as medicine-only, payment.

The interview's overall goal was to address a variety of topics related to establishing financial risk protection strategies to combat out-of-pocket and catastrophic health-care payments, notably for medicines. Participants from hospitals were asked about the service utilization status, funding, economic level of clients, healthcare services on non-cash delivery to patients, and service distribution status in the country. The interviews also assessed participants' evaluations on the success of such implemented interventions in the past ten years (Annex V).

The interview was collected by the principal investigator (PI). Socio-demographic data such as gender, level of training and qualification, and years of experience in the current position were collected before the interview. The interview was facilitated by Amharic language and audio was recorded after obtaining informed consent. The interviews followed an emergent approach where prior interviews were used to improve the interview guide and include critical questions for the next interview. Two of (1 from FMOH and the other from TASH) participants who were decline to be audio recorded, the interviewer had taken detailed notes of the interview. In all cases, the interviewer had taken field notes at the end of each interview. The occurrence of information saturation was dictated the final number of participants. Saturation was determined by the absence of new information from the interview with the next person. Once saturation was detected, three interviews were conducted in a row to see if new codes or themes emerged.

5.4 Study variables (quantitative part only)

5.4.1 Dependent variables

- ✓ Household's catastrophic payments on medicines
- ✓ Households pushed into poverty after OOP payment for medicines.

5.4.2 Independent variables

- ✓ Socio-demographic characteristics (such as age, gender, education level, occupation, marital status, and residence)
- ✓ Household economic status (household monthly expenditure).

5.5 Data analysis and interpretation

5.5.1 Quantitative data analysis

Coded data were transferred to and analyzed using STATA 14.2, statistical software. CHE and impoverishment health expenditure measuring approaches were used to estimate the effect of OOP payment for health and medicines on the households. Moreover, concentration indices were applied to measure disparity distribution in the financing of healthcare. Finally, the logistic regression model was used to estimate the effects of independent variables. Multicollinearity test was also conducted among dependent and independent variables and no harmful collinearity was detected in the model (mean VIF= 1.23 in 20151/16 and 1.21 in 2010/11 survey years) (Annex II).

Plan of data quantitative analysis

Total household income or expenditure and capacity-to-pay are two common methods used to calculate CHE prevalence among households. The commonly used cut-off point for the capacity-to-pay is 40% and 10% for total income or expenditure (WHO, 2010). But different ranges of cut-off points can be also used that depend on the need for studies. This has study used a range of thresholds i.e., 5%,10% 25%, and 40% to

compare our findings with other study findings. Impoverishment was determined based on the share of total food expenditure and the poverty line. Household is called impoverished when pushed under the poverty line after paying to healthcare services.

Included type of survey data

Nationwide representative household consumption surveys that consist of:

Individual-level:

- ✓ Socio-economic information (such as age, sex, education, urban/rural location, monthly per capita expenditure)
- ✓ Monthly health/medicine expenditure

Household-level:

- ✓ Total household consumption spending
- ✓ Food expenses (except tobacco, alcohol, and food feasting outdoor)
- ✓ Out-of-pocket health and medicine spending

Poverty line estimates

The national poverty line was estimated using the standard formula proposed by the WHO guideline on catastrophic expenditures approach (David and Evans, 2005). Food consumption expenditure was identified at 45^{th} and 55^{th} percentile. Since the survey included the weight of households, the variable was considered in the formula. The following formula shows how the poverty line (PL) was calculated.

$$PL = \frac{\sum (WGT_h * Equ\_foodexp_h)}{\sum WGT_h} \quad \textit{Where } 45^{th} < Food\_exp_h < 55^{th} \ldots\ldots\ldots\ldots\ldots (1)$$

Where:

PL = Poverty Line

$Equ\_foodexp_h$ = Equivalent food expenditure of household

WGT_h = Weight of households

$Food\_exp_h$ = Food share expenditure of household

The international poverty line defined by a world bank (World Bank, 2011) was also used. The later estimate of the poverty line was used to compare the national situation internationally. Furthermore, to calculate poverty using international poverty line cut points, world banks' 2011-2012 prices of US$1.90 purchasing power parity were used (Darmawan, 2019).

Measuring out of pocket payment

To calculate household OOP payments, all types of direct payments to healthcare services were totaled together, including outpatient and inpatient transportation costs. Components to estimate OOP payment for outpatient care, expenditure on medicines, X-ray, Endoscopy Ultrasound, Laboratory test (Excl. HIV), etc., doctor's visit, and other medical services. For inpatients, the component of expense to be considered was X-ray, Endoscopy Ultrasound, Laboratory test (Excl. HIV), etc., doctor's visit, and other basic services including accommodation (Annex I).

The recall period in the CHE survey is one month and one year for outpatient and inpatient care, respectively. The total OOP payment household health expenditure and medicine OOP payment of outpatient and inpatient expenditure were calculated by converting the expenditure to one month (David and Evans, 2005). Finally, constant prices in 2009-2010 prices were used to convert to current prices (March of 2021). It has been computed using values of the consumer price indices (CPI) ratio. (See Annex III) The general formula we used to convert to current constant prices is:

$$\text{Current price} = \frac{\text{New CPI}}{\text{Old CPI}} * (\text{old price}) \quad \ldots\ldots\ldots\ldots (2)$$

Where:

Old CPI = Health consumer price index of 2010/11 and 2015/16

New CPI = Health consumer price index of 2021

Old price = The nominal local price of health expenditures in 2010/11 and 2015/16

Per person monthly OOP payment and OOP share

Per person, monthly OOP payment (PPP) is a ratio of total monthly OOP payment and household size. The share of health/medicine expenses (Sh_{OOP}) was estimated as a ratio of total health OOP (T_i) to total household expenditure (X_i) or total non-food (nf (x)) expenditure alternatively.

$Sh_{OOP} = T_i / X_i$ ……. (3)

Where:

Sh_{OOP} = Share of OOP payment

Measuring the incidence of catastrophic medicine expenditure

The approach suggested by Wagstaff and Doorslaer (2003) was used to estimate the magnitude of CHE (Wagstaff and Doorslaer, 2003). When direct payment (OOP) for healthcare consumes the large percentage of a household's spending, it is referred to as catastrophic health spending. The following formula is commonly used to estimate the financial contributions for the healthcare services by households.

$$CHE = \frac{total\ household\ payment(OOP)}{capacity\ to\ pay}$$

This study utilized the capacity-to-pay (CTP) as the denominator because several studies including the WHO Xu model, particularly for developing countries, suggested that households consumption data could represent better the economic status of a household than the household revenue (income) data. The income data of households

is common to be under-reported due to different reasons especially unwillingness, wrong information from households is common (Xu *et al.,* 2003). ‘‘Capacity to pay’’ of a household is defined as non-food expenditure that computed as subtracting food expenditures from the total household expenditure.

$$\text{Capacity to pay} = \text{total household expenditure} - \text{subsistence spending}$$

- If household food expenditure is less than subsistence spending; otherwise
- ✓ $\text{Capacity to pay} = \text{total household expenditure} - \text{food expenditure}$

The subsistence expenditure is calculated as:

$$Subcexp = PL * Equ\_sizeh \text{ ----------(4)}$$

The food share expenditure was computed as:

$$Food\_exp_h = \frac{Food\_H_h}{Xi} \text{ ----------(5)}$$

Then the equivalent household size was calculated using the parameter of (β=0.56) which is found from previous studies among 59 countries (David and Evans, 2005; Buigut *et al*., 2015). Therefore,

$$Equ\_size_h = H\_size_h^{\beta} \text{ ----------(6), } \textit{then}$$

$$Equ\_foodexph = \frac{Food\_H_h}{Equ\_size_h} \text{ ----------(7)}$$

The number of households facing catastrophic expenditure was computed using the following formula:

$$\frac{Ti}{Xi} > Zcat \text{ ----------(8)}$$

$$Ei=1 \text{ if } \frac{Ti}{Xi} > Zcat, \text{ and } Ei=0 \text{ when, } \frac{Ti}{Xi} \leq Z \text{ cat ----------(9)}$$

$H_{cat} = \frac{1}{N}\sum_{i=0}^{N} Ei$ ----------(10)

Where:

T_i = Overall OOP health/medicine household expenditure

T = Per-capita OOP expenditure

X_i = Total household expenditure

nf(x) = Total household non-food expenditure

Z_{cat} = The threshold used to define CHE

H_{cat} = The proportion of households (headcounts) with a catastrophic payment

N = Total sample size

E_i = Status of CHE

Sh_{OOP} = Share of OOP payment

Subcexp = Subsistence spending

PL = Poverty line

Equ_size_h = Equivalent household size

$Equ\_foodexp_h$ = Equivalent food expenditure of household

$Food\_exp_h$ = Food share expenditure of household

$Food\_H_h$ = Total food expenditure of household

H_size_h = Household size

Other similar studies utilize arbitrary threshold values (z), however 5%, 10%, 25%, and 40% of total health/medicine expenses, as well as 10% of ability to pay, are typically indicated (Wagstaff and Doorslaer, 2003; Xu *et al.*, 2003). As a result, those threshold values were used in this study to investigate the impact of outcomes. First, households were classified into five quintiles based on per-capital household expenditure reported by the questioned HHs.

Measuring the intensity of catastrophic payments

Overshoot (O), or intensity, was estimated to capture the extent to which individual health/medicine payments surpassed the stated threshold for households that incurred catastrophic expenditures. It is essential because catastrophic payment headcount (H) is unable to record the extent of OOP payment once a particular threshold has been exceeded. According to Wagstaff *et al* (Wagstaff and Xu, 2008), the following equation was employed to predict household overshoot.

$$0\mathrm{i} = Ei\left(\left(\frac{\mathrm{Ti}}{\mathrm{Xi}}\right) - z\right) \text{----------(11)}$$

And the average overshoot of catastrophic payment was calculated as:

$$G_{cat} = \frac{1}{N}\sum_{i=0}^{N} O\mathrm{i} \text{ ----------(12)}$$

Where:

O_i	=	Household overshoot catastrophic payment
G_{cat}	=	An average overshoot of catastrophic payment
C_E	=	Concentration indices of headcount
C_O	=	Concentration indices of overshoot
H^w	=	Weighted headcount
O^W	=	Weighted Overshoot
MPG	=	Mean Positive Gap

The distribution of catastrophic payments is critical in determining the disparity in consequences between the rich and the poor. The distribution of catastrophic payments among household expenditures is not shown in both incidence and intensity statistics. Better-off/worse-off concentration indices range from -1 to 1. It was possible to detect an overshot incidence (C^E) and intensity (C^O) concentration between the rich and the poor (Wagstaff and Xu, 2008). When CE is negative, for example, the risk of

catastrophic payment is high among the impoverished (worse-off are most likely to exceed the threshold). If Co is positive, it means that overshoot is concentrated in the hands of the wealthy. The method for calculating C^O and C^E in detail can be found in paper of Wagstaff *et al* (Wagstaff and Xu, 2008). The impact of OOP payment on headcount and overshoot may be influenced by differences in household expenditure levels (high vs low) for a variety of reasons. As a result, it is preferable to reweight the spending level by assigning a high weight (2) to low expenditures and decreasing the weight as household expenditure increases (0) (Wagstaff and Doorslaer, 2003; Wagstaff and Xu, 2008). The mean positive gap (MPG) was also determined. The MPG compares all households' average expenditures above the cut-off thresholds (Xu *et al.*, 2005). It has estimated as:

$$H^w = H\,(1-C_E) \text{ ----------(13)}$$

$$O^W = O\,(1-C_O) \text{ ----------(14)}$$

$$MPG = \frac{O^w}{H_{cat}} \text{ ----------(15)}$$

Measuring poverty and impoverishment

Poverty headcount

The impoverishment effect of OOP payment of healthcare services were determined based on the estimated poverty level (Eq. 1). The difference between the gross poverty headcount (before healthcare payments) and the poverty headcount after netting of per capita OOP payment (after healthcare payments) was performed (David and Evans, 2005).

The following estimation steps were performed:

Where:

HP^{gross} = Household gross health payment poverty ratio

HP^{net} = Net of health payment poverty ratio

PL = Poverty Line

T = per capita OOP payment

First, to find the proportion of the people living below the poverty line. The gross health payment poverty ratio (HP^{gross}) was estimated as follows:

$HP^{gross} = 1/N \Sigma\ 1\ (xi \leq PL)$ ---------- (16)

The function uses a bivariate variable, therefore if the personal expenditure is below the poverty line, it returns "1." Otherwise, "0" will be used. Then, to determine the poverty headcount inconsiderate medicines OOP payment, the net of medicine OOP payment was determined. As a result, it is a percentage of poor people prior to payment of medicine. Therefore,

$HP^{net} = 1/N \Sigma\ 1\ ((Xi-T) \leq PL)$ ----------(17)

Finally, the burden of healthcare OOP expenditure was estimated by the difference between equations (17) and (16) as follows:

The burden of OOP = $HP^{net} - HP^{gross}$ ----------(18)

Poverty gap

Deducting household per capita expenditure from the PL yields the gap between the poor and the PL. This step only includes poor households. As a result, the magnitude of poverty can be determined based on the living standard. The gross poverty gap and Net poverty gap (G^{net}) were estimated. Where:

$G^{gross} = 1/N\Sigma 1\ (xi- PL) \mid$ if i= poor ----------(19)

$G^{net}= 1/n\ \Sigma 1\ ((xi-T)- PL) \mid$ if i= poor after netting OOP ---------- (20)

5.5.2 Qualitative data analysis

The audio-recorded interview was transcribed verbatim. The analysis used R Based Qualitative Data Analysis (RQDA) software. We first transcribed and analyzed in the language of the interview (Amharic) then the identified themes and sub-themes were translated to the English language (Bogusia and Alys, 2004). The interview was transcribed by the PI (GA) and the data were analyzed by the PI and thesis advisor (EE).

The gathered data were analyzed using the 'framework analysis approach'. Framework analysis is the preferred method for research that has specific research questions, limited time, pre-designed samples, and identified prior topics (Smith and Firth, 2011). In the analysis, data were selected, charted, and organized under key ideas and themes with five steps: familiarization; identifying a thematic framework; indexing; charting; and mapping and interpretation. After lasting the interview, we carefully listened to the audio and studied the transcriptions, details, and felid notes to overview the collected data. Consequently, we familiarized ourselves so we were aware of the upcoming themes and the key messages and then made a note. Based on the note made during familiarization, the thematic framework was identified by coding the key issues and ideas. The coding was flexible to add when a new concept of participants was identified during the analysis. The third step was indexing, in this stage, we developed sub-themes of coded data followed by themes that formed from particular sub-themes. Charting involved placing or ordering the themes and sub-themes consistently to allow convenient research reporting. Finally, an explanation and recommendations were made. Throughout the analysis's steps, the importance of the idea, possible connection of concepts, and complying with the research objective was being checked.

5.6 Ethical considerations

Ethical clearance was obtained from the Ethical Review Committee of the School of Pharmacy, Addis Ababa University. Moreover, permission was requested from the CSA of Ethiopia to access the required datasets. The anonymity and confidentiality of all households and individuals were assured and the information was only shared with the study team. The dataset was secured in a password-protected computer.

Participants of the key informant interviews were provided with information regarding the drive of the study, what is expected from them, and how they can benefit from the study result. Each participant was also aware that involvement in the study is voluntary and she/he could leave at any time, and the leaving of consent would not disturb his/her relation with the institution or any other person. In addition, participants were guaranteed about the secrecy of the information obtained and informed that the information only is accessible to the research team.

5.7 Operational Definitions

Household's catastrophic payments on medicines: Household direct payment from a pocket on medicines services that exceed the predefined cut-offs of total household non-food expenditure (Xu *et al.*, 2003).

Household pushed into poverty after OOP payment for medicines: Household whose expenditure is under the poverty line after paying for medicines (Xu *et al.*, 2003).

Household consumption expenditure: Covers the in-cash and in-kind payments for all properties and services, converted to the fiscal value of products, which are made at home (CSA, 2012, 2016)

Household food expenditure: Household food consumption includes all the foodstuffs and the value of self-food consumption if it is produced at home. However, it excludes beverages expenditure such as alcohol, tobacco, and food feasting outdoor of home (hotel, restaurant…etc.) (CSA, 2012, 2016).

Household subsistence spending: The minimum set of expenditures of households to survive in the community (Xu *et al.*, 2003).

Out-of-pocket payment: is the direct payment of patients for the costs of the healthcare services at the time of illness, i.e., not including prepayment for medicine/health services and other payment mechanisms (Xu *et al.*, 2003).

Poor household: Households whose total expenditure is under the prespecified poverty line (Xu *et al.*, 2003).

Poverty line: Households' food consumption expenditure whose expenditure is found at the 50^{th} percentile of the food share expenditure of the nation (Xu *et al.*, 2003).

6 Results

6.1 Result of quantitative study

6.1.1 Demographic and socio-economic profile of households with non-zero health expenditure

About households, 15,961 (in 2010/11) and 18,585 (in 2015/16) households reported non-zero health expenditure (Table 1). Of those who paid for health services, about 9,531 (59.7%) and 12,426 (66.9%) of urban residents reported spending on healthcare services in 2010/11 and 2015/16, respectively. The average household size was 6 (Standard deviation (SD)=2.5) and 5 (SD=2.3) in respective surveys. The mean age composition of households was 22.6 (SD=17.9) and 23.3 (SD=17.9) in 2010/11 and 2015/16, respectively.

In 2010/11, nearly 10, 078 (63.2%) of households have members who reached lower education levels (elementary), while only 276 (1.3%) of households have members with tertiary educational levels. In 2015/16, household members with lower and tertiary education levels account for 5,971 (32.1%) and 7,004 (37.7%) respectively. In both surveys, the majority of households were male-headed. Only 6 (0.04%) and 17 (0.09%) households had health insurance in 2010/11 and 2015/16 respectively. In 2015/16, nearly 14,595 (78.5%) and 6,344 (34.1%) households had claimed to encountered OOP health payment for inpatient and outpatient services, respectively.

Table 6.1: Socio-demographic profile of households who reported non-zero health expenditure in 2010/11 and 2015/16

Variable		Year	
		2010/11	**2015/16**
		n (%)	**n (%)**
Household head gender	Male	10,937 (68.54)	11,373 (61.2)
	Female	5,024 (31.5)	7,212 (38.8)
Location	Rural	6,430 (40.3)	6,159 (33.14)
	Urban	9,531 (59.7)	12,426 (66.9)
Household size (equivalent) (Eq.6)	1	4,309 (27)	4,255 (22.9)
	2	2,545 (16)	9,128 (49)
	3	2,517 (15.8)	4,762 (26)
	4	3,534 (22.1)	419 (2.3)
	5+	3,056 (19.13)	21 (0.13)
Household age composition	≤ 18	1,173 (11)	310 (1.7)
	19-35	7,310 (45.8)	6,707 (36.1)
	36-54	3,254 (20.4)	7,460 (40.1)
	> 55	3,623 (22.7)	4,108 (22.1)
Education of household head	None	4,985 (31.2)	3,794 (20.4)
	Primary	10,078 (63.2)	5,971 (32.1)
	Secondary	622 (3.9)	1,816 (9.8)
	Post-secondary	276 (1.3)	7,004 (37.7)
Employment of household head	Employed	1,839 (11.5)	15, 775 (84.9)
	Unemployed	14,122 (88.5)	2,810 (15.1)
Type of health service	In-patient service	NA	14,595 (78.5)
	Out-patient service	NA	6,344 (34.1)
Insurance	Insured	6 (0.04)	17 (0.09)

NA: Information not available

6.1.2 Monthly household medicine expenditures

As shown in Table 6.2, the mean per-capita monthly expenditure of households was 1,219.7 ETB (SD=1,555) (29.9 USD) in 2010/11 and 2,841.4 ETB (SD=4,150.5) (69.6 USD) in 2015/16. In the meantime, the food share of household expenditure took about 46% (SD=14) (in 2010/11) and 51% (SD=15.6) (in 2015/16). The proportion of households that utilized medicine through direct payment was increased from 88% in 2010/11 to 95% in 2015/16. Medicine OOP payment shares nearly 66% of total healthcare service for both surveys.

In the meantime, average OOP payment for healthcare service is increased by 38% from 32.7(0.80 USD) (0.75%) ETB in 2010/11 to 52.6 ETB (1.3 USD) in 2015/16 (P=0.000). In the same period, the average expense for medicine also increased significantly (P=0.018) by 12%. On the other hand, the share of total healthcare services out of per-capita expenditure has a lesser proportion in the most recent survey. Once the budget share of food expenditure is netted out, the health service share to capacity-to-pay (non-food expenditure) share increased approximately by 2%. A statistical significance was observed in increase in medicine expenditure over the two survey periods.

Monthly expenditure by quintile

The average expenditure of the richest quintile for medicine was about 4 (P=0.001) times of poorest in 2010/11 and 3 (P=0.000) times in 2015/16 respectively (Table 6.3). But, a less (< 5%) difference was seen between the second, middle, and fourth average expenditure quintiles of both surveys.

Table 6.2: Financial burden indicators, Ethiopia, 2011/2012 and 2016/16

Variables	Types of expenditures	2010/11	2015/16	t-test	P-value
		Mean (SD,)	Mean (SD,)		
Monthly per capita expenses (ETB)**	HHs expenditure	1,219.7 (1,555)	2,841.4 (4,150.5)	-48.6[a]	0.000
	Health*	32.7 (93)	52.6 (189.2)	-12.1[a]	0.000
	Medicine*	12.2 (54.5)	13.9(80.1)	-2.35[a]	0.018
Share of OOP payment for medicine services	HHs OOP expenditure	88.5% (6.3%)	95.2% (2.2%)	-0.0014[a]	0.000
Share of total HH expenditure (%)	Health*	3.5% (10.8%)	3% (18.8%)	1.12[a]	0.27
	Medicine*	1.3% (5.08%)	0.8% (4%)	10.6[a]	0.000
Share of non-food HH expenditure (%)	Health*	6.7% (25.8%)	8.4% (11.4%)	-0.93[a]	0.354
	Medicine*	2.6% (13.9%)	4.8% (10.0%)	6.35[a]	0.000

Figures in brackets are standard deviations (SD)
[a]*independent samples t-test*
** *ETB at constant 2009–2010 prices*
* *OOP expenditure on health and medicine-only*
OOP, out of Pocket Payment
HH, Household

Table 6.3: Monthly per-capita expenditure on medicine (in current price) among households in Ethiopia, 2010/11and 2015/16.

Quintile	Monthly per capita consumption expenditure (OOP)											
	2010/11						2015/16					
	Health			Medicine			Health			Medicine		
	%	μ (ETB)	P	%	μ (ETB)	P	%	μ (ETB)	P	%	μ (ETB)	P
Poorest	11	18.1		10	6.6		13	32.5		11	7.7	
Poorer	16	24.2		16	10.0		16	41.2		14	9.8	
Middle	17	28.2	0.000*	17	10.8	0.001*	18	44.4	0.000*	17	11.9	0.000*
Richer	21	35.0		20	13.0		23	56.8		24	16.7	
Richest	35	56.9		37	23.5		30	75.6		34	23.7	

%: proportion of quintile from consumption expenditure
μ: the average monthly OOP health services per-capita expenditure by quantile
*Ordered logistic regression; *p<0.05, Log likelihood = -25489.054; -29806.691, LR chi2 = 388.71;199.77*
OOP: Out of-Pocket-Payment

6.1.3 Incidence, intensity, and distribution of catastrophic medicine expenditures

A percentage of OOP medicine payments to subsistence expenses has been calculated using a set of thresholds (see Table 6.4). In 2010/11, when the cut-off levels were increased from 5% to 40%, about 10.9 percent (at the 5% threshold) and 1% (at the 40% threshold) of households experienced CHE as a result of medicine OOP payment. In 2015/16, the percentage of families affected by CHE increased from 4% to 0.73 percent as the threshold was raised. In 2015/16 and 2010/11, a total of 399,174 and 401,519 persons (Table 6.7) were affected by catastrophic medicine costs above 40%. In 2015/16, the CHE of health spending was 3.18 percent at a 40% threshold, with medicine OOP payment accounting for roughly a one-third (0.73 %).

Across the thresholds, the mean overshoot (intensity) of medicine catastrophic payment was lower in 2015/16 than in 2010/11. In 2010/11 and 2015/16, for example, the overrun for medicine payments decreased from 18.3 percent to 0.4 percent (at the 40% cut-off). Unlike incidence and intensity, the mean overshoot (MPG_{cat}) traverses the thresholds in the opposite direction. For example, in 2015/16, households faced CHE at a 5% threshold spent an average of 24% (19 % + 5 %) their monthly non-food expenditure on medicine. At a 40% barrier, however, the average proportion was boosted to 80% (40 % + 40 %). In 2010/11, the incidence concentration indices were positive; however, they were negative in 2015/16 across all thresholds. In 2010/11, the weighted CHE headcount score was lower than the unweighted CHE headcount score. In the second survey year, however, the weighted CHE headcount scored higher. In both survey years, the weighted overshoot outperformed the unweighted. Both surveys had negative overshoot indices (C^O) for medicine payment.

Table 6.4: Incidence, intensity and distribution of catastrophic health and medicine payment among households in Ethiopia, 2010/2011 and 2015/2016.

Year		**2010/2011**				**2015/2016**			
Threshold level (Z_{cat})		***5%***	***10%***	***25%***	***40%***	***5%***	***10%***	***25%***	***40%***
Variables	Type of expenditure	**Headcount measures**							
H_{cat}	Health	26.69%	14.56%	5.28%	2.70%	24.65%	14.12%	5.37%	3.18%
	Medicine	10.90%	5.87%	1.87%	1%	7.10%	4%	1.40%	0.73%
C_E	Health	0.101	0.1247	0.1516	0.1754	-0.1771	-0.2175	-0.2852	-0.3013
	Medicine	0.1272	0.1498	0	0.2627	-0.1482	-0.179	0	-0.3737
H^w	Health	24.00%	12.70%	4.50%	2.20%	29.00%	17.20%	6.90%	3.10%
	Medicine	9.50%	5.00%	1.90%	0.70%	8.10%	4.80%	1.40%	1.00%
		Gap measures							
G_{cat}	Health	4.35%	3.36%	2.06%	1.50%	8.43%	8.42%	8.41%	8.40%
	Medicine	0.35%	3%	10.70%	18.30%	1.10%	0.86%	0.50%	0.40%
C^O	Health	0.186	0.2066	0.2427	0.2761	0.364	0.365	0.365	0.366
	Medicine	-0.5243	-0.2124	0	0	-0.3046	-0.3479	0	0
O^W	Health	4%	3%	2%	1%	5.36%	5.35%	5.33%	1.33%
	Medicine	1%	4%	1%	1%	1.50%	1.20%	0.50%	0.40%
MPG_{cat}	Health	16.67%	23.62%	44.44%	45.45%	18.48%	31.10%	77.25%	42.90%
	Medicine	11%	80%	58%	71%	19%	25%	36%	40%

Z_{cat}: set of cut-offs; H_{cat}: catastrophe headcount, C_E: concentration expenditure indices H^w; weighted headcount
G_{cat}: catastrophe overshoot; C^O: concentration expenditure; O^W: weighted overshoot; MPG_{cat} : Mean positive gap

Catastrophic medicine payment by quintile

The trend from 2010 to 2016 (Figures 6.1 and 6.2) shows that the poorest quintiles are facing CHE when comparing to the other quintiles. But, for the rest of the quintiles, the incidence of CHE is slightly falling across the surveys.

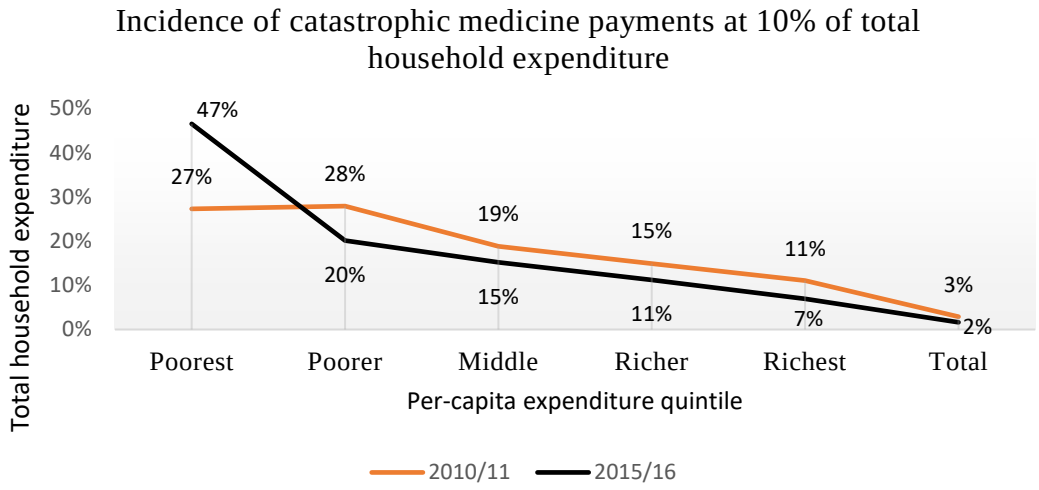

Figure 6.1: Households experiencing catastrophic payments owing to medicine payments (OOP) by quintile using 10% of total expenditure.

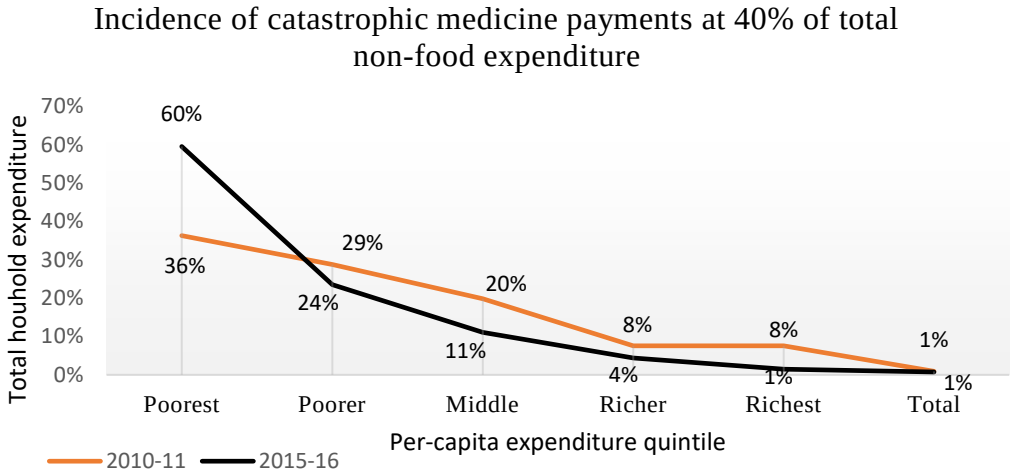

Figure 6.2: Households experiencing catastrophic payments owing to medicine payments (OOP) by quintile using 40% of non-food expenditure.

6.1.4 Medicine expenditures and poverty

Table 6.5 and Table 6.6 gives a poverty headcount and gap estimate before and after netting out health expenditure and medicine payments in Ethiopia to examine the sensitivity of poverty to healthcare services. In this study, the estimated poverty level per capita per month was 392.94 ETB (USD 17.7) in 2010/11 and 872.04 ETB (USD 50.8) in 2015/16 (based on survey data).

According to the projected poverty level, almost 0.63 % and 1.5 % were poor in 2010/11 and 2015/16, respectively, among those who reported non-zero for health care. When the OOP payment for medicines is deducted, the share of poor households rises to 2.7% and 1.52% in successive surveys. Medicine OOP payments pushed 74,144 people into poverty in 2010/11 and 11,132 people into poor in 2015/16. During the 2010/11 and 2015/16 fiscal years, OOP medicine expenses increased the poverty measurement by 1.7 percent and 1.3 percent, respectively. While OOP health spending increased poverty rates by nearly 6.3% in 2010/11 and 9% in 2015/16.

In 2010/11 and 2015/16, the gross poverty gap increased from 64.7 ETB (USD 1.6) to 103.9 ETB (USD 2.5). In the same years, the poverty gap ascribed to medicine OOP payments grew from 46.7 ETB (USD 1.1) to 54.5 ETB (USD 1.3). During the same time periods, the normalized poverty gap (as a percentage of the poverty line) grew by 12.3% and 3.7%, respectively. In following survey, poverty headcounts increased to 13% and 4.14%, respectively, based on the international poverty level of USD 1.90 per day (Table 6.6). The observed distribution and trend were similar to estimates of the national poverty line. In general, estimates show that medicine-only OOP payments account for a large portion of the total healthcare impoverishment effect. Meanwhile, out-of-pocket payments for medicine account for a higher share of total healthcare spending (see Table 6.5& 6.6).

Table 6.5: Impoverishment impact of out-of-pocket payment attributed to medicine expense among Ethiopian households in 2010/11 & 2015/16.

		Gross health payment (1) *		Net of health payment (2) **		Difference			
						Absolute		Relative	
						(3) = (2)-(1)		[(3)/ (1)] *100	
Year		**2010/11**	**2015/16**	**2010/11**	**2015/16**	**2010/11**	**2015/16**	**2010/11**	**2015/16**
Poverty line (ETB/Month)		392.94	872.04	392.94	872.04	392.94	872.04	392.94	872.04
Poverty headcount	Health	0.63%	1.5%	1%	1.63%	0.4%	0.1%	6.3%	9%
	Medicine			0.8%	1.52%	0.17%	0.02%	1.7%	1.33%
Poverty Gap (ETB current price [a])	Health	64.7	130.1	103.9	180.2	39.2	50.1	60.6%	38.5%
	Medicine			111.4	184.6	46.7	54.5	72.2%	41.9%
Normalized poverty gaps	Health	3.5%	8.8%	14.7%	12.1%	11.2%	3.4%	3.2%	38.5%
	Medicine			15.8%	12.44%	12.3%	3.7%	3.52%	41.9%

[a] *current price was calculated using the Consumer Price Index (CPI) ratio converting method*
** The poverty headcount and gap estimate before netting out the health & medicine expenditure*
*** The poverty headcount and gap estimate after netting out the health & medicine expenditure*

Table 6.6: Impoverishment impact of out-of-pocket payment (OOP) attributed to medicine expense among Ethiopian households in 2010/11 and 2015/16. (At international poverty line)

		Gross health payment (1) **		Net of health payment (2) ***		Difference			
						Absolute (3) = (2)-(1)		Relative [(3)/ (1)] *100	
Year		**2010/11**	**2015/16**	**2010/11**	**2015/16**	**2010/11**	**2015/16**	**2010/11**	**2015/16**
Poverty line (USD/Day)		1.90	1.90	1.90	1.90	1.90	1.90	1.90	1.90
Poverty headcount	Health	13%	4.14%	1%	4.41%	0.7%	0.27%	10.6%	7%
	Medicine			0.76%	4.18%	0.13%	0.04%	20.6%	0.97%
Poverty Gap (ETB current price[a])	Health	45.2	108.6	57.7	120	12.6	11	28%	25%
	Medicine			47.4	121.8	2.3	13.2	5%	12%
Normalized poverty gaps	Health	4.7%	8.6%	6.0%	9.5%	1.3%	0.9%	28%	0.1%
	Medicine			5%	9.62%	0.2%	1.0%	5.1%	12%

The exchange rate of USD to LCU in 2011, 2016 and march of 2021was 17.18, 22.2, 40.8 and respectively.

An international poverty line of 1.90$per day-per-person Purchasing Power Parity (PPP) was used to calculate the impoverishment

ETB: Ethiopian Birr, USD: United States Dollar

[a] *current price was calculated using the CPI ratio converting method*

***The poverty headcount and gap estimate before netting out the health & medicine expenditure*

****The poverty headcount and gap estimate after netting out the health & medicine expenditure*

Impoverishment by place of residence

In this section, the impoverishment effect of catastrophic health and medicine expenditure is described by the residence of households (Figures 6.4 and 6.5). The trend indicated the poverty headcount proportion has been increased over the two survey years. Out of the impoverished people, the incidence of poverty was relatively higher in urban residents than the rural area across the two surveys. The medicine OOP payments rise the poverty estimation of urban and rural areas by 10.2% & 7.8% in 2015/16, and 13.6% & 6.4% in 2010/11 respectively.

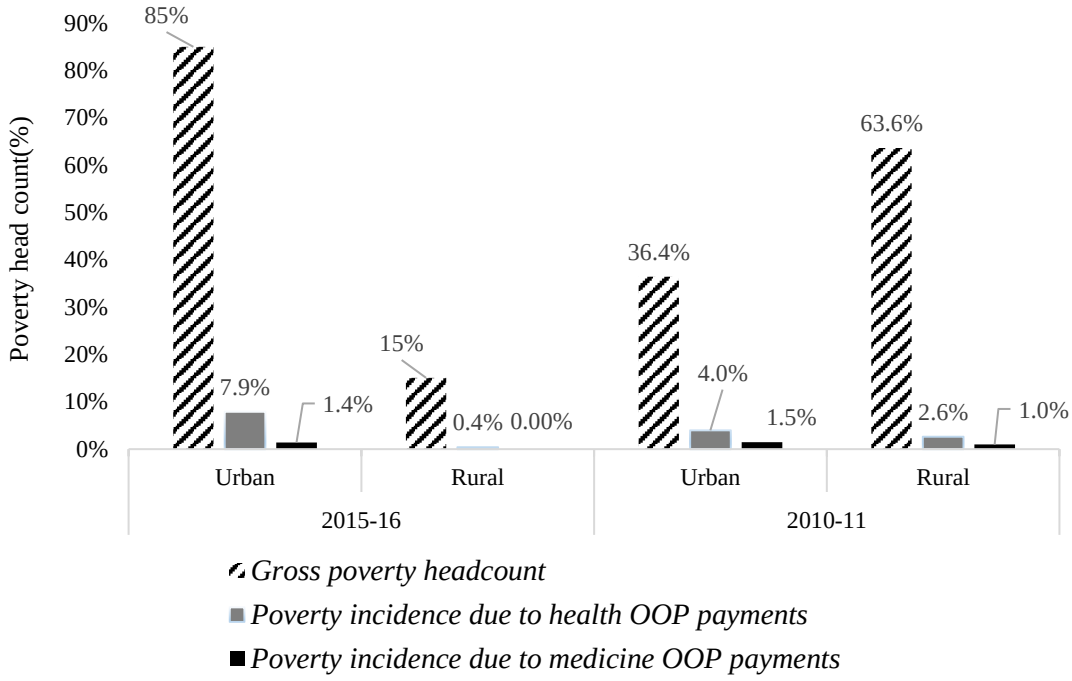

Figure 6.3: Impoverishment by place of residence among households in Ethiopia during 2010/11 and 2015/16.

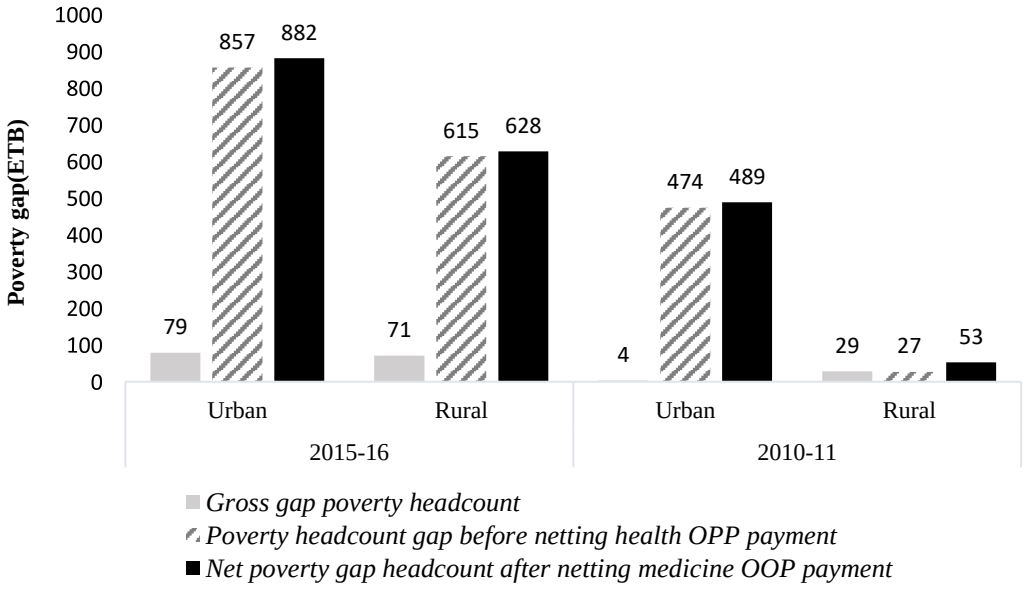

Figure 6.4: The poverty gap by place of residence among households in Ethiopia during 2010/11 and 2015/16

Impoverishment by expenditure quintile

Figure 6.5 and 6.6, demonstrates the impoverishment effect of health OOP payment across per capita expenditure quintiles. The first to middle quintiles were sensitive to be pushed into poverty owing to medicine payment. But at the fourth and fifth quintile, the impoverishment effect was relatively minor, particularly in 2015/16.

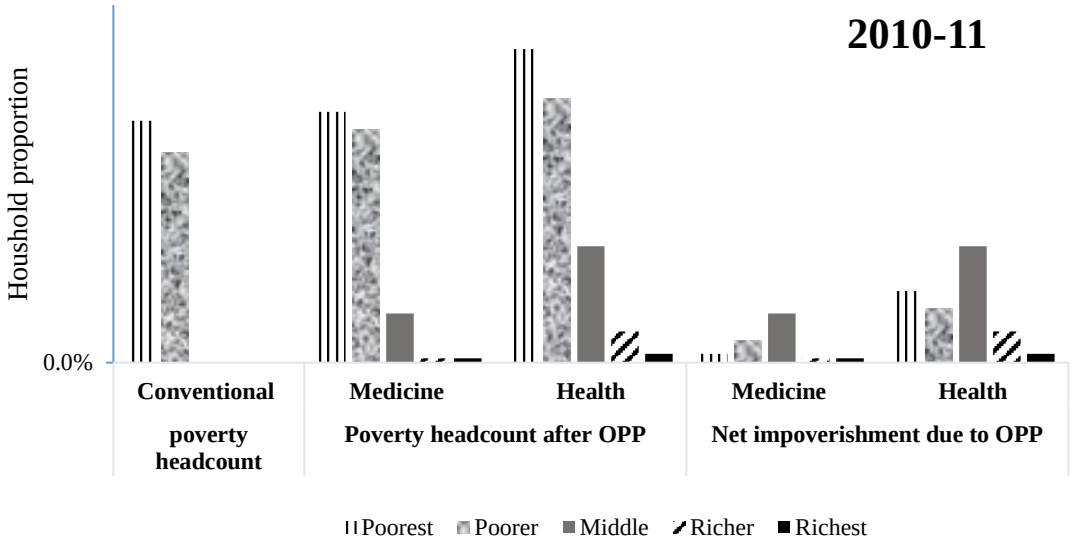

Figure 6.5: Impoverishment effect of medicine OOP payment across the per capita expenditure quintiles in Ethiopia. 2010/11

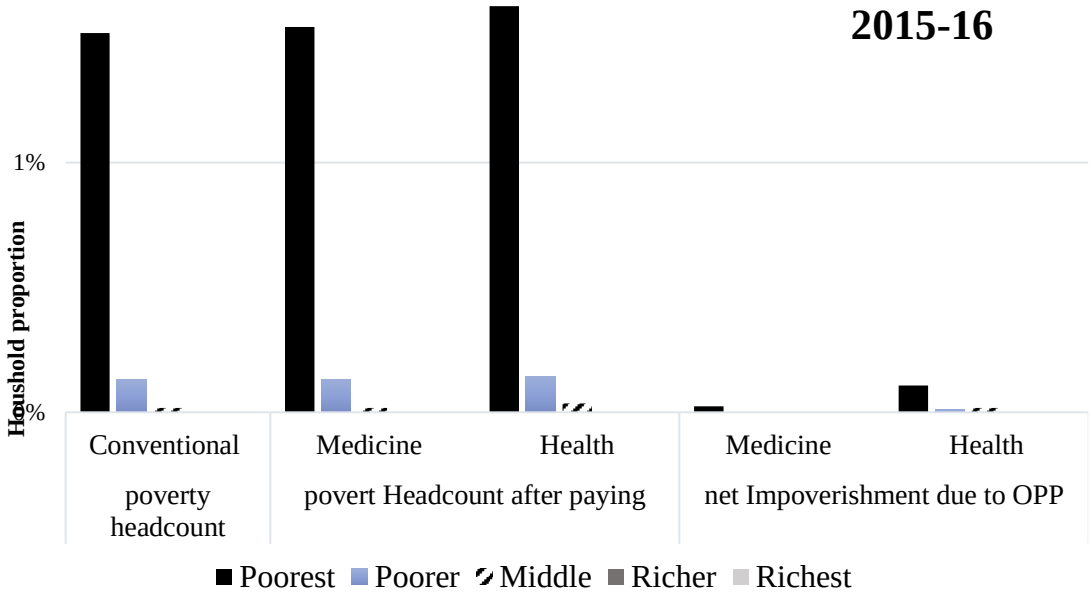

Figure 6.6: Impoverishment effect of health OOP payment across the per capita expenditure quintiles in Ethiopia. 2015/16

6.1.5 Determinates of catastrophic medicine expenditure

The health insurance, residence, and quintile (household per capita expenditure) were sustained to be significant determining factors over two surveys (Table 6.7 and 6.8). In 2015/16, seeking inpatient service, also played a role to incur catastrophic expenditure. However, some change has been observed in the probability of facing catastrophic medicine expenditure and household characteristics over two survey years. For example, in 2010/11 no association was observed in gender and educational level of the household head. But then, in 2015/16, the employment status of households lost its statistical insignificance.

Table 6.7:Bivariate analysis of catastrophic medicine expenditure concerning household characteristics in Ethiopia, 2010/2011 & 2015/16

Household characteristics		Probability of Catastrophic medicine expenditure							
		2010/11				2015/16			
		Estimated population(N)	*%*	*LR chi²*	*P*	*Estimated population(N)*	*%*	*LR chi²*	*P*
Sex of head	Male	300,748	0.69	3.31	0.077	159,427	0.29	25.73	0.000
	Female	98,426	0.23			242,092	0.43		
Residence	Rural	267,939	0.61	43.15	0.000	79,713	0.14	11.93	0.001
	Urban	131,235	0.3			321,806	0.58		
Household size	1	76,554	0.18	3.98	0.047	8,857	0.02	10.38	0.001
	2	62,884	0.14			38,380	0.07		
	3	71,086	0.16			67,904	0.12		
	4	106,629	0.24			82,666	0.15		
	5+	82,022	0.19			203,712	0.37		
HH Age	Adult<55	289,811	0.66	3.54	0.056	321,806	0.58	3.11	0.066
	Adult>55	109,363	0.25			79,713	0.14		
HH Education	None	87,490	0.20	2.48	0.116	162,379	0.29	29.02	0.000

	Primary	218,725	0.50			121,046	0.22		
	Secondary	79,288	0.18			29,523	0.05		
	Post-secondary	13,670	0.03			88,570	0.16		
HH Employment	Employed	0	0.00	0.00	0.000	336,567	0.60	0.022	0.641
	Unemployed	399,174	0.91			64,952	0.12		
Type of health service	In-patient service	-	-	*NA*	*NA*	259,806	0.47	13.78	0.000
	Out-patient service	-	-			144,665	0.26		
Quintile	1	144,906	0.33	47.36	0.000	239,140	0.43	141.62	0.000
	2	114,831	0.26			94,475	0.17		
	3	79,288	0.18			44,285	0.08		
	4	30,075	0.07			17,714	0.03		
	5	30,075	0.07			5,905	0.01		
Health Insurance	Insured	8,202	0.02	-0.000	0.000	2,952	0.01	2.47	0.038
	Uninsured	390,972	0.90			398,567	0.72		

LR chi^2: Logistic Regression chi-square; NA: Not Available

:

Simultaneous logistics regression of medicine expenditure is used for significant variables in bivariate analysis (Table 6.7 and 6.8). So, the chance of facing catastrophe per rising in each fraction of per-person medicine expenditure was estimated. Household per-capita expenditure was used as a continuous variable in the logistic model. Relatively, it could be an indicator of the socio-economic dimension. Five (in 2010/11) and seven (in 2015/16) variables were found to be significant during bivariate analysis. Variables such as sex, age, education, and employment status of households were not more statistically significant over the respective surveys.

Table 6.8: Simultaneous logistic regression of household catastrophic medicine expenditure determinants at (OOP/CTP≥0.40); Ethiopian survey 2010/11.

	S. E	**Wald Chi^2**	**Sig.**	**OR**	**95% CI**	
Rural residence	0.033	287.4	0.00	1.842	1.464	2.317
≥5 members living in HH	0.006	287.7	0.028	1.057	0.999	1.119
≥55 old member living in HH	0.010	285.5	0.811	1.101	0.999	1.214
Unemployed HH head	0.068	296.7	0.95	0.017	0.002	0.121
Richest household	0.099	48.6	0.00	0.704	0.645	0.768
Lack of health insurance	0.117	6.74	0.000	1.00	-3.026	-2.56
High per-capita medicine Expense	0.0004	7.82	0.000	0.999	0.998	1.000

**Per capita medicine expenditure of household taken as a continuous variable*

The logistic model estimates also show that with an increase in households with ≥5 family members, the probability of facing CHE is high, in 2015/16. Rural residents

incurred CHE 1.8 times than households in the urban areas in 2010/11. But, living in a rural area was a protective factor during 2015/16. High per-capita expenditure was also observed as a protective factor. In 2015/16, inpatient health service rises the chance of catastrophic expenditure. Concerning the impact of insurance, its statistical significance was lost in the 2015/16 survey year.

Table 6.9: Simultaneous logistic regression of household catastrophic medicine expenditure determinants at (OOP/CTP≥0.40); Ethiopian survey 2015/16. (*continued*)

	S. E	**Wald Chi^2**	**Sig.**	**OR**	**95% CI**	
Female as a HH head	0.015	10.62	0.836	1.157	0.972	1.377
Rural residence	0.016	63.04	0.00	0.392	0.313	0.489
≥5 members living in HH	0.003	34.76	0.00	0.898	0.858	0.939
≥55 old member living in HH	0.020	17.85	0.217	1.308	1.049	1.631
HH head illiterate/primary	0.006	16.23	0.902	0.918	0.851	0.990
Outpatient service	0.018	28.12	0.00	0.417	0.317	0.549
Richest household	0.001	253.06	0.00	0.387	0.352	0.426
Lack of health insurance	0.016	3.41	0.083	1.04	-0.002	0.035
High per-capita medicine Expense	0.0068	343.09	0.000	1.014	0.0065	0.007

**Per capita medicine expenditure of household taken as a continuous variable*

6.2 Results of the qualitative study

6.2.1 Characteristics of participants

The interviews were conducted with fourteen people, five of them were from EHIA (Table 6.10). Eleven of the participants were men, and nine had a master's degree. Seven were pharmacists and five were health officers, according to their professional backgrounds. Furthermore, at the time of the study, twelve of the participants held senior-level positions. The average length of time that participants stayed in their jobs at the time of the interview was five years, ranging from one to fifteen years.

Table 6.10: Characteristics of qualitative interview participants, Addis Ababa, Ethiopia, 2021

Characteristics		**Number**
Sex	Female	3
	Male	11
Age (in Years)	25-35	9
	Above 35	5
Highest academic degree completed	First Degree	4
	Second Degree and above	10
Profession	Pharmacist	7
	Health Officer	5
	Physician	1
	Other*	1
Place of work (Organization)	EHIA	5
	TASH	1
	MoH	3

	EPSA	3
	SPHMMC	2
Role/position in the organization	Junior	2
	Senior	12
Length of service in current role/position	1-5	9
	>6	5

** Economist; EHIA: Ethiopian Health Insurance Agency; TASH: Tikur Anbesa Specialized hospital; MoH: Ministry of Health; EPSA; Ethiopian Pharmaceutical Supply Agency: SPHMMC: Pawilos Referral Hospital*

6.2.2 Major themes identified in the analysis

In the domains of the current context of medicine OOP payment in Ethiopia, aggravating factors for medicine OOP, failures to implement planned solutions, and plans to reduce OOP medicine payment, the analysis revealed four major themes. The main findings for each major theme and its related sub-themes are presented below.

Current context of medicine OOP payment in Ethiopia

Overall, the participants were in consensus with the current state of health and medicine OOP payments and their impact on households. Participants saw OOP healthcare payments as a widespread problem in the country. According to participants, even the insured and individuals eligible for subsidized services were not immune to OOP for many areas of healthcare. Medicine was among the major reasons for OOP payment. Patients in urban areas, those who had to go to the emergency room, and those with non-communicable disorders were also more likely to be charged OOP payments. The following quotes represent participants' views on Ethiopia's healthcare OOP payment situation:

".....the number of persons being routed to private pharmacies to obtain drugs was remarkable among patients who are either insured or subsidized." [Male, pharmacist working in hospital]

"….. The current OOP payment among our members [insured under the CBHI scheme] is high, according to our reports from all corners of the country'' [Male, *health officer working in Ethiopian health insurance agency]*

"……Currently, there is a high level of health OOP among the general populace; in particular, emergency cases and non-communicable diseases are becoming increasingly costly." [Male, *pharmacist working in ministry of health]*

"……. mostly, a murmur heard concerning OOP from people in urban areas rather than rural residents." [Female, pharmacist working ministry of health]

Participants had some varied opinions regarding the impoverishment impact of OOP payment medicine in Ethiopia. For some, the impact is clear and is widespread. The majority of participants described that the cost of medicine is expensive as compared to other healthcare services. According to these respondents, OOP payment for medicine could lead to impoverishment as it could expose households to high loans and the sale of property. It was also mentioned that the impact could be higher among households with lower economic status. Overall, all but one of the participants agreed on the impact of OOP payment on medicine and other areas of healthcare services. The participant who disagreed with the influence of OOP payments on poverty cited the availability of affordable healthcare services in government institutions as a rationale. The following quotes encapsulate the contributors' views on the subject:

"……Yes! there is health OOP in our society, I think paying for medicines cannot push people to poverty. Because, currently, there are many options that are

affordable. For example, [government-run] health centers are being available at every village and offer majority of the services at affordable prices. So, I don't think it [OOP] will push people to poverty.'' [Male, pharmacist working in ministry of health]

"…… so, when the payment [OOP health payment] exceeds the catastrophic payment threshold, OOP becomes a concern. Then, as the burden grows heavier, impoverishment may result. Therefore, the cost and consequences of OOP payment are significant." [Female, pharmacist working in Ethiopian health insurance agency]

"*….. OOP payment, in my opinion, has the potential to push people to poverty. Patients with severe and complicated conditions, for example, are referred to our hospital and may stay for an extended period of time. Thus, if they [patients] begin to purchase medicine from outside the compound, they may be financially weakened. As a result, there is no question that it will be poor." [Male, pharmacist working in hospital]*

Other consequences of OOP payments mentioned by participants include a decrease in community healthcare seeking behavior, driving households to illegal institutions, and affecting the nation's economic well-being. The following quotes reflect these opinions.

"…… When an individual's OOP is high, he or she may begin to look for other, less expensive intervention possibilities. As a result, unlawful conduct and the provision of hazardous and unqualified medicines through contraband may become possible. All of this, I believe, might lead to a "health crisis" in the country." [Male, pharmacist working in ministry of health]

Aggravating factors for medicine OOP payment

Deficits in the medicines supply chain and limits in health insurance coverage were two recurring ideas highlighted under this theme. Each of the two concepts is discussed in more detail below.

A. Deficiencies in the medicines supply chain

According to participants, supply system flaws cause medicine shortages in public health institutions, forcing patients to purchase them from the private sector at higher prices. Some participants also claimed that private pharmacies that are aware of the lack of medicines in the public sector raise their already high costs dramatically. The insurance agency was also claimed to have stopped reimbursing expenditures on medicine due to widespread stock outs in various parts of the country, implying that persons covered by CBHI could still be subject to OOP payments. The following quotes explain participants' opinions in this regard.

> *"When public health institutions run out of [medicine], private pharmacies hike the price of the medicine considerably. For example, if a stock out medicine costs 4 ETB in a public hospital, it might cost 20, 40, or 100 ETB in a private pharmacy." [Male, pharmacist working in hospital]*

> *"From time to time, the rate of reimbursement for medicine rises. The [health insurance] agency faced a budget shortfall as a result of this circumstance. For example, due to a high rate of stock out and requests for reimbursement [of payments made when purchasing medicine from private pharmacies], we have already stopped reimbursing for medicines in one of the country's regional states." [Male, pharmacist working in Ethiopian health insurance agency]*

The causes of medicine stock outs in public health institutions, according to participants, range from challenges within the health facility to nationwide supply chain issues. Individual health-care institutions' lack of medicine budgets and the low quality of forecasting data supplied to the national procurement agency were noted as facility-level issues contributing to medicine shortages. The following quotes show depict how participants felt about the issue.

"…. For example, there have been times when the budget for Tikur Anbesa specialty hospital was only enough to meet one-third of the hospital's pharmaceutical needs." [Female, pharmacist working in ministry of health]

"……. I have no doubt that we [Hospital] have a data management problem in general. Although some progress was visible for two years after the introduction of digitalization, it is possible to claim that data recording and handling in our hospital is very inadequate." [Male, Pharmacist working in Hospital]

"...yes, medicine shortages may arise at the health facilities we provide, but we only forecast and purchase based on the health facilities' reported consumption statistics. [...] Incorrect data from health facilities is sent to the national procurement agency, resulting in the procurement of needlessly huge amounts of low-demand medicines. Due to overstocking, many [such] medicines have expired." [Male, pharmacist working in Ethiopian pharmaceutical supply agency]

Foreign currency shortages, the involvement of multiple actors at various levels of the pharmaceutical supply chain, and procedural hurdles are all issues at the national level. Foreign currency shortages have been accused for causing protracted delays in the procurement of pharmaceuticals, resulting in market shortages. One participant, for example, described the incident as follows:

"…. For example, ART, anti-TB, and antimalarial medicines, which are funded by various stakeholders in collaboration with the global fund and the Ethiopian health minister, did not necessitate the use of foreign hard currency from us [national procurement agency]. Hence, programme drugs are usually available at health facilities, but not others [non-programmed medicines]. [….] We had contracts that we signed two years ago, but owing to a lack of foreign currency, we were unable to import the products." [Male, pharmacist working in Ethiopian pharmaceutical supply agency]

The drug supply chain management process, according to participants, involves a variety of parties with varying capacities and interests. Participants named the national pharmaceuticals regulator, airlines, shipping lines, purchasers, banks, and the customs authority as important actors. A key source of medicine shortages has been found as a lack of coordination of their efforts. The following quote exemplifies this:

"…. The unavailability of a single medicine has an impact on a person's life. However, due to a variety of issues, it is difficult to obtain drugs on a consistent basis. [….] One issue is a lack of collaboration among our stakeholders in order to make the purchase and distribution process more efficient. We intend to build a special forum with our stockholders to discuss and assist us in the supply process on a regular basis. After all, we believe we are both working for the same country." [Male, pharmacist working in Ethiopian pharmaceutical supply agency]

Procedural hurdles in the national pharmaceutical procurement procedure have also been cited for delaying medicine purchases. This, in turn, was thought to have an impact on medicine availability in the supply system. The biggest procedural difficulties in the procurement of pharmaceuticals, according to participants, are the delay in approving

committee endorsement for purchasing, delay in approval to purchase, and clearance for release of acquired goods by Ethiopian Food and Drug Administration (EFDA). This concept is explained by one informant as:

"*…. The procurement process is frequently preceded by a significant period of time for the endorsing committee. Members of the endorsing committee have their own routine and priority responsibilities because they are generally occupied for meetings. Furthermore, there may be back-and-forth before the committee makes a decision, which takes time to complete." [Male, pharmacist working in Ethiopian pharmaceutical supply agency]*

"…. the EFDA takes a long time to approve the document we filed for legal authorization for purchasing." [Male, pharmacist working in Ethiopian pharmaceutical supply agency]

Limitations in health insurance coverage

Another aggravating issue for medicine out-of-pocket payments was claimed to be the country's health insurance coverage limits. Despite the fact that the number of administrative units (woredas) offering the CBHI has expanded substantially, there are still certain obstacles. The low number of enrolled households, the national health insurance agency's inability to implement better reimbursement policies and guidelines, the health sector's weak system of checks and balances, and the insurance system's low level of government subsidy were all mentioned as potential factors that limit the types of services and medicines covered by the insurance system.

"…We were unable to grow our membership per need because the scheme is new and people need time to become aware of it." [Female, public health officer working in Ethiopian health insurance agency]

"…. FMOH is in charge of both the supplier agency and the purchaser health facilities. This means that the Ethiopian Ministry of Health serves as both a check and a balance. This, I believe, could have an impact on the quality of medicine distribution" [Male, health officer working in Ethiopian health insurance agency]

"….. Ethiopia has about 1000 woredas, and our insurance system has covered about 800 of them, with 700 of them being operational. However, with our current financial resources, expanding health care coverage beyond what we currently have is difficult." [Male, health officer working in Ethiopian health insurance agency]

"... despite the fact that we have CBHI and SHI schemes. The already implemented insurance scheme [CBHI] does not cover emergency health care." [Male, pharmacist working in ministry of health]

Failures to implement planned interventions

Most policies and strategies established in the previous five to ten years were either not executed or had limits during implementation, according to participants from all organizations. The failure to implement SHI, limits in the implementation of the third-party contract strategy, and the difficulty of issuing a proclamation making CBHI membership mandatory were cited as the primary issues in this respect. SHI was not implemented, according to respondents, because to a lack of political commitment, acceptability by potential insurers such as health professionals, and a communication gap between government authorities and stakeholders. The following quotes can help to understand the concept.

"…. We are awaiting the government's decision on whether or not to adopt the SHI scheme, which has taken a long time to discuss." [Male, health officer working in Ethiopian health insurance agency]

"…….we were unable to execute the SHI plan due to concerns made by various actors, including health professionals, potential insurers, and stakeholders, about the insurance package, payment, and other rule and regulation difficulties. There is still no clear agreement on these problems." [Female, health officer working in Ethiopian health insurance agency]

"…. There is a communication gap between us [EHIA], government agencies, and stakeholders." [Male, pharmacist working in Ethiopian health insurance agency]

The occurrence of obstacles in the implementation of the third-party contract strategy was mentioned by EHIA participants. This method was reported to be aimed at preventing insurance beneficiaries from paying out-of-pocket for medicines by contracting with private medicine retail outlets to supply medicines in the event of stock-outs at public facilities. However, respondents agree that uniform implementation of the approach across the country is a challenge. The primary failing, according to participants, was the regional nations' failure to contextualize the approach to their circumstances.

"…With private health sectors, we devised and implemented a third-party contract approach. Its goal was to keep the cost to the insured as low as possible. […] However, the OOP payment has not been terminated as of yet due to a lack of uniformity in its application throughout regional states. Third-party contract approach is something we're attempting to spread across the country. We are attempting to assist by providing a prototype for the regions to modify in

accordance with their specific circumstances." [Male, pharmacist working in Ethiopian health insurance agency]

Participants also mentioned failures in the enactment of proclamations that would improve the CBHI's ability to cover member households. Making membership in CBHI compulsory was one key move mentioned by participants in this regard. However, due to the lengthy approval process by the council of ministers, such a policy could not be implemented. According to one respondent, the situation is as follows:

"……. our efforts to extend CBHI membership have been hampered by the slow pace with which the modified proclamation has been enacted. […] The reason for this was that the ministerial council had not yet completed its deliberations on the proclamation." [Female, health officer working in Ethiopian health insurance agency]

Plan to reduce OOP medicine payment

Participants were asked if their institutions have any plans to decrease the impact of OOP payment in the future. Participants from the EHIA disclosed that they are nearing completion of preparations to implement the SHI system, in addition to plans to expand the insurance scheme's coverage. Participants also declared their intentions to put the medicines selection, pricing, and reimbursement policies into action. These plans are supported by the following quotes.

"….. The SHI system is already in the planning stages for its introduction. I'm hoping it [SHI] will be implemented as soon as possible. We [EHIA] are just waiting for the government to give us directions to proceed. [Male, health officer working in Ethiopian health insurance agency]

"…. We intended to boost medicine availability and reduce OOP exposure for our members. The policy, titled "Ethiopian drug selection, pricing, and reimbursement policy," was prepared by us […] As a result, we have prepared an action plan and are awaiting approval. Then, during the next six months of this year, we expected to begin implementing it [Ethiopian medication selection, price, and reimbursement strategy]." [Female, pharmacist working in Ethiopian health insurance agency]

Participants from health service provider facilities discussed strategies to improve the quality of data used in forecasting medicine demand by increasing digitization of the medicine supply system at the health facility level. Some participants also indicated that there are plans to make service price revisions to solve their budget shortage problems. The following quotations support the idea:

"Currently, we are converting it [the medicine supply system] to a computerized system, and I believe this will yield positive results in the future." [Male, pharmacist working in hospital]

"…. If the current trend of budget deficits continues, the hospital is anticipated to go bankrupt within the next 5 to 10 years. As a result, we are attempting to boost our revenue in a variety of ways. One method we have in mind is to undertake a 'fee review' for our health-care service." [Male, physician working in hospital]

FMOH participants also mentioned that the key area in which they intend to implement is the establishment of an organization that provides emergency health treatment on a loan basis to the general people. The planned strategy was described by one of the respondents as follows:

"...Emergency situations are currently being monitored as a major agenda item. As a result, the ministry [FMOH]is attempting to establish an emergency fund and plans to execute it as quickly as possible." [Female, pharmacist working in ministry of health]

Furthermore, to reduce forecasting error, the national procurement agency has prepared to give pharmaceuticals regardless of data gathered from health facilities, according to the participant. As the participant put it:

".... Our organization intends to distribute medicines in a centralized manner. We can generate data from a central location. We have a lot of data and experience over the years. As a result, health institutions will only be involved as a buyer and not as the primary data provider. Because the data provided by the health institutes could not be trusted enough. We intend to implement this strategy by next year." [Male, pharmacist working in Ethiopian pharmaceutical supply agency]

7 Discussion

In this section, the findings from the quantitative and qualitative phases were integrated to more fully answer the research questions. First, results from the HCE surveys were interpreted statistically that aimed to answer the major research objectives. Then, an in-depth interview was held with the key informants to address the qualitative phase research questions. This procedure helped to further explain and elucidate the findings from the quantitative phase of the study.

The present study generated results from a rich dataset of 2010/11 and 2015/16 HCE surveys held by the central statistics agency of Ethiopia. WHO approaches (David and Evans, 2005) were used to measure the financial burden of medicine OOP payment and its impact among households in Ethiopia. The utilized method produced the incidence, intensity, distribution, determinates, and impoverishment attributed to catastrophic medicine payment over the predefined thresholds. Findings from both quantitative and qualitative phases illustrated medicine OOP payment remained the main source for health catastrophic payment that brings significant impoverishment among households in Ethiopia. Moreover, in this study, aggravating factors for medicine OOP payment, the exitance of challenges in the implementation of policies in reducing reliance on medicine OOP payment, were also presented, in the areas of the current context of medicine OOP payment in Ethiopia.

The findings from this study illustrated medicine OOP payments have been increased over the survey years. For instance, nearly 88% of people directly paid for medicine in 2010/11, which raised nearly to 95% in 2015/16. In the same years, the average monthly per-capita medicine expense was also increased from 12 ETB (0.3 USD) to 14 ETB (0.35 USD), respectively. Moreover, medicines shared more than 65% of household

health expenditure for both survey years. The second phase of this study also confirmed that OOP medicine payment has been widespread in the country. The findings could have implications for the presence of significant out-of-pocket payments at the time of illness, as well as the primary form of healthcare financing in Ethiopia. (Marzban et al., 2015; Gutema and Engidawork, 2018). Even if OOP healthcare service expense is not the only source, it contributed significantly to the household's catastrophic health expenditure in 2007, according to a survey of 33 developing countries (Boasberg *et al.*, 2019). Medicines expense could also lead a significant number of households to incur CHE (Khatib *et al*., 2016). For instance, in India, by the year 2011/12 about 29 million people were faced CHE due to medicine OOP payment (Selvaraj *et al*,. 2018). In the present study, about (1%) of households incurred CHE attributed to medicine OOP expenditure in 2010/11, and the proportion of headcount was reduced to 0.7% in 2015/16 (40% threshold). Interestingly, in 2015/16, the incidence of catastrophic medicine payment (0.7%) was nearly one-third fraction of the total health service expenditure (3.2%).

The reduction in the percentage of incidence of catastrophic impact of medicine payment is likely. Several factors might be contributed either directly or indirectly. The protection policy reforms intervened in the last decade in Ethiopia (FMOH, 2005; FMoH, 2010) could played a direct role in reduction of incidence of CHE. The reform was mainly composed of; one, Ethiopia has been initiated health insurance schemes since 2010/11. The increase in the proportion of households enrolling in health insurance and utilization improvement across the surveys might be helped (EHIA, 2019). Here in this study, about 8,202 (2.1%) insured people were faced catastrophic payment (P=0.000) in 2010/11. However, in 2015/16, the proportion of insured people who incurred CHE was reduced to 2,952 (1.5%) (P=0.000). Further diseases-specific

studies done in Ethiopia similarly confirmed the protectiveness of health insurance (FMoH, 2015; Mekonen *et al*,. 2018). The other possible contributor might be the implantation of a scheme for distinct paying mechanisms (subsiding) for the poor (FMOH, 2008, 2010; USAID, 2012). Third, the improving medicine supply chain might be also contributed to the enhanced availability of lower price essential medicines, particularly in public health outlets (Gerba, 2018). The other corresponding explanation of indirect factors might be; implementation of primary healthcare (PHC) services with health extension programs and coping mechanism. In Ethiopia, the coverage of PHC has been increased and reported as financial protective through the prevention of diseases ('Primary health care systems (PRIMASYS): case study from Ethiopia', 2017). Another study was done in turkey also described the financial protectiveness efficacy of the primary healthcare system (Yardim, *et al*., 2010). Moreover, the coping mechanism by households and health professionals could also substantial in Ethiopia. Accordingly, in addition to households coping by themselves, about 88% of studied health professionals were tried to protect households from CHE through different coping strategies (such as minimizing unnecessarily drug prescription, prescribing second-line medicines, reducing lab tests, limiting admission, discharging early) during delivery health services (Miljeteig *et al.*, 2019).

Despite a decrease in the proportion of cartographic incidents in the current study, the number of people experiencing financial hardship indicators has increased. The number of people who incurred catastrophic medicine expenditure (40% threshold) was increased from 399,174 to 401,519 people in 2010/11 and 2015/16 respectively. Various Ethiopian findings also reported the persisted high OOP health payments and CHE incidences in recent years. For instance, a household level study revealed about 2% of households experienced CHE due to high health OOP payments in 2015/16 (10%

cut-point of total household expenditure) (Kiros *et al.*, 2020). Moreover, one study done in the northern part of Ethiopia revealed about 20% of study participants incurred CHE in 2017 (Mekonen, et al,. 2018). Moreover, 24% of patients with depression also reported CHE at a 10% threshold level in Ethiopia (Hailemichael *et al.*, 2019). These findings may lead to a better understanding of how the CHE could challenge the equity of healthcare access.

In the current study, a disparity has been observed in the distribution of household medicine expenditure and CHE counts. For instance, a significant (P=0.018) disparity was seen among the quintiles of per-capita medicine expenditure between the two survey years. Medicine expenses were much higher among the richest quintile in both surveys. However, the financial burden has been inclined to poor households through both surveys. For example, the concentration index was computed as positive in 2010/11 and negative in 2015/16. This implies the impact of medicine OOP payment has been shifted from better-off to worse-off (poor) households (Ke Xu *et al.*, 2005; Wagstaff, 2008).

Ensuring the accessibility of medicine is a remarkable work in bring equitable health access (Kelley *et al.*, 2005; Riley, 2012). The availability and affordability of medicines are the core to medicine accessibility (MSH, 2012). However, the results from this study implies the situation in Ethiopia. Thus, difficulties in the accessibility of medicines which might be the potential source of disparity in this study. In Ethiopia, most of the commonly prescribed medicine prices are expensive and unaffordable (Gutema and Engidawork, 2018; Teni *et al.*, 2018; Mathewos *et al.*, 2021). Unfortunately, free provided medicines through the public sector are often unavailable (Gutema and Engidawork, 2018; Mathewos *et al.*, 2021). Unavailability might force households to utilize private health sectors, so one can easily end up with catastrophic

medicine payments (Carasso *et al.*, 2009). A similar idea was risen in this study. that the stock-outs of medicines in public health facilities usually followed by high unnecessary rise in cost of medicines in private drug outlets which can expose patients to catastrophic payments easily.

Hence, unavailability and unaffordability usually result in a big challenge for households to access medicines, particularly poor households (Saksena *et al*., 2010). As a result, the financial burden of OOP payments is expected to be heavier on poor households. Consequently, when households are compulsory to fee for healthcare, it could share most of their non-food expenditure (Wagstaff and Doorslaer, 2003; Wagstaff A, 2008). Subsequent financial burden may lead them to lessen (ease) funding for some important household needs. Studies in Ethiopian rural areas also revealed households have reduced their food consumption *(*Yilma *et al*,. 2014; Hailemichael et al., 2019). In the meantime, one may miss its treatment and decide not to use healthcare services (Wang *et al.*, 2015). The above scenario might force households to choose opportunity costs between subsistence consumption and health service expenditures. Accordingly, this might affect the health-seeking behavior of individuals (Wang *et al.*, 2015*;* Shubha *et al*., 2016; Li and Jian, 2018).

Moreover, medicine expenditure pushed around 74,144 (0.17%) and 11,132 (0.02%) peoples into poverty in 2010/11 and 2015/16, respectively. So, nearly 0.17% and 0.02% of peoples were not perceived as living under poverty but may perhaps counted as poor if the payment to medicine is lessened from their resources (Wagstaff and Doorslaer, 2003; McHenga *et al*., 2017). Furthermore, the poverty gap attributed to medicine OOP payment has increased from 46.7 (USD 1.1) to 54.5 ETB (USD 1.3) in 2010/11 and 2015/16 respectively. Likewise, the normalized poverty gap (as a proportion of the poverty line), was also increased by 12.3% and 3.7% in the same periods. The rise in

the poverty gap and the normalized poverty gap indicates an additional people were forced to face poverty since 2010/11 (Wagstaff and Doorslaer, 2003; McHenga *et al*., 2017).

Concerning determinants, in 2015/16, seeking inpatient service, was significant to incur catastrophic expenditure. This finding is consistent with a study in Myanmar which revealed households admitted at health facilities are 7.8 times the possibility of incurring CHE than outpatient services (Khaing *et al.*, 2015). Furthermore, spending on inpatient services poses to face CHE next to medicine expenditure (Saksena, and Durairaj, 2010). Moreover, in agreement with other previous studies in Ethiopia (Memirie *et al,*. 2017; Hailemichael *et al.*, 2019); the present study revealed place of residence and per-capita expenditure quintile have remained significant determinants across the surveys. In urban areas, the CHE and poverty rates were higher than in rural locations. There are various elements that could be at play. First, the availability of private healthcare services as an option in urban areas may cause people to pay according to the level of care they receive. When compared to Ethiopia's rural areas, the poorer may have been avoiding affordable public health facilities. As a result, urban households may face increased pricing. People residing in metropolitan areas are more vulnerable to OOP payment, according to a qualitative section of this study, because they do not need to travel to public health facilities because they have private sector options.

Perhaps, improving the quality of healthcare services in public sector may help to reduce OOP payments (Oldland *et al.*, 2020). In addition, the higher number of educated people in cities may have an impact on health utilization. This finding was in line with another study, which found that as one's degree of education rises, so does one's knowledge of health-care costs (Azzani *et al.*, 2019). These inclinations could

lead to CHE in urban homes. Furthermore, in the current study, the headcount of catastrophic medicine expenditure was higher among impoverished households. This data suggests that the financial protection system may not adequately safeguard the poorer households. Financial protection schemes, on the other hand, are designed to spread risk across vulnerable populations (Carrin *et al.*, 2010).

The findings could have ramifications for understanding the lack of protectiveness in financial risk management measures. Even among the insured, it was revealed in this study that out-of-pocket payments were common.

Additional findings from this study revealed a lack of risk pooling, with various rules and measures failing to be implemented. In multivariate regression analysis (p=0.083) in 2015/16, it was also shown that having health insurance may not be able to withstand the influence of other CHE factors (i.e., household characteristics). The outcome was in accordance with other Ethiopian research findings. Recent studies in Ethiopia, for example, have found that adopted financial risk protection techniques are ineffective in reducing financial risk (Miljeteig *et al.*, 2019). Furthermore, specific finance policies for program diseases such as HIV-related comorbidities in Ethiopia were advocated (Assebe *et al.*, 2020). It might be associated with the failure to implement some financial protection mechanisms indicated in this study. The other contributor could be explained by the inefficient effectiveness of some implemented interventions. In Ethiopia, the health insurance and fee waiver systems may be mostly to responsible. The possible explanations for the inefficiency of health insurance scheme might be associated with low coverage of insured household (~30%) (EHIA, 2019), limited funding sources (Hallalo, 2018), in efficient resource allocation, inefficient reimbursement (FMOH, 2019), unavailability of health services (e.g. medicine) (World Health Organisation and WHO, 2016), underutilization by the beneficiaries (Solomon

et al., 2011). Additionally, health insurance covers limited essential medicines (FMoH, 2011). Similar idea was risen from the participants during the interview that the ineffectiveness of reimbursement across the regional states, efficient execution of third-party contract strategy, unimplemented drug, pricing selection and procurement policy of EHIA, lack of communications with FMoH were risen as a challenge for insurance scheme practice. Therefore, without other complimentary financial protection strategies, the health insurance program is usually not enough to protect the financial burden of health payments (Baird, 2016). Recognizing that the government launched the fee waiver mechanism targeting the poor. But it was reported to be ineffective to target the beneficiaries, limited-service coverage, and poor documentation were found to be some of the potential reasons (Asfaw *et al*., 2004; Woldie *et al*., 2006; Tesfaye, 2017).

The consequence of the lack of financial protection for households can be worsened by the high prevalence of poverty and difficulties in access to healthcare in many developing countries (Xu *et al.*, 2003). In this study, the food share of total monthly household expenditure has been increased from 46 to 50% in 2010/11 to 2015/16, respectively. A higher proportion of poverty among households can be expected since food expenditure takes almost half of the households' expenditure (Buigut *et al.*, 2015). Total household expenditure has been risen in the most recent survey that made the increased households' expenditure on medicines to have a lesser proportion. These findings can suggest households might be spending on food and health to survive via minimizing their subsistence expenditures. A study on consumer behavior illustrated that the increased share of food expenditure means, households were prioritizing to expense for food (Xu *et al.*, 2003). Additionally, healthcare expenses are obligatory as compared to other non-food expenditures (Ezat *et al.*, 2017).

The findings from this study may lead to a better understanding of the impact of medicine OOP payment on healthcare accessibility. The progress in financial burden can be an indicator of the effectiveness status of various policies that were implemented in the nation. Even though some protective impact of strategies such as health insurance, fee waiver system, drug supply system was observed, it should be pointed out that the desired protection is yet to come. In the meantime, the persistence of catastrophic and impoverishment due to medicine was reported. So, as various scholars suggest that different strategies should be implemented to overcome CHE and impoverishment. Thus, addressing financial access barriers (e.g. prepayment package and borrowed money), enhancing financial policies (SHI or population-based tax-funded health financing systems), increasing medicine availability and affordability (Ezat, 2017; Mekonen, 2018), efficient implementation of existing policies and other innovative strategies are needed to combat the financial burden due to medicine OOP payment.

7.1 Limitation of the study

While the study has used a large dataset of nationwide studies conducted in two different time periods and applied robust statistical analysis, there are some limitations to this study. As it is common with other studies that employ secondary data sources, all the data points used in the analysis of the quantitative part of the study were limited to those collected in the original studies. As such, the self-reported expenditures used in our analysis may limit the applicability of the study findings as they may not perfectly reflect household income. However, the application of expenditure to predict income is recommended by international organizations such as the WHO as enumeration of income may be difficult in poor countries with largely agrarian societies. Recall bias may also be another potential limitation of this study, since the inpatient service

expenses required a recall period of 365 days. The surveys also did not capture the data from households who missed seeking healthcare due to unaffordability.

Some limitations were perceived in the qualitative part of the study. Primarily, the fewer number of participants for the interviews may limit the richness of the data. But the individuals who participated in the study were highly experienced and rich texts of transcripts were obtained from each interview. Data saturation was also checked through an iterative process of analysis. This could minimize the effect of the small number of interviewees.

8 Conclusion

Our findings suggest that OOP payments are the most common way to obtain medicine. The medicine payment covers the majority of healthcare costs (more than 65%). A high medicine OOP payment pushed households into catastrophic payments that lead in impoverishment, resulting in a large increase in the country's estimated poverty level. Over the study period, household characteristics such as health insurance, place of residence, and household per capita expenditure were key determining factors. Furthermore, the pattern indicates that having health insurance is insufficient to financially protect enough households. The majority of financial protection policies and initiatives that were proposed in the previous five to ten years were either not executed or had limits after they were enacted.

9 Recommendations

Based on the findings of this study the following points are recommended:

- Since there was a high OOP medicine expenditure, that suggests people (particularly poor) were facing difficulty in accessing medicines. Therefore, minimizing the financial burden due to medicine expenditure can make a difference in our context. So, the government, policymakers, health facilities, researchers, and other concerned actors should give attention to:
    - Increasing the effectiveness of financial protection mechanisms to poor people and increase their coverage to all segments of the society.
    - Improving the medicine supply chain management system to enhance the availability of low-cost generic essential medicines at public health facilities.
- The EHIA should make sure that planed financial protections schemes, policies and projects such as the SHI, reimbursement strategy, third-party contract strategy, drug pricing, selection and procurement policy are implemented in a timely manner.
- This study has focused on the average outcome of all Ethiopian households. But there might be a significant difference in estimates between regional states. So, analyzing at those levels of the country is perhaps the potential source of further researches.
- Further applied policy researches should be done to realize the policies' potential medicine accessibility and financial impacts to help in evidence-based assessments of gaps in policy and its implementation.

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Annexes

Annex I: Item code of health service expenditure household consumption expenditure questioner

Annex I: Main items for healthcare expenditure considered for in HCE questionnaire

Heads of expenditure	Item code in HCE questionnaire
Healthcare expenditure on public health facilities	501
Healthcare expenditure on private health facilities	502
Other healthcare expenditures	503
Cost of transport and communication tools	601

Annex II: Multicollinearity test of dependent and independent variables

Annex II: A result of multicollinearity test of dependent and independent variables in survey year of 2010/11 and 2015/16

Variable	2015/16		2010/11	
	VIF	1/VIF	VIF	1/VIF
HH size	1.64	0.61	1.43	0.70
Quantile of monthly per capita expenditure	1.63	0.62	1.81	0.55
HH Educational status	1.16	0.86	1	1.00
Outpatient service	1.1	0.91	-	-
Place of residence	1.1	0.91	1.39	0.72

Inpatient services	1.09	0.92	-	-
Gender of HHs head	1.08	0.93	1	1.00
HH age composition	1.07	0.93	1	1.00
Insurance status	1	1.00	1	1.00
Mean VIF	1.21	0.85	1.23	

HH: Household; VIF: V*ariance Inflation Factor*

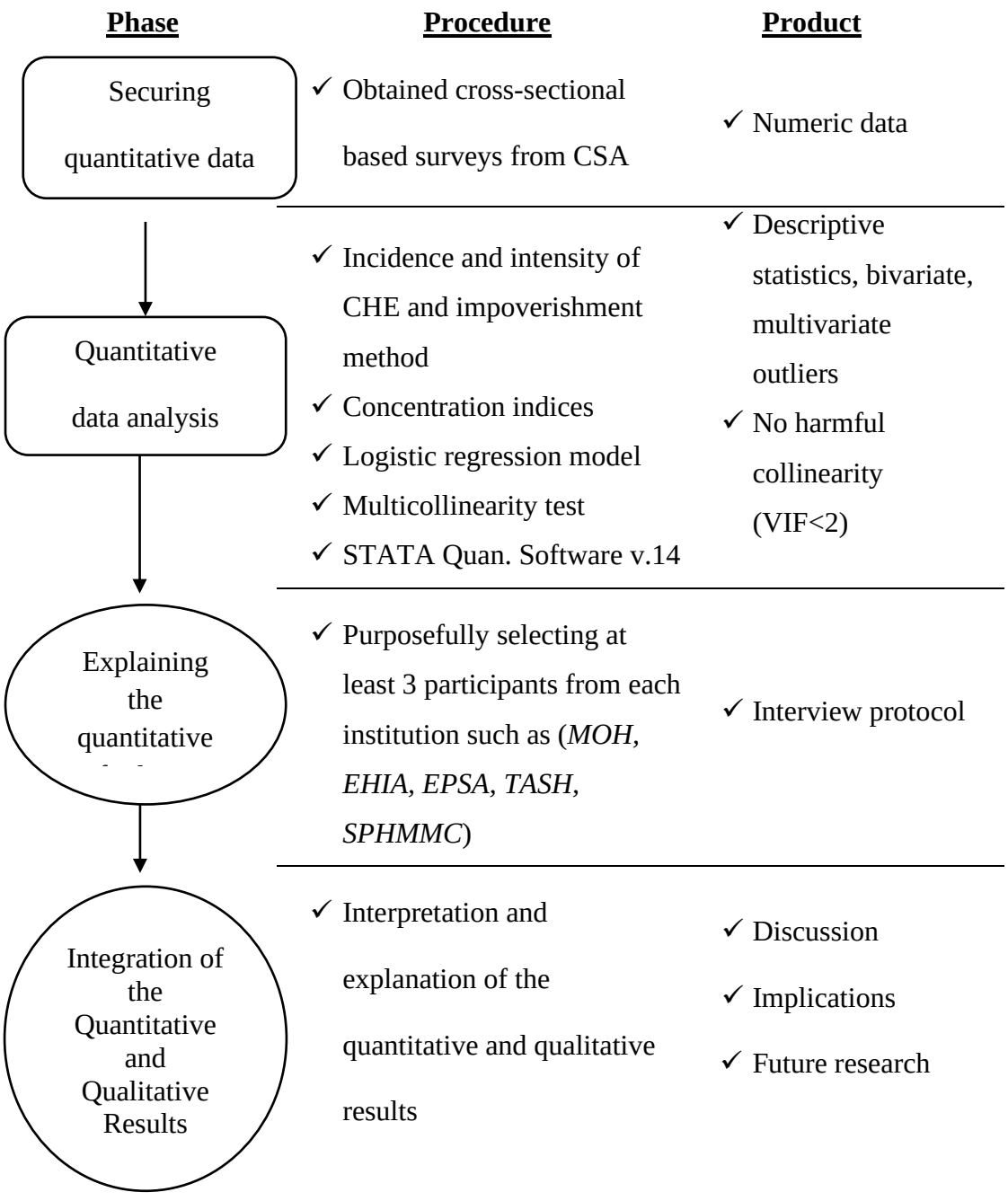
Annex III: Health consumer index (CPI) value of 2010/11 and 2015/6

Annex III: Health consumer index (CPI) value

Year	**CPI**	**Used in the formula**
2010/11	204.4	Old CPI
2015/16	145.9	
2021	198.1	New CPI

Annex IV: **Graphic model for mixed-methods sequential explanatory design procedures**

Annex IV: Graphic model for mixed-methods sequential explanatory design procedures



Annex V: The Amharic and English version of informed consent and **the qualitative interview guide**

Annex V-1.1: English version of informed consent

"The financial burden of medicine for out-of-pocket payment among households' in Ethiopia"

Getahun Asmamaw

Department of Pharmaceutics and Social Pharmacy

School of Pharmacy

Addis Ababa University

About this research

We are requesting you to participate in this study. Scholars do research to find an answer for a certain problem that might be help to improve the way of life of the community. We are providing you this consent form, read it carefully, and decide whether you are volunteer to involve in the study. Please ask any obscurity prior to agree in the study.

I am Getahun Asmamaw, MSc student at Addis Ababa university college of health sciences campus. I am doing research on "the assessment of financial burden of medicine due to out-of-pocket payment among households' in Ethiopia". It is funded by Addis Ababa University.

Please review the rest of this document for more details about this study and the things you should know before making a decision about whether to participate in this study.

Taking part in this study is voluntary

Your participation in the study is completely voluntary and you can refuse to answer any question at any time, for any reason, if you so decide. Any decision you make will not bring you any penalty or loss of benefits, and will not affect your relationship with your organization.

Why is this study being done?

The need to have comprehensive document of catastrophic health expenditure (CHE) due to out of pocket payment (OOP) is important since it can give insight for policymakers to take policy interventions to address inequality, strategies to decrease reliance on OOP, examine the impact of health financing. However, catastrophic expenditure incidence and impact of the impoverishment of due to OOP is not well addressed at the household level in Ethiopia. For the time being I am interested in out of pocket payment to healthcare services and I would like to talk with you about your practice, attitudes and feelings of out of pocket payment to healthcare and medicine.

You were selected as a possible participant because your department/working position is the area that we want the information for this study.

How many people will take part?

If you agree to participate, you will be one of key informants from Federal Ministry of Health (FMOH), Ethiopian Health Insurance Agency (EHIA), Ministry of Finance (MOF), Ethiopian Pharmaceutical Supply Agency (EPSA) and may be Ministry of Laboure and Social Affairs (MLSA), public hospitals located in Addis Ababa, and Ethiopian insurance corporation (EIC). Minimum of 3 key informants will be selected from each institution which gives a total of 26 participants taking part in this research interview.

What will happen during the study?

If you agree to be in the study, I will take notes of your comments but it might be difficult to capture all of your comments. Hence, in order not to miss any of your comments, I need your permission to use tape recorder.

How long will I be in the study?

The interview will take once and proposed duration is about 30 to 60 minutes.

What are the risks of taking part in the study?

While participating in the study, the risks, and/or discomforts include:

- ✓ A risk of completing the interview is being uncomfortable answering the questions.
- ✓ No guarantee on decision made by policymakers based on the present study's conclusion,
    - But we will try to complete a conclusion very precise to the truth we find.
- ✓ However, please do not hesitate to ask any uncomfortable or that you do not want to answer a particular question.

What are the potential benefits of taking part in the study?

We don't expect you to receive any benefit directly after taking part in this study, but we hope to learn things which will help policymakers in the future.

How will my information be protected?

Efforts will be made to keep your personal information confidential. We cannot guarantee absolute confidentiality. Thus, we ensure you the information in the report does not identify you as the respondent. The information you provide me will be kept confidential where it will be shared to the research team when needed only.

Will my information be used for research in the future?

Information collected from you for this study will never be used for future research studies or shared with other researchers for future research.

Will I be paid for participation?

You will not be paid for participating in this study.

Will it cost me anything to participate?

There is no cost to you for taking part in this study. You will not be responsible for these study-specific costs:

Can I withdraw from the study?

If you decide to participate in this study, you can change your mind and decide to leave the study at any time in the future.

Participant's consent

In consideration of all of the above, I give my consent to participate in this research study. I will be given a copy of this informed consent document to keep for my records. I agree to take part in this study.

Participant's Name:_____

Participant's Signature:_____**Date**:

_____

Name of Person Obtaining Consent:_____

Signature of Person Obtaining Consent:_____**Date**:

_____

Annex V-1.2: English version of the qualitative interview guide

I. Background Information on Informant

Sex
Age (in Years)
Highest academic degree you have completed
Profession
Place of work (Organization)
Role/position in the organization
Length of service in current role/position

II. Interview guide

1. How do you assess the situation of household-level healthcare-related expenditure in Ethiopia?
    1.1. What is your opinion on the extent of out-of-pocket health and medicine-related expenditure in Ethiopia?
2. I would like to hear your opinion about the level of catastrophic payments for health services in the Ethiopian context. [In all cases, ask for healthcare in general and medicines in particular]
3. How do you assess the impact of out-of-pocket expenditures on patients, caregivers, households and the country? [In all cases, ask for healthcare in general and medicines in particular]
    3.1. I would like to hear your opinion on the impact of out-of-pocket payments to individuals and families.
    3.2. What is the likelihood that such expenditures would push individuals and families in to poverty in the context of Ethiopia?

3.3. What is your opinion on which disease and/or service categories are more likely to cause catastrophic payments and push individuals/families into poverty?

4. I would like to hear your opinion on how your organization monitors the effect of out-of-pocket payments on households and individuals.
5. What are the interventions (e.g., financial risk protection mechanisms, improving medicine affordability, etc.), if any, that your organization/office is implementing in order to curb the effect of out-of-pocket expenditure/catastrophic health expenditures on health in general and on medicines in particular?
    5.1. What interventions were implemented in the past ten years/five years/three years/two years?
    5.2. If there are no interventions/ strategies, what is your opinion about the reason(s)?
6. How do you assess the level of success of the interventions that you have implemented?
    6.1. How do you assess the geographical distribution of the interventions [urban vs rural; central vs regional, etc.]?
7. What are your organizations' future plans to improve the health services in Ethiopia, especially with respect to reducing the impact of out-of-pocket expenditure on healthcare in general and medicines in particular?
8. From your point of view, are there any relevant aspects or questions that you feel should be addressed, but weren´t mentioned thus far?

Thank you very much for your time and cooperation!!!

Annex V-2: Amharic version of informed consent and guide for key informant interview with persons from

Annex V-2.1: Amharic version of informed consent

አዲስ አበባ ዩኒቨርሲቲ

ፋርማሲ ት/ ቤት

“የመድኃኒት ከራስ-ኪስ ክፍያ የወጪ-ጫና ዳሰሳ በኢትዮጵያ”

_____ኃላፊዎች/ / ባለሙያዎች ቃለ-መጠይቅ ማድረጊያ መመሪያ

<u>ስለ ጥናቱ መገቢያ</u>

በቅድሚያ ከዕርሶ ጋር ለመነጋገር ስለሰጡኝ ጊዜ እና መልካም ፈቃድ በጣም አመሰግናለሁ፡፡ እኔ ጌታሁን አስማማዉ እባላለሁ፡፡ በአዲስ አበባ ዩኒቨርሲቲ ፋርማሲ ት/ቤት የሁለተኛ ድግሪ ተማሪ ስሆን፤ የመመረቂያ ጽሁፌን “በኢትዮጵያ የመድኃኒት ከራስ-ኪስ ክፍያ ወጪ-ጫና ዳሰሳ” ርዕስ በመስራት ላይ እገኛለሁ፡፡ በዚህ ጥናት ይሣተፉ ዘንድ በአክብሮት እየጠየቅንዎ ነዉ፡፡ አጥኚ ሰዎች ጥናት የሚሰሩት በማሕበረሰቡ ዉስጥ ለሚፈጠሩ ተግዳሮቶች መልስ ለማግኘት እንዲረዳቸዉ ነዉ፡፡ ይህን የስምምነት ቅጽ በጥንቃቄ እነዲያነቡት እንሰጥዎታለን፡፡ ይህን ካነበቡ በኋላ በዚህ ጥናት ለመሳተፍ ፈቃደኛ ስለመሆን አለመሆንዎ ያሳዉቁናል፡፡ ያልገባዎ ወይም ግልፅ ያለሆነ ነገር ካለ እባክዎ በየትኛዉም ሰዓት ይጠይቁን፡፡

<u>በዚህ ጥናት ላይ የሚሳተፉት በዕርሶ በጎ ፈቃድ ብቻ ነዉ</u>

ዕርስዎ በዚህ ጥናት የሚሳተፉት ሙሉ በሙሉ በዕርስዎ ፈቃደኝነት ላይ ተመሰረተን ሲሆን ማንኛዉንም ጥያቄ በየትኛዉም ሰዓት፤ በምንም ምክንያት አለመመለስ ይችላሉ። ነገር ግን ለመሳተፍ የሚወስኑት ዉሳኔ በምንም ዓይነት መልኩ በዕርሶ ላይ ቅጣት፤ የሚያጡት ጥቅም ወይም ከመሥሪያ ቤትዎ ያሎትን ግንኙት ተፅዕኖ አያደርስርም፡፡

ቀጥሎ ሙሉ ዝርዝር መረጃ አቅርበናል ማለትም ወሳኔ ከመወሰንዎ በፊት ማወቅ ያለብዎትን ነገሮች ያትታል፡፡ እባክዎትን በትኩረት ይመልከቱት

<u>የጥናቱ ዓላማ ምንድነዉ?</u>

ሕብረተሰቡ ለጤና በሚያወጣዉ ወጪ ምክንያት የሚደርስበትን የምጣኔ-ሀብት ቀዉስ መረጃ ማወቅ እና መኖር፤ መመሪያ (ፓሊሲ) አዉጪ አካላት የተለየ ዕይታን በመስጠት የጤና አሰጣጥ ኢ-ፍትሐዊነትን ለመከላከል፣ከራስ ኪስ የመክፈልን መጠን ለመቀነስ የተለያዩ ዘዴዎችን ለመፍጠር፣ የጤናዉን ዘርፍ የወጪ ጫና ለመገምገም ያስችላል፡፡ ነገር ግን በኢትዮጵያ የጤና ወጪ-ጫና ሕብረተሰቡ ላይ እያመጣ ያለዉን ጉዳት መጠን፣ድህነትን በማባባስ ያለዉን ሚና በተገቢዉ ልክ ወጥና በጥናት የተደገፈ መረጃ የለም፡፡ ለጊዜው ይህ ጥናት ትኩረት ያደረገው የጤና-ወጪ ጫና በተለይም የመድሃኒት ከራስ-ኪስ ክፍያ ጫና ዳሰሳ በኢትዮጵያ" ዙሪያ በመሆኑ ይህን ጉዳይ በተመለከተ ባለዎት አስተያየት እንድንነጋገር እፈልጋለሁ።

ዕርሶ ለዚህ ጥናት የታጩትበት ምክንያት በመሥሪያ ቤትዎ ያሎት የሥራ ኃላፊነት/ክፍል እኛ ለምንፈልገዉ መረጃ ጥሩ ምንጭ የሆናል ብለን ስላመንን ነዉ፡፡

<u>ምን ያህል ሰዎች በዚህ ጥናት ይሳተፋሉ?</u>

በዚህ ጥናት ለመሳተፍ ከወሰኑ ዕርስዎ ከ ጤና ሚኒስቴር፤ ከኢትዮጵያ ጤና መድህን ድርጅት፤ ከኢትዮጵያ ገንዘብ ሚኒስቴር፤ ከኢትዮጵያ የመድኃኒት እና የህክምና ዕቃዎች አቅራቢ ድርጅት እና አዲስ አበባ ከሚገኙ የመንግሥት ሆስፒታሎች እና የግል መድህን ድርጅቶች ከተዉጣጡ ሰዎች አንዱ ይሆናሉ ማለት ነዉ፡፡ ከእያንዳንዱ መሥሪያ ቤት ቢያንስ 3 ሰዉ የሚሳተፍ ሲሆን በጠቀላላ ቢያንስ 26 ሰዉ በዚህ ጥናት ተሣታፊ ይሆናል ማለት ነዉ፡፡

<u>በቃለ-መጠይቁ ወቅት ምን ምን ይከወናል?</u>

በዚህ ጥናት ለመሳተፍ ፈቃደኛ ከሆኑ በቃለ-መጠይቁ ወቅት በፍጥነት የምንነጋገረውን ሁሉ በማስታወሻ መዝግቦ ለማስቀረት ስለሚያስቸግር መቅረፀ-ድምፅ (ቴፕ-ሪከርደር) ብመጠቀም እንዲፈቀድልኝ በትህትና እጠይቃለሁ፡፡

<u>በዚህ ጥናት ለምን ያህል ጊዜ እቆያለሁ?</u>

ቃለ-መጠይቁ አንድ ጊዜ ብቻ የሚከወን ሲሆን ከጊዜዎት ደግሞ 30- 60 ደቂቃ አካባቢ የሚወስድ ይሆናል

<u>በዚህ ጥናት መሳተፍ ምን ዓይነት ስጋት ያመጣል?</u>

በዚህ ጥናት በሚሳተፉበት ወቅት ሊያጋጥዎ የሚችል ስጋት/ምቾት ማጣት የሚከተሉት ናቸዉ

- ✓ ለጥያቄዎቻችን መልስ ለመስጠት ምቾት ማጣት ወይም ጥያቄዎቹ ላያስደስቶት ይችላል፡፡.
- ✓ በዚህ ጥናት ማጠቃለያ ግኝት ላይ ተመስርቶ ፖሊሲ አዉጪዉን አካል ዉሳኔ ማወቅ አይቻልም
  - ነገር ግን ዉሳኔዎቻቸዉ ተገቢ እንዲሆኑ የዚህ ጥናት ዉጤት መሬት ላለ እዉነት የተጠጋ እንዲሆን እንጥራለን፡፡

- ✓ ከጥያቄዎቻችን መሃል ያለተስማማዎት ያለ እንደሆነ ወይም ለጥያቄዉ መልስ መስጠት ካልፈለጉ እባክዎትን ለማሳወቅ ወደ ኋላ እንዳይሉ፡፡

<u>በዚህ ጥናት መሳተፌ ምን ዓይነት ጥቅም ላገኝ እችላለሁ?</u>

በዚህ ጥናት በመሳተፍዎ በቀጥታ የሚያገኙት ጥቅም የለም፡፡ ነገር ግን ይህ ጥናት ለፖሊሲ አዉጪ አካላት ግብዓት ሊሆን ይችላል፡፡

<u>የመረጃ ሚስጥራዊነት እንዴት ይጠበቃል?</u>

አሁን የምንነጋገርባቸው ነጥቦች ሁሉ ሙሉ በሙሉ በምስጢር ለሚጠበቅ አስቸጋሪ ቢሆንም ከምርምር ቡድኑ ውጭ ለማንም የማይገለጹ እና የማይሰጡ ይሆናሉ። ቃለ-መጠይቁን መሰረት በማድረግ የሚወጡ ሪፖርቶች/ዘገባዎችም የርስዎን ስም የማይጠቅሱ ይሆናሉ።

<u>እኔ የሰጠሁት መረጃ ወደ ፊት ለሌላ ጥናት ይሰጣልን?</u>

ከዕርሶ የምናገኘዉን መረጃ ለማንም እና ወደ ፊት ለሌላ ጥናት በፍፁም እንደማይሰጥ እናረጋግጣለን፡፡

<u>ለተሳትፎዬ የከፈለኛል ወይ?</u>

በዚህ ጥናት በመሳተፍዎ የሚያገኙት ክፍያ አይኖርም፡፡

<u>ለዚህ ጥናት ለመሳተፍ የማወጣዉ ወጪ ይኖራል ወይ?</u>

በዚህ ጥናት ለመሳተፍ ምንም ዓይነት ክፍያ አይጠየቁም፡፡ ለዚህ ጥናት ለሚወጣ ወጪም እንዲሁ ኃላፊነት አይወስዱም፡፡

<u>ከዚህ ጥናት መዉጣት እችላለሁ?</u>

በዚህ ጥናት ለመሳተፍ ከወሰኑ በኋላ ቃለ-መጠይቁ ወቅት ከጥናቱ ለመዉጣት ሀሳብዎን በቀየሩ ሰዓት መዉጣት ይችላሉ፡፡

<u>የተሳታፊ ስምምነት</u>

ከላይ የተቀመጡትን ሃሳብ በማገናዘብ፤ በዚህ ጥናት ለመሳተፍ ስምምኔትን አስቀምጣለሁ፡፡ የዚህን የስምምነት ሰነድ ቅጂ የሚሰጠኝ የሆናል፡፡

የተሳታፊ ስምምነት:_____

የተሳታፊ ፊርማ:_____**ቀን:**

_____

የአጥኚዉ ስም:_____

የአጥኚዉ ፊርማ:_____**ቀን:**

_____

Annex V-2.2: Amharic version of the qualitative interview guide

፩ ፥ <u>ስለ ቃለመጠይቅ ሰጪው አጠቃሊይ መረጃ፡</u>

ጸታ	
ዕድሜ (በዓመት)	
የትምህርት ደረጃ	
ሙያ	
መሥሪያ ቤት	
ውስጥ ያለዎት ሃላፊነት/የሥራ ድርሻ	
በዚህ ሃላፊነት ከመቼ ጀምሮ እየሰሩ ይገኛሉ?	

፪ ፥ <u>የቃለ-መጠይቅ መምሪያ</u>

1. ሕብረተሰባችን ለጤና አገልግሎት የሚያወጣዉን ወጪ አሁናዊ ሁኔታ እንዴት ይገመግሙታል?

   1.1. በሀገራችን ከራስ ኪስ ለጤና እና ለመድኃኒት ክፍያ የማዉጣት መጠን እንዴት ያዩታል?

2. ሕብረተሰቡ የጤና በተለይም የመድኃኒት አገልግሎት በመጠቀሙ ምክንያት እየደረሰበት ያለዉን የወጪ ጫና እንዴት ያዩታል? [አጠቃላይ የጤና አገልግሎትን እና የመድኃኒት በተለይ ይጠየቅ]

3. ከራስ ኪስ ክፍያ በህሙማን፤ በጤና ተቋማት፤ በማሕበረሰቡ እንዲሁም በሀገሪቱ ላይ የሚያመጣዉን ተፅዕኖ እንዴት ይገመግሙታል? [አጠቃላይ የጤና አገልግሎትን እና የመድኃኒት በተለይ ይጠየቅ]

   3.1. ከራስ ኪስ ክፍያ በቤተሰብ እና ግለሰቦች ላይ የሚያመጣዉን ተጽዕኖ ረገድ ሀሳብዎ ምንድነዉ?

   3.2. ለጤና የሚወጣ ወጪ አንድን ቤተሰብ ከድህነት ወለል በታች ሊያስገባ ይችላል ብለዉ ያምናሉ? [አጠቃላይ የጤና አገልግሎትን እና የመድኃኒት በተለይ ይጠየቅ]

   3.3. የትኛዉ የበሽታ ወይም የጤና አገልግሎት ዓይነት ለከፍተኛ የወጪ ጫና ሊዳርግ ወይም አንድን ቤተሰብ/ግለሰብ ከድህነት ወለል በታች ሊያስገቡ ይችላሉ ብለዉ ያስባሉ?

4. ከራስ ኪስ ክፍያ በቤተሰብ እና ግለሰቦች ላይ የሚያመጣዉን ተጽዕኖ ረገድ መሥሪያ ቤታችሁ ምን አይነት መረጃ አለዉ? እንዴትስ ይከታተላል?

5. ሕብረተሰቡ ለጤና በሚያወጣዉ ወጪ ምክንያት የሚደርስበትን የወጪ-ጫና ለመቀነስ ወይም ለማስቀረት (ወጪ ቅነሳ ዜዴ፤ የመድኃኒት ግዥ አቅምን ማሳደግ) ምንድነዉ? የፖሊሲ ዝርዝር ካለስ፤ መሥሪያ ቤታችሁ ምን ዓይነት የፖሊሲ አማራጭ ነዉ የተገበረዉ?

[አጠቃላይ የጤና አገልግሎትን እና የመድኃኒት በተለይ ይጠየቅ]

5.1. የትኛዉ ዜዴ ባለፉት 10 ዓመታት/ 5 ዓመታት/3 ዓመታት/ 2 ዓመታት/ ተተግብረዋል?

5.2. መስሪያ ቤታችሁ ያስቀመጣችሁትን ዘዴ ካልተተገበረ ወይም እራሱን የቻለ በግልፅ የተቀመጠ ፖሊሲ ዝርዝር ከሌለ ምክንያቱ ምንድነዉ?

6. የፖሊስዉ ዝርዝር ያለዉን ትግበራ እንዴት ያዩታል? ዉጤታማነቱንስ እንዴት ይገመግሙታል?

6.1. በሀገሪቱ ለታለመላቸዉ የሕብረተሰብ ክፍሎች (በከተማ/ገጠር፤ በ ማዕከላዊ/በ ክልል) ያለዉን ከራስ የመክፈል መጠንን ለመከላከል/ለመቀነስ/ የተጠቀማችሁትን የዘዴዎች የትግበራ ስርጭት ፍትሐዊነት ሁኔታ እንዴት ያዩታል?

7. ጥራት ያለዉ የጤና አገልግሎትን ለማምጣት እና ሕብረተሰቡ ለጤና በሚያወጣዉ ወጪ ምክንያት የሚደርስበትን የወጪ-ጫና ወደ ፊት ለመቀነስ ወይም ለማስቀረት መስሪያ ቤትዎ ምን አቅዷል? [*አጠቃላይ የጤና አገልግሎትን እና የመድኃኒት በተለይ ይጠየቅ]*

8. በወይይታችን ሳይነሳ የቀረ ወይም በደንብ እንዲብራራ የሚፈልጉት ሀሳብ ካልዎት ዕድል ልስጦዎት

ጊዜዎትን ሰጥተው ይህን ቃለ-መጠይቅ እንድናደርግ ስተባበሩኝ በጣም አመሰግናለሁ።።