

REVIEW

CATASTROPHIC HEALTH EXPENDITURES ON ACCESSING DIFFERENT HEALTHCARE SERVICES IN ETHIOPIA AND KENYA

Hamda Mohamed MOUHOUED¹  Salih MOLLAHALILOĞLU¹ 

¹ Ankara Yildirim Beyazit University, Faculty of Medicine, Department of Public Health

ABSTRACT

Objective: The aim of this review was to investigate the catastrophic health expenditures and its underlying determinant in Ethiopia and Kenya.

Methods: A review was conducted on catastrophic health expenditure on accessing different healthcare services in Ethiopia and Kenya. The main outcome of interest was the determinants of catastrophic health expenditure due to out of pocket payments.

Results: Thirteen studies met the inclusion criteria for review. The analysis revealed that the socio-economic characteristics of the patients were the most significant factors associated with household catastrophic health expenditure.

Conclusion: Therefore, this calls for strengthening the health policies and financing structure of the healthcare system to increase utilization and provide equitable access to healthcare services.

Key Words: Catastrophic Health Expenditure, Out-of-Pocket Payment, Ethiopia, Kenya, Comparative

ÖZET

Etiyopya ve Kenya'da Farklı Sağlık Hizmetlerine Kullanmalarında Katastrofik Sağlık Harcamaları

Amaç: Bu çalışmada, Etiyopya ve Kenya'daki katastrofik sağlık harcamalarını ve belirleyicileri incelenmesini amaçlamıştır.

Yöntem : Etiyopya ve Kenya'da farklı sağlık hizmetlerine erişimin katastrofik sağlık harcamaları üzerine bir inceleme yapılmıştır. Temel amaç cepten ödemeleri nedeniyle katastrofik sağlık harcamalarını 'yi belirlemektir.

Bulgular: On-üç çalışma inceleme için dahil etme kriterlerini karşılamıştır. Analiz, hastaların sosyo-ekonomik özelliklerinin katastrofik sağlık harcamaları 'siyle ilişkili en önemli faktörler olduğunu göstermiştir.

Tartışma: Bu nedenle, sağlık hizmetlerine eşit erişim sağlamak için sağlık politikalarının ve sağlık sisteminin finansman yapısının güçlendirilmesi gerekmektedir.

Anahtar Kelimeler: Katastrofik Sağlık Harcamaları, Cepten Ödeme, Etiyopya, Kenya, Karşılaştırmalı

Cite this article as: Mouhoumed HM, Mollahaliloğlu S. Catastrophic Health Expenditures On Accessing Different Healthcare Services In Ethiopia And Kenya. Medical Research Reports 2020;3(2):39-44.

INTRODUCTION

The healthcare financial protection is a growing focus in recent years as one of the foundation blocks of Universal Health Coverage (UHC) [1]. The primary goal of the system of healthcare is to ensure that individuals have adequate financing mechanisms for acquiring preventive and curative care without deepening into poverty [2,3]. Moreover, tackling the inequalities in access to healthcare and mitigating financial burden are two crucial tasks for creating a health system that is effective, efficient and practical [4].

The dominance of out-of-pocket (OOP) payments and the absence of alternative payment systems, such as taxation and insurances are characteristics of the healthcare financing system in low-income countries [5]. Paid expenses directly by households to providers for services and health products is said to be OOP [6]. Many people in low-middle-income-countries (LMIC) depend on OOP payment any time they receive care and, unfortunately, because of high healthcare expenses, they are not shielded from financial hardships [7]. Hence, The OOP payment to healthcare at service point is considered an inequitable financing method of the system of healthcare [2].

The purchasing of medical care from OOP payment affects the living standards of the household. This disruption is considered catastrophic when health care expenses are higher in proportion to the resources available to the household [5]. More households face catastrophic expenditure in general when the system relies heavily on OOPS to finance services for health [6]. Irrespective of the methods used to finance healthcare system, the Catastrophic Health Expenditure (CHE) through OOP payment is a global issue that continue to exist. Nevertheless, in most LMICs countries, the OOP payments constitutes the most significant health expenditure [7]. In addition, the OOP, as the most ineffective health-financing process, puts the largest pressure on the vulnerable and is correlated with the increased likelihood of CHE household impoverishment [4].

The CHE is helpful when estimating and monitoring the financial protection in the health sector, and different ways of determining the proportion of households experiencing CHE exist [8]. Furthermore, the World Health Organization (WHO) describes CHE as the household expenses on health exceed at least 40% of the family's non-food spending [9].

The catastrophe indicator is estimated and the percentage is compared to the threshold level to determine the percentage of households incurring CHE [10]. Catastrophic payments for the OOP occur if the spending on health services reaches a certain threshold [11]. However, in the literature the threshold level varies by 10-25% of total cost of consumption to estimate CHE [12,13]. However, even small quantities of health expenditure can lead to catastrophe to vulnerable households and push them to poverty [14,15].

OOP is accountable for an increasing and considerable portion of global health expenditure (16). Moreover, about 150 million people are impacted annually by the economic burden of healthcare payments and nearly 100 million are placed into poverty through OOP payments. The utilization of healthcare services are highly impacted by the OOP payments particularly, people in LMIC, in which on average, OOP payment nearly compromises 40% of health spending [17]. Furthermore, in LMIC average OOP expenditure per individual has risen by 66% between 2000 and 2017 [6]. The Increased OOPs, particular in developing countries, can cause economic difficulty [18,19]. Also, this increase causes risk expansion and disintegrates the unequal distribution of resource and as a result, vulnerable individuals suffers from CHE [20]. It may also contribute to impoverishment and income loss due to the sale of household assets to finance needs for healthcare services [7].

This comparative analysis on the catastrophic expenditure on health in Kenya and Ethiopia provides an overview of the determinant of CHE due to OOP. These two countries health systems are predominantly funded through OOP payments. This review therefore aimed to highlight the scale of the problem and identify any gaps that could potentially strengthen future research in CHE.

METHOD

A review of published articles conducted with a purpose of measuring CHE related to OOP payment was included in this review and was limited to studies in Ethiopia and Kenya. A search in several databases namely PubMed, Google Scholar, and Science Direct were commenced. The search terms included 'Catastrophic', 'health expenditure', 'out-of-pocket payment', 'Economic burden' 'incidence' 'determinant'. The abstracts of the articles published in English language in the last 8 years (2012–2020) were included for review to find out which of the studies met inclusion criteria and then



Figure 1: Flow diagram for the process of review of the literature

only those full length articles that complied with the inclusion criteria were reviewed. The inclusion criteria was articles written in English, focusing on all population groups, and assessed CHE in accessing all types of healthcare services. Articles of discussion, outside the selected countries and used approaches other than CHE to measure health spending was excluded.

Initially, the search process yielded 46 articles. Based on title many articles were exempted and only few full text references were retained for further scrutiny. Duplicates were further removed and a total of 25 articles remained. All the articles identified were screened using the title and abstracts and finally 13 eligible studies were reviewed in details (Fig. 1).

RESULTS

The list of the selected articles from Ethiopia and Kenya on the catastrophic health expenditures on different healthcare services is presented in (Table 1). Most of the studies reported frequently on the incident and determinant of CHE on households. This review comprised studies focusing in both the rural and urban settings on all populations, including vulnerable groups.

Of the 13 studies assessed, 7 were from Kenya and 6 from Ethiopia. Majority the studies identified were observational, of which 5 were cross-sectional studies, 2 cohorts, 1 randomized trial and 5 secondary nationwide data (Table 2).

No	Title of the selected article	Year of Publication	Reference
1!	Catastrophic out-of-pocket payments for households of people with severe mental disorder: a comparative study in rural Ethiopia	2019	(25)
2!	Financial burden of HIV and TB among patients in Ethiopia: a cross-sectional survey	2020	(26)
3!	Out-of-pocket expenditures for prevention and treatment of cardiovascular disease in general and specialised cardiac hospitals in Addis Ababa, Ethiopia: a cross-sectional cohort study	2017	(30)
4!	Catastrophic health expenditure and impoverishment in households of persons with depression: a cross-sectional, comparative study in rural Ethiopia	2019	(21)
5!	Financial risk of seeking maternal and neonatal healthcare in southern Ethiopia: a cohort study of rural households	2020	(31)
6!	Household expenditures on pneumonia and diarrhoea treatment in Ethiopia: a facility-based study	2017	(27)
7!	Catastrophic health expenditure and its determinants in Kenya slum communities	2015	(22)
8!	The catastrophic and impoverishing effects of out-of-pocket healthcare payments in Kenya, 2018	2019	(23)
9!	Assessing the impoverishing effects, and factors associated with the incidence of catastrophic health care payments in Kenya	2017	(29)
10!	Catastrophic health care spending and impoverishment in Kenya	2012	(24)
11!	Out-of-pocket costs for paediatric admissions in district hospitals in Kenya	2012	(33)
12!	Patient costs of hypertension care in public health care facilities in Kenya	2019	(28)
13!	Catastrophic Health Expenditure and household Impoverishment: a Case of Prevalence of Non-Communicable Diseases in Kenya	2016	(34)

Table 1: List of the selected articles and date of publication

Incidence and intensity of catastrophic health expenditure

There was a various threshold values for the percentage of households suffering catastrophic costs. In most studies, when higher thresholds were used the incidence of catastrophic expenditure was seen to be lower [21–24]. In general, when a specific condition is assessed, we noticed that CHE is highest [21,25–28]. The intensities reported for general healthcare were quite different from those reported for specific conditions such as serious mental disorder, HIV/TB, pneumonia/diarrhea, depression and high disabilities and chronic diseases.

Determinants of catastrophic health expenditure

The articles assessed various determinants; therefore the general determinants mentioned in most studies would be addressed in this review.

a. Residency

Some of the possible determinants of CHE was investigated as household residence in the studies. Many noted that urban households are more prone to receive catastrophic OOP payments [21,23], whilst others indicated that households in a marginalized county are at risk of CHE [29].

b. Economic Status

The income level of households was the most common determinant of CHE, the odds of incurring

CHE in middle income and lower income groups were higher than in higher income groups [23,25,26,28–31].

c. Employment

In households with two or more working adults the risk of incurring CHE was low [22]. In addition, households with an unemployed head the probability of incurring CHE was 75% [29].

d. Type of Healthcare Facility

Some studies found higher rates of CHE when healthcare is sought from private health facilities [30], whereas others had the risk of incurring CHE attending public or private health center relative to seeking cures through purchased medication from a pharmacy or off the counter [22].

e. Presence of a family member with a chronic illness

Presence of a household member with a chronic disease increases the likelihood of experiencing CHE [21–23,29,31]. In cases of co-infection of HIV/TB, households were very likely to have TB-related CHE [26]. The CHE for households with an adult suffering from severe mental disease were substantially higher [25]. Contrarily to the expectations, the chances of incurring CHE were significantly higher if the illness is non-communicable disease (NCD) [32], this could be due to the fact that NCDs need a continuous treatment.

f. Household size

A number of studies investigated the household size relationship to incurring CHE. Having a large family was associated with CHE [29]. In contrast, other studies found a decrease in CHE in household with more members [21,23,25].

g. Presence of an elderly person in family

It has been noted that the elderly are prone to the risk of CHE in the household. The catastrophic OOP payments in households with an elderly member was significantly higher [22,23,25,29].

h. Illness and treatment related factors

A significant positive indicator for CHE is observed in hospitalization. CHE has been considerably higher among hospitalized persons than among non-hospitalized [26,30]. In addition, the risk of CHE is increased by accessing health services [26], this is attributed to not only the direct expenses of the service provided but also the transport costs [29]. However, households with a health insurance scheme had a protection from CHE [23,26].

DISCUSSION

Majority of the reviewed studies were focusing on CHE of certain condition or disease. Differences in statistical decisions, such as CHE measurement and threshold criteria provide a minimal clear contrast. The analysis nevertheless showed .

Country	Study Design	Study period	Study Location	Study Population	Age of Sample
Ethiopia					
Hailemichael (25)	Comparative cross-sectional	2015	Rural	579	>18 y
Assebe (26)	Cross-sectional	2016 HIV and 2018-2019 TB	Both	1793	-
Tolla (30)	Cross-sectional cohort	2015	Urban	589	>18 y
Hailemichael (21)	Comparative cross-sectional	2015	Rural	257	>18 y
Borde(31)	Cohort	2017-2018	Rural	2350	All age groups
Memirie (27)	Retrospective and prospective	2013	Both	686	0-59 months
Kenya					
Buigut (22)	Secondary data	2011-2013	Urban	8171	-
Salari (23)	Secondary data	2018	Both	37,500	15-55 y
Barasa (29)	Secondary data	2013	Both	33,675	-
Chuma (24)	Secondary data	2007	Both	8414	-
Barasa (33)	Randomized trial	2008	Rural	256	2-59
Oyando (28)	Cross-sectional	2017	Rural	212	>18 y
Mwai (34)	Secondary data	2007	Both	8,844	-

Table 2: Summary of catastrophic Health Expenditure in Ethiopia and Kenya

that the determinants of CHE were generally comparable. Irrespective of the economic condition of the countries under research, in general, one of the important CHE indicators across countries was socioeconomic status. The findings of the analysis indicate that disadvantaged people have a higher prevalence and are more prone to acquire CHE [23,25,26,28–31]. This is largely due to the fact that for households with a low income, even a small amount of health care costs can be catastrophic [35].

The review revealed the financial burden of non-medical expenses like transportation to be an important contributor to CHE especially for the poor living in marginalized areas or far from the health facilities [28,29]. As may be anticipated, the financial cost of patients traveling to get treatment and attending private health facility had a higher risk. This is attributed to the extra expenses associated

with transportation and higher service prices of private facilities. The CHE non-medical cost significance of has been identified by others [36,37].

Consistent with other studies [38,39], suffering from chronic diseases was recognized as another important cause of exposure to catastrophic expenditures [21–23,29,31]. Having an older household member was also associated with catastrophic health expenditure. In other studies, the presence of elderly members in the household was also found to lead to catastrophic health expenditure. This may be because older adult members require more health care that may result in higher health expenditure [25].

Conclusion

The risk of economic burden from healthcare expenses is high for low-income households and the healthcare costs are often sufficiently high enough to impoverish them. The conclusions of this review show that health policies and health financing structure should be revised so that the gap in socio-economic inequality is narrowed. For people with a high need for healthcare, including the elderly, disabled individuals and chronically ill individuals, social security nets should be established and strengthened.

Disclosure of funding sources: The authors received no financial support for the research and/or authorship of this article.

Disclosure of potential conflict of interest: The authors declare that they have no conflict of interest in the publication of this article.

REFERENCES

- Matheson D. Will universal health coverage (UHC) lead to the freedom to lead flourishing and healthy lives?: Comment on "inequities in the freedom to lead a flourishing and healthy life: Issues for healthy public policy." *Int J Heal Policy Manag.* 2015;4(1):49–51.
- World Health Organization. Overview of The World Health Report 2000 health systems: Improving performance. Geneva: World Health Organization. 2001.
- Bunker JP, Frazier HS, Mosteller F. Improving Health: Measuring Effects of Medical Care. *Milbank Q [Intern].* 1994 Jun 19;72(2):225–58.
- World Health Organization. Health systems financing: The path to universal coverage. Geneva (Switzerland); 2010.
- O'Donnell O, Eddy van Doorslaer, Wagstaff A, Lindelow M. Catastrophic Payments for Health Care. In: *Analyzing Health Equity Using Household Survey Data.* 2008. p. 203–12.
- WHO. Global Spending on Health: A World in Transition 2019. *Glob Rep.* 2019;49.
- Xu K, Evans DB, Carrin G, Aguilar-Rivera AM, Musgrove P, Evans T. Protecting households from catastrophic health spending. *Health Aff (Millwood).* 2007;26(4):972–83.
- Su TT, Kouyaté B, Flessa S. Catastrophic household expenditure for health care in a low-income society: a study from Nouna District, Burkina Faso. *Bull World Health Organ.* 2006/02/23. 2006 Jan;84(1):21–7.
- Xu K, Evans DB, Kawabata K, Zeramdini R, Klavus J, Murray CJL. Household catastrophic health expenditure: a multicountry analysis. *Lancet (London, England).* 2003 Jul;362(9378):111–7.
- Onoka CA, Onwujekwe OE, Hanson K, Uzochukwu BS. Examining catastrophic health expenditures at variable thresholds using household consumption expenditure diaries. *Trop Med Int Health.* 2011 Oct;16(10):1334–41.
- Berki SE. A look at catastrophic medical expenses and the poor. *Health Aff (Millwood).* 1986;5(4):138–45.
- Ranson MK. Reduction of catastrophic health care expenditures by a community-based health insurance scheme in Gujarat, India: current experiences and challenges. *Bull World Health Organ.* 2002;80(8):613–21.
- Wagstaff A, Flores G, Hsu J, Smits MF, Chepynoga K, Buisman LR, et al. Progress on catastrophic health spending in 133 countries: a retrospective observational study. *Lancet Glob Heal.* 2018;6(2):e169–79.
- Russel S, Gilson L. Are health services protecting the livelihoods the urban poor in Sri Lanka? Findings from two low-income areas of Colombo. *Soc Sci Med.* 2006 Oct;63(7):1732–1744.
- WHO. Distribution of health payments and catastrophic expenditures Methodology. FER/EIP Discuss Pap; 2005;1–6.
- WHO, The World Bank. Tracking Universal Health Coverage: 2017 Global Monitoring Report. World Health Organisation. 2017. 88 p.
- Xu K, Saksena P, Evans DB. Health financing and access to effective interventions. *World Heal Organ.* 2010;18.
- van Doorslaer E, O'Donnell O, Rannan-Eliya RP, Somanathan A, Adhikari SR, Garg CC, et al. Effect of payments for health care on poverty estimates in 11 countries in Asia: an analysis of household survey data. *Lancet (London, England).* 2006 Oct;368(9544):1357–64.
- McIntyre D, Thiede M, Dahlgren G, Whitehead M. What are the economic consequences for households of illness and of paying for health care in low- and middle-income country contexts? *Soc Sci Med.* 2006 Feb;62(4):858–65.
- Rahman MM, Gilmour S, Saito E, Sultana P, Shibuya K. Health-related financial catastrophe, inequality and chronic illness in Bangladesh. *PLoS One.* 2013/02/25. 2013;8(2):e56873–e56873.
- Hailemichael Y, Hanlon C, Tirfessa K, Docrat S, Alem A, Medhin G, et al. Catastrophic health expenditure and impoverishment in households of persons with depression: A cross-sectional, comparative study in rural Ethiopia. *BMC Public Health.* 2019;19(1):1–13.
- Buigut S, Ettarh R, Amendah DD. Catastrophic health expenditure and its determinants in Kenya slum communities. *Int J Equity Health.* 2015;14(1):1–12.
- Salari P, Di Giorgio L, Ilinca S, Chuma J. The catastrophic and impoverishing effects of out-of-pocket healthcare payments in Kenya, 2018. *BMJ Glob Heal.* 2019;4(6):1–13.
- Chuma J, Maina T. Catastrophic health care spending and impoverishment in Kenya. *BMC Health Serv Res.* 2012;12:413.
- Hailemichael Y, Hailemariam D, Tirfessa K, Docrat S, Alem A, Medhin G, et al. Catastrophic out-of-pocket payments for households of people with severe mental disorder: A comparative study in rural Ethiopia. *Int J Ment Health Syst.* 2019;13(1):1–13.
- Assebe LF, Negussie EK, Jbaily A, Tolla MTT, Johansson KA. Financial burden of HIV and TB among patients in Ethiopia: a cross-sectional survey. *BMJ Open.* 2020;10(6):e036892.
- Memirie ST, Metaferia ZS, Norheim OF, Levin CE, Verguet S, Johansson KA. Household expenditures on pneumonia and diarrhoea treatment in Ethiopia: A facility-based study. *BMJ Glob Heal.* 2017;2(1):1–10.
- Oyando R, Njoroge M, Nguhiu P, Kirui F, Mbui J, Sigilai A, et al. Patient costs of hypertension care in public health care facilities in Kenya. *Int J Health Plann Manage.* 2019;34(2):e1166–78.
- Barasa EW, Maina T, Ravishankar N. Assessing the impoverishing effects, and factors associated with the incidence of catastrophic health care payments in Kenya. *Int J Equity Health.* 2017;16(1):1–14.

30. Tolla MT, Norheim OF, Verguet S, Bekele A, Amenu K, Abdisa SG, et al. Out-of-pocket expenditures for prevention and treatment of cardiovascular disease in general and specialised cardiac hospitals in Addis Ababa, Ethiopia: A cross-sectional cohort study. *BMJ Glob Heal.* 2017;2(2).
31. Borde MT, Loha E, Johansson KA, Lindtjörn B. Financial risk of seeking maternal and neonatal healthcare in southern Ethiopia: a cohort study of rural households. *Int J Equity Health.* 2020;19(1):69.
32. Bennani KA, Mounir B, Hachkar M, Bakasse M, Yaacoubi A. Adsorption of cationic dyes onto Moroccan clay: Application for industrial wastewater treatment. *J Mater Environ Sci.* 2015;6(9):2483–500.
33. Barasa EW, Ayieko P, Cleary S, English M. Out-of-pocket costs for paediatric admissions in district hospitals in Kenya. *Trop Med Int Heal.* 2012;17(8):958–61.
34. Mwai D, Muriithi M. Catastrophic health expenditure and household impoverishment: A case of prevalence of Non-Communicable Diseases in Kenya. *Epidemiol Biostat Public Heal.* 2016;13(1):1–7.
35. Masiye F, Kaonga O, Kirigia JM. Does User Fee Removal Policy Provide Financial Protection from Catastrophic Health Care Payments? Evidence from Zambia. *PLoS One.* 2016;11(1):e0146508.
36. Beaulière A, Touré S, Alexandre P-K, Koné K, Pouhé A, Kouadio B, et al. The Financial Burden of Morbidity in HIV-Infected Adults on Antiretroviral Therapy in Côte d'Ivoire. *PLoS One.* 2010 Jun 18;5(6):e11213.
37. Arsenault C, Fournier P, Philibert A, Sissoko K, Coulibaly A, Tourigny C, et al. Emergency obstetric care in Mali: catastrophic spending and its impoverishing effects on households. *Bull World Health Organ.* 2013/01/17. 2013 Mar 1;91(3):207–16.
38. Jaspers L, Colpani V, Chaker L, van der Lee SJ, Muka T, Imo D, et al. The global impact of non-communicable diseases on households and impoverishment: a systematic review. *Eur J Epidemiol.* 2015 Mar;30(3):163–88.
39. Mondal S, Kanjilal B, Peters DH, Lucas H. Catastrophic out-of-pocket payment for health care and its impact on households : Experience from West Bengal , India. *Heal San Fr.* 2010;