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EXAMINING THE ROLE OF AFFORDABILITY, CITIZEN ENGAGEMENT, AND SOCIAL SOLIDARITY IN DETERMINING HEALTH INSURANCE COVERAGE IN KENYA

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Prof Jane Goudge

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A THESIS

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Doctor of Philosophy

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Johannesburg, South Africa

Declaration

I, Beryl Chelangat Maritim (student no: 2371317), hereby declare that the work submitted for examination for the above degree is my own work except where explicitly indicated otherwise and acknowledged. This work has not been submitted before for any other degree or examination at this or any other University. I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong. I also understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing

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Dedication

I dedicate this thesis to my three curious children, Sienna, Leslie, and Luke. The world belongs to those who ask questions and I hope you grow up questioning and challenging what is known. Your support has meant everything even when you struggled to understand what exactly I was always studying so late into the night and early mornings.

Original Papers for this Thesis

1. **Beryl Maritim,** Adam D Koon, Allan Kimaina, Cornelius Lagat, Elvira Riungu, Jeremiah Laktabai, Laura Ruhl, Michael Kibiwot, Michael Scanlon, Jane Goudge. ***"It is like an umbrella covering you, yet it does not protect you from the rain":*** A mixed methods study of insurance affordability, coverage, and financial protection in rural western Kenya (Status: Published in International Journal for Equity in Health)

Student's contribution to the paper: Study design and conceptualisation, data collection, data management and analysis, drafting the manuscript

2. **Beryl Maritim,** Adam D Koon, Allan Kimaina, Jane Goudge. *"We are in the dark":* A mixed methods study of citizen engagement in national health insurance in western Kenya. (Status: Submitted to Health Policy and Planning and currently responding to reviewers' comments)

Student's contribution to the paper: Study design and conceptualisation, data collection, data management and analysis, drafting the manuscript

3. **Maritim B**, Koon AD, Kimaina A and Goudge J (2022) Acceptability of prepayment, social solidarity and cross-subsidies in national health insurance: A mixed methods study in Western Kenya. Front. Public Health 10:957528. doi: 10.3389/fpubh.2022.957528. (Status: Published in Frontiers of Public Health)

Student's contribution to the paper: Study design and conceptualisation, data collection, data management and analysis, drafting the manuscript, incorporating and responding to reviewers' comments.

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Student's contribution to the paper: Study design and conceptualisation, data management and analysis.

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Student's contribution to the paper: Drafting the manuscript, incorporating and responding to reviewers' comments.

Dissemination of PhD findings

Presented PhD findings to a NCD national policy Dialogue Day on 8th to 19th February 2023 in Nakuru, Kenya

Abstract was accepted in the HSR 2022 7th global symposium Health Systems research. The title of the abstract title: Willingness to Prepay, Social Solidarity and Tolerance of Risk- and Income-related Cross-subsidies among the Informal workers in Kenya

Fellowship award

Consortium for Advanced Research Training in Africa (CARTA) Fellowship for PhD valued at $100,000 USD (2020-2023)

Abstract

Rationale: Healthcare costs cause severe financial hardship globally and many low-and middle-income countries (LMIC) are turning to social health insurance to provide financial risk protection and increase population coverage. However social health insurance schemes in LMICs experience significant growth challenges owing to difficulties reaching informal workers through contributory health insurance systems. Kenya has undertaken several health sector reforms and efforts to increase health insurance coverage but has had limited success in capturing the large proportion of informal workers. The broad aim of this study was to describe and assess the reasons for low enrolment in the national insurance scheme among the Kenyan informal worker households in Bunyala sub-County, Busia County, Kenya. It focused on the role of affordability of premiums, citizen engagement and social solidarity in NHIF coverage among the informal worker households.

Methods: This study employed an explanatory mixed methods study approach with quantitative and qualitative primary data collection. The quantitative phase included a household survey (n=1,773) from which 36 respondents were purposively identified to participate in in-depth household interviews. The study also conducted 6 focus group discussions (FGD) groups with community stakeholders, and 11 key informant interviews with policymakers and implementers at national and sub-national level. Quantitative data was analyzed using R while qualitative data was analyzed thematically using both manual methods and NVIVO software.

Results: Only 12% of households reported having health insurance and NHIF was unaffordable for the majority of households, both insured (60%) and uninsured (80%). Rural households spent a significant proportion (an average of 12%) of their household budget on out of pocket (OOP) expenses on health care, with both insured and uninsured households reporting high OOP spending and similar levels of impoverishment due to OOP

I found that there was high awareness of NHIF but low levels of knowledge on services, feedback and accountability mechanisms. Barely half (48%) of the insured were satisfied with the NHIF benefit package. Nearly all of the respondents (93%) were unaware of mechanisms to reach NHIF for feedback or complaints. Respondents expressed desire to know the NHIF performance but expressed high levels of mistrust in the fund owing to negative reports on NHIF performance in the media.

This study found high willingness to prepay for healthcare among those without insurance (87.1%) with competing priorities, low incomes, poor access and quality of health services, lack of awareness of flexible payment options cited as barriers to enrolment. More than half of respondents expressed willingness to tolerate risk and income cross-subsidization suggesting strong social solidarity, which increased with socio-economic status. Participants expressed concerns about value of health insurance given its cost, availability and quality of services, and financial protection relative to other social and economic household needs. Households resorted to borrowing, fundraising, taking short term loans and selling family assets to meet healthcare costs.

Implications:

This study provides a nuanced insight into the challenges of increasing coverage among rural informal worker households with considerations for rolling out mandatory NHIF

membership. The findings imply that majority of the informal worker households in rural areas need assistance to afford NHIF. These study findings also highlight the importance of fostering and leveraging existing social solidarity to move away from flat rate contributions and apply more progressive contribution that allow for fairer risk and income cross-subsidization. Finally, the government should rapidly scale up the indigent program to cover most rural informal worker households. There is also need to invest in robust strategies to effectively identify subsidy beneficiaries. Significant reforms of NHIF and health system are required to provide adequate health services and financial risk protection for rural informal households in Kenya. NHIF also needs to evaluate their citizen engagement and accountability frameworks to increase awareness, member satisfaction, improve state accountability to citizens and incorporate citizen voice in their processes.

Key words Operational Definition of Terms

Benefit Package- The entitlements of, or obligations of the insurer to, the insured in the form of health services they can access when they enrol for health insurance

Informal workers- The informal workers as per NHIF definition is those individuals who are unemployed, self-employed in small scale businesses that are not registered to pay tax, or employees who work for such businesses, and whose incomes are not taxed.

Social Solidarity- A population's willingness to prepay for healthcare and tolerate wealth cross-subsidies and risk pooling

Risk pooling- WHO defines risk pooling as "the collection and management of financial resources so that large, unpredictable individual financial risks become predictable and are distributed among all members of the pool."

Income cross-subsidies- occur when individuals or groups with higher incomes subsidize the cost of health services for those with lower incomes.

Risk cross occur when individuals or groups with lower risk subsidize the cost of health services for those with higher risk.

Citizen Engagement- It refers to a process to ensure that each individual or group within the community participates in the design of healthcare delivery programs through feedback and accountability. It also includes the accountability of the state to its citizens.

Affordability- Ability to pay for health insurance measured by what proportion health insurance premiums takes up in household budgets

Prepayment-Paying for healthcare in advance so that one can access care when they need it

Health insurance coverage- In this study, coverage refers to the proportion of the population that has health insurance

Retention- The consistent and timely renewal of health insurance membership through the payment of required premiums

Acknowledgement

I would like to first thank the study participants whose stories and information made this work possible. I hope the evidence in this thesis will impact their lives and lead to policies to ease the burden of healthcare costs on these needy households. I would like to express my sincere gratitude to the following people: the PIs of Population Health, Dr Jeremiah Lakatabai and Dr Laura Ruhl for allowing me to embed my PhD research in the program baseline survey. The CARTA fellowship program for the immense support through research training and mentorship. Being part of the CARTA program gave me access to a large community of scholars and peers who are doing ground-breaking research on the African continent.

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During my studies, I had the support of ‘a village’ who provided childcare and made it possible for me to pursue my studies without worrying about the welfare of my children. To my village composed of my mother, nieces, cousins, friends and nannies, I am eternally grateful.

I would like to say a very special thank you to my parents, Onesmus and Edna. My father’s unquenchable thirst for knowledge set me on this path. My mother made many sacrifices for our education and instilled in me and my siblings the value of hard work and integrity. There are no words to express the gratitude I feel.

Finally, there are many who contributed to this journey whose individual names would fill many pages: my colleagues at AMPATH, the CARTA cohort 10 fellows, my study team, mentors, siblings and friends. Even the random questions from acquaintances asking “when are you finishing your PhD” fuelled my desire to progress. For all these, I am grateful

Preface

Providing a truly universal health cover

My interest in the health insurance coverage among informal workers began when I was working in AMPATH's population health program. During the course of the program, we tried various innovative models to increase insurance coverage among the rural households in the intervention site such as door to door insurance sensitization, SMS reminders, subsidies for the poor, integrated screening of chronic condition among others. At first the success of the door to door enrolment led to a significant increase in NHIF enrolment among the households from 10% to nearly 50%. However, whatever success that was borne out of these efforts was quickly unraveled by the high rate of default within months of enrolment.

While covering impact stories from the program I realized that despite the obvious benefit households reported from being members of NHIF, many households opted to drop out because of various rational reasons. It occurred to me that many other factors influenced NHIF enrolment among informal workers. My interest grew as I gained a better understanding of social health insurance and health financing arrangements in the devolved government system in Kenya.

Being in the rural household setting made me aware of the extreme financial hardship faced by poor households while seeking care. Some of the households shared heart –wrenching accounts of the difficulties they faced in search of health services. I met a young man in his mid-thirties named 'Henry' (not his real name) in the home he shared with his middle aged mother. Henry had a bad case of Kaposi Sarcoma with noticeably large swellings on his legs. His living conditions were deplorable and he fully relied on his mother for everything. He believes his condition resulted in the breakdown of his marriage as his wife left him and took the children with her. In his small grass-thatched, mud room there was nothing but a folded mattress on the floor.

Henry was enrolled into NHIF during the door to door exercise conducted by AMPATH in Turbo Sub-County, Uasin Gishu County. His mother kept up with NHIF payments long after the initial enrolment because it had helped him access in-patient treatment he frequently needed because of his health condition. There were positive experiences too from households who had successfully used their NHIF cards to access care. These experiences opened my eyes to the complex way health system factors and household characteristics interacted as barriers and facilitators to voluntary health insurance enrolment among informal worker households.

In 2018, I presented my first oral conference presentation based on the NHIF enrolment program at AMPATH in an annual scientific conference organized by KEMRI. In what seemed like a serendipitous moment, I found myself in a session where this team of health economists at KEMRI Wellcome Trust presented their PhD and post-doc work on various aspects of healthcare financing, from strategic purchasing, provider payments methods to service coverage. The science and the rigor of the work presented during those sessions cemented my decision to purse a PhD and it was very clear in my mind, what area I wanted to focus on- healthcare financing. When I enrolled at Wits, my supervisors guided me to narrow down what aspects to explore in the broad topic of health insurance among informal workers.

My hope is that this work will inform policy and stir conversations around providing financial risk protection to informal workers and that vulnerable people like Henry would not be left out in a truly universal health cover.

Thesis overview and structure

This thesis is presented by publication and the chapters are structured as follows

Chapter 1: The first chapter of this thesis provides the background to the topic of health insurance among informal workers globally, in SSA and in Kenya. It then outlines the problem and justification for the study, the study aims, objectives and research questions.

Chapter 2: This chapter presents international literature which will give a detailed review of existing literature on the concepts relating to UHC, social health insurance, extending coverage to informal workers and studies on the concepts of social solidarity and capital, affordability, citizen empowerment, and other factors influencing health insurance enrolment.

Chapter 3: This chapter provides a background of Kenya. In this chapter of the literature review, presents literature in the Kenyan context relating to the study concepts.

Chapter 4: Research methods. The methods section will describe the mixed approach, sampling, data collection as well as data management and analysis employed in this study. I also present a description of the sample in this chapter.

Chapter 5: In this chapter, I provide a description of the sample with the demographics of the study participants, descriptive analysis and a results showing predictors of NHIF enrolment.

Chapter 6, 7 &8: The subsequent chapters present the 3 main papers from this PhD (2 published and one under review). Each article will give a detailed description of each objective, the specific methodologies employed, the results and discussion of the findings per research paper.

Chapter 9: summarized the key findings per objective and the integration discussion of the PhD study merging the three papers and unpublished work. I also discuss the findings of the objective 4 as part of the integrative discussion. I then highlight the main themes from this PhD and highlight the limitations, policy implications, future research

Chapter 10 In conclusion, the strengths and limitations of the study will be discussed and the recommendations for future studies and policy generation will be highlighted.

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List of Abbreviation

AMPATH	Academic Model Providing Access to Healthcare
CARTA	Consortium for Advanced Research Training in Africa
CHE	Catastrophic health expenditure
CHV	Community health volunteer
FGD	Focus group discussion
IDI	In-depth interview
IREC	Institutional Research Ethics Committee
KDHS	Kenya Demographic Health survey
KEMRI	Kenya Medical Research Institute
KHHEUS	Kenya Household Health Expenditure and Utilization Survey
KII	Key informant interview
KSH	Kenyan shillings
LMIC	Low-and middle-income countries
NACOSTI	National Commission for Science, Technology, and Innovation
NHIF	National Health Insurance Fund
OOP	Out-of-pocket
SDG	Sustainable Development Goal
SES	Socio-economic Status
SSA	Sub-Saharan Africa
UHC	Universal health coverage
UN	United Nations
US$	US Dollar
WHO	World Health Organization

1 Background

1.1 Introduction

The United Nations' Sustainable Development Goal (SDG) of achieving universal health coverage (UHC) has driven many countries to undertake healthcare reforms to ensure increased access to healthcare [1,2]. These efforts have been accompanied by debates on suitable health financing strategies that support achieving financial risk protection and reduce reliance on out-of-pocket (OOP) payments. Regrettably, OOP payment is a predominant method of financing health care in sub-Saharan Africa (SSA)[3]. It is estimated that 36% of financing is contributed by individuals out of pocket at the point of service [4]. This is not only unsustainable but also regressive, demonstrating the need for more progressive prepaid financing of healthcare.

Prepayment of healthcare especially through health insurance is low in many low-and middle-income countries (LMICs)[5]. Consequently, huge numbers of people are either at risk of suffering catastrophic spending on healthcare or not seeking care[4,6,7]. Tax collection inefficiencies and the presence of a huge proportion of informal workers have contributed to limited fiscal capacity to provide universal access to health through tax funded systems[8,9]. Many LMICs have therefore chosen the path of contributory social health insurance to augment government financing [10,11].

Mobilizing adequate revenue through contributory systems is challenging. Evidence against contributory financing argue that such systems favors nations with higher proportions of formal sector employees whose contribution can be deducted at source and mobilizing adequate revenue [3,8,9]. This feature, deducting contributions at income source, is however not possible for informal workers because of the absence of organizational systems of payment and owing to the inconsistency and seasonality of their incomes[12]. Therefore, their membership into contributory schemes is often voluntary.

The basic principles of financial risk protection are prepayment and pooling of healthcare contributions. Pooling funds makes it possible to redistribute the burden of healthcare costs between the healthy and the sick, the wealthy and the poor, the young and the old[13]. These principles rely on a population's ability to pay for their healthcare in advance as well as their acceptance of the pooling of healthcare resources. It also relies on adequate citizen engagement and state accountability to ensure the population is aware of the schemes and the availability of quality health services[14]. It is therefore fundamental that health insurance scheme members are accepting of the idea that their premium contributions go towards meeting the healthcare costs of other members who are sicker or poorer than them, otherwise referred to as risk and income cross subsidization[15]. The population's tolerance of the idea is referred to as social solidarity[15,16]

1.2 Universal Coverage in Kenya

The Kenyan government has prioritized universal health coverage (UHC) in its policy documents such as the 'BIG Four Agenda', Kenya's Vision 2030, the national health policy 2014-2030, UHC Policy draft, and Health Financing Strategy[17–20] The national health financing strategy outlines the integral role of the national insurer, the National Health

Insurance Fund (NHIF) as a means to increase prepayment and pooling, and increase insurance coverage[21,22]. Theoretically, NHIF membership is compulsory according to the law; however, in practice, it is only mandatory for formal sector employees, while offering the option of voluntary membership to informal workers due to challenges in enforcing mandatory coverage [23,24]. Recent policy and legal reforms have aimed at strengthening NHIF's governance and increasing coverage especially among the informal workers in Kenya, who constitutes nearly 80% of the labour market[23,25].

Coverage among the informal workers in Kenya has grown through deliberate efforts and recent reforms. The recent Kenya Demographic Health Survey (KDHS) indicates a growth in NHIF coverage from 20% (KDHS 2014) to 24% (KDHS 2022)[26]. Recent reforms include the expansion of the benefit package to include both inpatient and outpatient services, flexible monthly contributions and an introduction of easy payment methods including mobile money[27,28]. Despite these efforts, coverage remains relatively low and inequitable, with approximately 8% of the informal workers being covered by NHIF[29–31]. In addition, the reforms included a significant increase in NHIF health insurance premiums from Ksh. 160 ($1.27) to Ksh. 500 ($3.9), raising concerns about the affordability of premiums among the poor [32–34].

Citizen engagement has been shown to play a significant role in the expansion of health insurance[14]. However, citizen engagement in health insurance remains a challenge in Kenya. A significant proportion of the population still lacks health insurance coverage, with many not being aware of NHIF[35]. Additionally, there have been complaints about the quality of services provided by NHIF, which has led to low levels of trust and confidence among citizens[36,37].

Affordability of premiums, citizen engagement, and social solidarity are key to expanding insurance coverage among the informal workers. This study proposes to investigate these concepts for their complementary role in influencing health insurance coverage. I used a mixed methods approach to explore the four research questions stated below.

1.3 Problem statement and justification

Healthcare costs cause severe financial hardship globally. This burden is disproportionately borne by LMIC. In particular, 11 million Africans are being sent below the poverty line every year as a result of healthcare payments[3]. Many of these countries are turning to social health insurance to achieve higher population coverage[38]. Social health insurance schemes have faced significant growth challenges in LMICs because of the difficulty of reaching informal workers through contributory health insurance systems[27,39].

Kenya has demonstrated commitment to integrating UHC in its national policy with the goal of expanding coverage among informal workers. Despite this, Kenya has had limited success in enrolling a large proportion of informal workers in NHIF. To gain insight into the problem, this thesis used a mixed method design to investigate the role of affordability of premiums, citizen engagement and social solidarity in health insurance coverage among informal workers. This study focuses the role of these and other household characteristics as factors contributing to health insurance enrolment. This nuanced understanding of the problem of growing health insurance among informal workers takes on an underexplored angle that is important for the design of population coverage policies in LMICs.

1.4 Broad Aim of the Study

The broad aim of this study is therefore to describe and assess the reasons for low enrolment in the national insurance scheme among the Kenyan informal worker households in Bunyala sub-County, Busia County, Kenya.

1.4.1 Study Objectives

1. To determine the affordability of health insurance premiums among the informal worker households.
2. To explore citizen engagement mechanisms employed by NHIF for the informal worker households.
3. To assess social solidarity among informal worker households.

1.4.2 Research papers and study objectives

Table 1 Showing PhD research questions and the papers from each objective

Objective	Title of research paper	Progress
Determine the affordability of health insurance premiums	*"It is like an umbrella covering you, yet it does not protect you from the rain":* A mixed methods study of insurance affordability, coverage, and financial protection in rural western Kenya	Published in the international Journal of Health Equity in Feb 2023
Explore citizen empowerment mechanisms employed by NHIF	*"We are in the dark":* A mixed methods study of citizen engagement in national health insurance in western Kenya	Submitted to the journal of Health Policy and Planning and is under review
Assess social solidarity	Acceptability of prepayment, social solidarity and cross-subsidies in national health insurance: A mixed methods study in Western Kenya	Published in the Frontiers in public health in October 2022

1.5 Conceptual framework

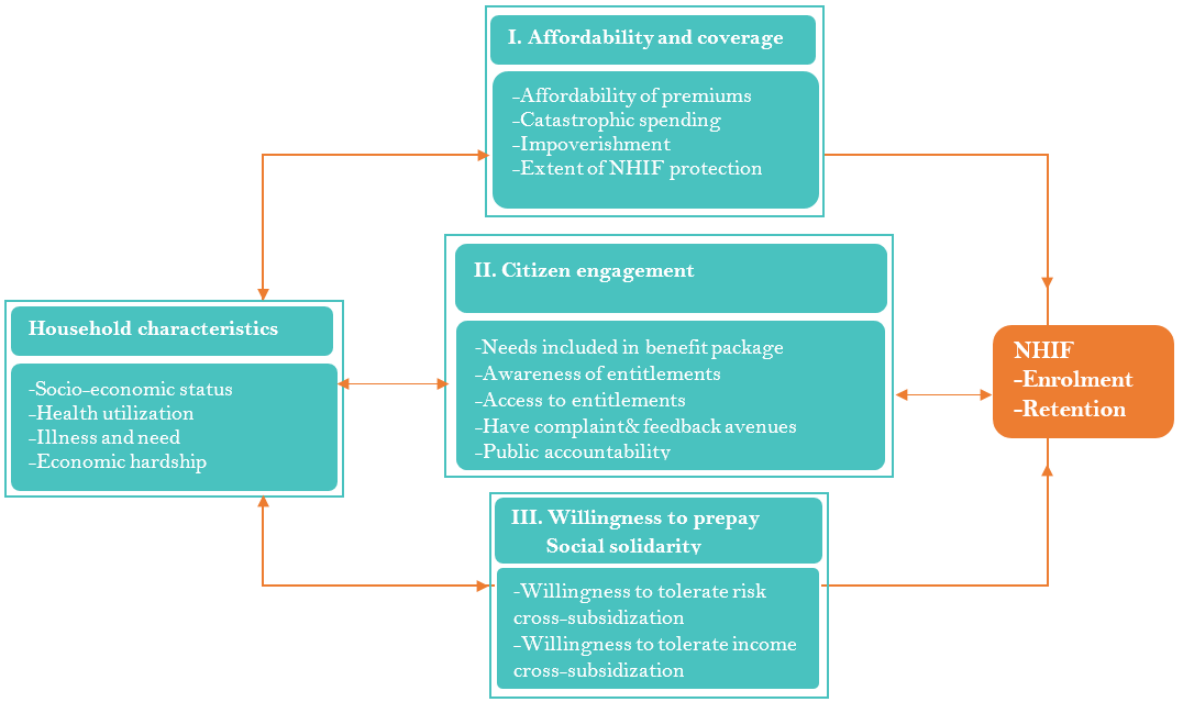


Figure 1 Conceptual Framework guiding the whole PhD (Author 2023)

The above illustrated conceptual framework guided data collection and analysis. In the mid-section of the diagram, it is hypothesized that, affordability of the premiums (Box I), citizen engagement (Box II), and willingness to prepay for healthcare and social solidarity (willingness to tolerate risk and income cross subsidies) (Box III) have an impact on the household's decision to enrol and remain insured (Box 4). In the lower part of the diagram, it is hypothesised that household characteristics i.e. health care utilisation (and the resulting out of pocket payments, and the possibility of impoverishment will also affect the decision to remain insured.

2 Literature review

2.1 Introduction

Within the broader context of attaining UHC, health insurance coverage among informal workers has been the focus of many studies because of the challenge posed in providing financial risk protection for this population. In this study, I seek to contribute to the growing and important field of knowledge on extending health insurance coverage to the informal workers. The literature review will be presented in two chapters. In the first chapter, a thorough review of global literature will be discussed to provide global context. In the next chapter (chapter 3), I will build upon the global literature and provide local context focusing on literature on Kenya.

The goal of this section of the literature review is to summarize and critically examine evidence from studies that have looked at health insurance among informal workers. Because low insurance coverage is a ubiquitous challenge in many low and middle income countries, we will critically examine different studies that have been done on social health insurance schemes globally and in LMICs. I will also explore any foundation work on health insurance premium affordability, citizen engagement and social solidarity within the context of the body of knowledge in which this study is situated i.e. social health insurance, financial risk protection and universal health coverage. Structurally, the literature review chapters will be divided into sections with subheadings.

The literature reviewed provides contextual background for this study and highlighting both supporting and contradicting findings related to the key study concepts. Studies were identified from a search of various online databases and websites for grey literature. These include PubMed, Scopus, CINAHL, Cochrane library, google scholar as well as organization websites such as NHIF and WHO. Different search terms were used together with Boolean operators such as (AND)/(OR) “Universal coverage”, “Health financing”, “Health systems strengthening”, “health insurance coverage” “Social solidarity” “Benefit package”, “Citizen Engagement”, “accountability”, “Entitlements”, “Empowerment”, “Premiums”, “Affordability” among others. Articles and reports were scanned for their relevance and included in Mendeley folders that served as an online library of the retrieved articles as well as the citation manager. A literature review matrix was also maintained throughout the review process, summarizing the key findings and methods used by the different studies.

2.2 Universal health coverage trends globally

Globally, UHC has been recognized as a key element of the sustainable development agenda, as it is critical to achieving health and well-being for all and promoting economic growth[40]. In 2015, the United Nations adopted the Sustainable Development Goals (SDGs), which include a target to achieve universal health coverage by 2030 [41,42]. Since then, there has been rapid adoption of the UHC goal within the various country context[43,44].

There has been global progress towards the attainment of UHC over the years. According to the WHO, the proportion of the world's population with access to essential health services increased from 67% in 2000 to 74% in 2017[45][46]. Additionally, the number of people pushed into extreme poverty due to out-of-pocket health expenditures decreased from 100 million in 2000 to 55 million in 2017[45].

Many countries have made significant progress in expanding access to healthcare. For example, in Thailand, the introduction of a universal healthcare scheme(UCS) in 2001 resulted in an increase in healthcare utilization and a reduction in the number of households experiencing catastrophic healthcare expenditure[47]. In Rwanda, the government implemented a community-based health insurance scheme that increased access to health services, particularly for poor households[48]. These examples make the case for investing in UHC. Evidence shows that people in nations that have attained UHC are healthier and live longer than those who have not [49].

There is no single accepted strategy for achieving universal health coverage. The design of UHC programs must be guided by local contexts to ensure they are responsive to local situations[3]. WHO's World Health Report 2010 provided a framework to guide policy makers in developing national roadmaps for attaining UHC. The framework, commonly illustrated by the UHC cube is focused on three dimensions and seeks to answer three fundamental questions[2]: i) which health services are covered (service coverage)? ii) who is covered (population coverage)? iii) what proportion of the costs are covered (financial protection)? By focusing on these three dimensions (service coverage, financial protection, and population coverage), policymakers and healthcare providers can ensure that their programs are comprehensive and address the needs of the entire population.

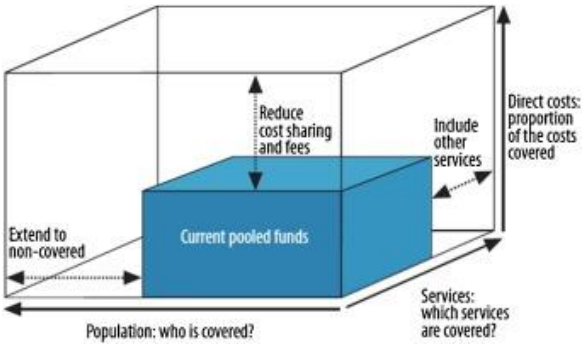


Figure 2 UHC cube (Source: WHO, 2010)

Service coverage refers to the range of health services that are available to a population and is measured by the proportion of the population that has access to essential health services[2,43,50,51]. Financial protection refers to the extent to which individuals and households are protected against financial risks related to healthcare[2]. Financial protection is measured by the proportion of the population that incurs catastrophic health expenditures, or the proportion of households that experience impoverishment due to healthcare costs[52]. Population coverage refers to the proportion of the population that is covered by a health insurance scheme or other forms of health financing, such as taxation or social health insurance[53].

The three UHC dimensions are interdependent, and improvements in one of the dimension leads to improvements in the others. For example, in Thailand, the Universal Coverage Scheme, a government-funded health insurance scheme, has helped to increase healthcare coverage and reduce OOP payments, resulting in improved health outcomes[47]. Interpreting the UHC cube involves looking at how well each of these dimensions is being addressed in a given context or country.

2.2.1 UHC progress in LMICs

One common strategy for achieving UHC in LMICs is the implementation of national health insurance schemes. These schemes pool funds from various sources, such as taxes and health insurance premiums to provide coverage for essential health services[54]. Countries like Ghana, Indonesia, and Rwanda have successfully implemented national health insurance schemes that have increased access to health services and reduced financial barriers to care for their populations[48,55,56].

Another key consideration for progress towards UHC in LMICs is the expansion of primary health care (PHC) services[9]. Indeed, PHC has been described as the engine for universal health coverage[46]. Some LMICs have recognized the importance of PHC in achieving UHC and have invested in expanding the coverage and quality of PHC services[46,57]. For example, Brazil has a well-established family health program that provides comprehensive PHC bringing essential health services closer to its population[58].

Despite these successes, LMICs face numerous challenges in achieving UHC, including the difficulty in achieving sustained political commitment and increased investment in health systems to ensure that all people have access to quality health services[59,60].

LMICs struggle to raise adequate funding needed to provide essential health services to their populations[46]. Only 10% of the population in low-income nations is employed in the formal sector, which is insufficient to support increasing social health insurance or tax contributions[61,62]. As a result, the ability of these countries to invest in health infrastructure, medical supplies and staff, and other necessary resources for providing quality healthcare is limited[9]. With a limited range of services covered, many individuals accessing healthcare have to pay out of pocket for these services exposing them to catastrophic health spending[63].

Many people in LMICs live in rural areas, where access to healthcare facilities is limited. Healthcare facilities in these areas are often understaffed and lack the necessary equipment and supplies to provide quality care[64]. Even when healthcare services are available, the quality of care may be poor due to a lack of trained healthcare professionals and inadequate infrastructure[65–68]. This can lead to long wait times, inadequate care, and lower patient outcomes[69–71]. In addition transport costs in rural areas can be a huge financial barrier to health services[2].

Lastly, most LMICs lack reliable data on health outcomes, health systems performance, and disease burden[72–74]. This makes it difficult to identify health priorities, allocate resources effectively, and track progress toward UHC[75]. In addition, achieving UHC requires sustained political commitment and investment in health systems. Political instability, corruption, and competing priorities hinder progress towards UHC in many LMICs [76].

2.2.2 Financing universal health coverage in LMICs

Progress towards UHC relies on a country's ability to balance a mix of funding strategies in a way that ensures health service coverage, maximizes population coverage and provides financial risk protection[77]. One way LMICs can mobilize domestic sources of revenue is through taxes, and allocating a portion of this revenue towards health care[53]. This can help to reduce reliance on regressive OOP and external funding hence creating more sustainable financing for health.

However, mobilizing adequate tax funding in LMICs can be challenging. LMICs often have a small formal sector, which limits the tax base in these countries[9,78] In addition, tax evasion and informality in the economy can further reduce revenue collection potential in these countries[9,44,79,80]. Nonetheless, governments should aim to overcome these challenges by employing strategies to expand the tax base, improve tax compliance, and reduce tax evasion[77,81].

LMICs can also prioritize allocating a larger portion of their budget towards healthcare, as recommended by the WHO. Currently, the median government expenditure on health in LMICs is only around 5% of GDP, compared to 12% in high-income countries[82–84]. The Abuja Declaration of 2001 established a goal for nations to devote 15% of their budgets to the health sector, but most countries are falling short of this target[82]. Although only four countries had reached this goal by 2014, evidence shows that increasing government expenditure on health can improve access to healthcare and reduce health inequalities in LMICs[3,81]. Therefore, LMICs need to not only increase public spending on health but also improve the efficiency of health spending[82].

Many LMICs rely on development assistance from bilateral and multilateral organizations to finance their health systems[85,86]. These can be in the form of grants, loans, and technical assistance[3]. With an increase in development aid, most countries have either reduced or stalled on domestic spending on health. These has led to legitimate concerns as to whether external funding may replace government spending especially in certain programs such as National HIV and malaria programs in SSA[3]. While governments can use development assistance to improve health service delivery, this funding is often unpredictable and may not be sustainable in the long-term[86,87].

Health insurance schemes provide another crucial means of financing healthcare in LMICs. Social health insurance schemes, where individuals contribute to a fund used to cover healthcare costs, are a way to ensure financial protection and improve access to healthcare[2] [58,97–99]. Community-based health insurance schemes operate similarly, but are usually more informal and community-led, making it difficult to scale to larger populations[88–90]. Private health insurance is another option, where individuals purchase insurance from private companies, but it is not considered the most effective model for achieving universal health coverage because their premiums are priced too high for most households to afford[91]. These insurance models are vital in LMICs where prepayment of healthcare through insurance is low, and the majority of the population is at risk of catastrophic healthcare expenditure[4,6,7].

In many Sub-Saharan African countries, out-of-pocket payments (OOPs) are a common means of financing healthcare, despite being the least desirable method of financing healthcare[2,4]. OOPs can create financial barriers to accessing health care for individuals who cannot afford to pay, reducing people's access to and use of health services[92]. OOP can lead to impoverished individuals and households routinely delaying medical care or resorting to self-medication, which can have potentially hazardous results[2]. Therefore, it is important for LMICs to explore alternative financing models such as social health insurance to increase financial protection and improve access to healthcare services for their populations.

2.3 Health systems strengthening for universal health coverage in LMICs

In order to achieve UHC, it is important to not only focus on financing but also on broader health system reforms that improve access to quality healthcare. A key aspect of health system strengthening is investing in health infrastructure, such as building and maintaining health facilities, ensuring an adequate supply of equipment and supplies, and providing essential health services[93]. Additionally, there must be enough trained health professionals, including doctors, nurses, and community health workers, to staff these health facilities and provide essential health services to the population[94]

Reliable systems are needed for collecting, analysing, and using health data to inform health policies and programs[95]. Overall health governance must also be strengthened by improving the governance and management of health systems, including the development and implementation of policies, regulations, and standards[96]. Lastly, promoting community participation in decision-making processes and ensuring culturally appropriate health services is critical[97].

2.4 The tension between health systems strengthening and health financing

Health financing refers to the various ways through which healthcare services and programs are funded. These include mechanisms to mobilize funds, such as taxes or insurance premiums, as well as the ways in which these funds are pooled, allocated, and spent on things like medicines, equipment, and healthcare providers[98–100]. In contrast, health systems strengthening refers to the overall improvement of a country's healthcare system, including its infrastructure, workforce, information system, and service delivery. This involves addressing issues such as shortages of healthcare workers, inadequate health facilities, and inefficient management and governance[43,101].

Both health financing and health systems strengthening are crucial components in achieving good health outcomes for a country's population, with both often being interdependent[102]. When policy makers prioritize standalone health financing reforms at the expense of broader HSS, these strategies fail to achieve wider service coverage and adequate financial risk protection in the absence of a strong health system. In a study titled, “Good budget or good care: The dilemma of social health insurance in Vietnam" the authors found that while the SHI system in Vietnam has made significant progress in terms of expanding coverage and increasing financial protection for the population, the quality of care provided through the SHI system remained a major challenge[102]. There was a tension between ensuring financial sustainability of the SHI system and improving the quality of care. The study found that the Vietnamese SHI system faced financial constraints, and there was a risk that cost containment measures may compromise the quality of care provided to patients[102]

Thailand is a good example of how governments can achieve universal coverage by implementing health system reforms. Their reforms included expanding primary health care services, improving health infrastructure, and implementing health insurance schemes that provided universal coverage[103]. Although HSS is a long term and continuous process that requires sustained investment and collaboration between multiple stakeholders, policymakers should ensure these efforts are not left behind.[104–106]. By strengthening health systems, LMICs can move closer to achieving UHC and improving the health and well-being of their populations[93].

2.5 Contributory Vs Non-contributory Healthcare Financing

The methods of financing for healthcare can be divided into two categories: contributory and non-contributory. Contributory financing is when individuals regularly contribute to a pool of funds, often through insurance premiums, in exchange for access to healthcare services[77]. This system typically bases contributions on an individual's ability to pay[81]. On the other hand, non-contributory financing relies on government or other sources to provide funds for healthcare services[77].

Both systems have their advantages and disadvantages. In his article on health financing reforms, Joseph Kutzin acknowledges that contributory financing mechanisms have some advantages such as promoting a sense of ownership and responsibility among contributors, and potentially generating more funds for health services. However, he also notes that contributory financing can be regressive[81,107]. This method may also exclude those who cannot afford to pay, creating inequalities in access to healthcare[77]. Kutzin argues that non-contributory financing mechanisms have the potential to be more equitable, as they can be designed to ensure that the burden of financing health services is shared more fairly among the population[77]. Non-contributory financing may offer universal access to healthcare services. However, evidence shows that it can also be subject to political pressures and corruption or mismanagement which could lead to inefficiencies and poor quality of care[3,64,107,108].

Ultimately, the choice between contributory and non-contributory financing for healthcare depends on the specific context of the healthcare system. Most countries that have achieved high population coverage have done so through a mix of contributory and non-contributory systems. Therefore, the choice of whether to achieve coverage through contributory or non-contributory presents is a false dichotomy and both systems can work in a complementary manner to expand coverage and provide financial risk protection[8,107] An important principle offered by most international guidelines for achieving coverage in LMICs is the need to move away from primarily funding healthcare through labour taxes which are employment based because of the high levels of informality in these countries[81,107,109,110].

2.6 Defining Social Health Insurance Schemes

Social health insurance (SHI) is a term commonly used to refer to state-run schemes that offer individuals the opportunity to enrol voluntarily or through a mandatory system[111]. However, the term SHI can be misleading because they often describe different systems depending on the context and the source of funding for SHI programs and these vary significantly from country to country. For instance Belgium and Germany have achieved higher levels of universal coverage through their tax-funded SHI schemes as a primary means of coverage, with private household contributions serving only supplementary purposes for additional coverage[13,112,113]. In LMICs, SHI schemes differ from HIC as they are mostly funded primarily through private household contributions. For instance, in Rwanda, the government funded SHI together with community-based health insurance (CBHIs) have contributed to over 80% insurance coverage in the country[48].

Nonetheless, SHI differs significantly from private health insurance as it is run by governments with the goal of providing wider access to healthcare for citizens, resulting in highly subsidized premiums and risk redistribution, which allows individuals with pre-

existing conditions to be eligible without paying higher premiums[13] [114]. Maarse et. al. make the case that social health insurance schemes are founded on the concept of social solidarity based on these characteristics[13].

2.7 Determinants of health insurance enrolment in LMICs

Health insurance coverage in LMICs is influenced by various factors at different levels. Household-level factors such as income and education play a crucial role in determining enrolment in health insurance programs[102,115]. People from lower socioeconomic backgrounds may face financial constraints that limit their access to health insurance. Similarly, poverty and low levels of education can also affect healthcare utilization, which can subsequently impact insurance coverage. Additionally, the political climate and government policies in a country can affect the effectiveness of health insurance programs. Political instability and corruption can limit the availability and accessibility of healthcare services, making it harder for people to enrol in health insurance programs[3].

The demand for health insurance is also influenced by cultural beliefs and practices. Some communities may have a preference for traditional healers over modern healthcare services or may not see the value in health insurance[43,88,116]. Demographic factors such as age, gender, marital status, and family size can also affect health insurance coverage[117]. Some studies have found that women and children may be more likely to have health insurance than men, and larger families may face greater financial barriers to accessing health insurance[26]. The availability and accessibility of healthcare services also affect insurance coverage. In rural areas, for example, where healthcare infrastructure is often inadequate, there may be less demand for health insurance. As a result, studies have found that individuals living in urban areas are more likely to have health insurance than those living in rural areas[117].

Individuals with chronic health conditions or who have a history of health problems are more likely to have health insurance than those who are healthy[36]. The ease of enrolment and the availability of health insurance also play a role in determining household enrolment in health insurance[36]. Previous research has shown those in formal employment and individuals with higher levels of education are more likely to have health insurance than their counterparts[115].

Overall, these determinants interact with each other in complex ways, making it challenging to implement effective health insurance programs in LMICs. Therefore, efforts to provide increased population coverage need to take into account these factors in any given context.

2.8 Characteristics of informal workers

Informal workers in LMICs face several challenges that hinder their enrolment in health insurance programs. The majority of informal workers operate in unregistered businesses that operate outside the legal framework, making them subject to limited legal protections and regulations[61,62,118]. Additionally, many informal workers lack formal training or education and rely on their own skills and experience to run their businesses, which can limit their access to social protection programs like healthcare and pensions[119].

Most informal workers operate small-scale or micro-enterprises, often from their homes or public spaces like markets and streets[120]. This population is typically associated with low education and skill levels, which can result in limited access to quality healthcare services. The lack of social protection programs for informal workers can make them vulnerable to

economic shocks and crises, leading to high levels of poverty and inequality[119]. However, informal social networks, such as family and community ties, can provide social capital that can help informal businesses access information, resources, and customers[119].

2.9 Affordability of health insurance

The affordability of health insurance is a critical factor that influences people's decision to enrol in health insurance programs. Previous studies have explored the affordability of social health insurance premiums by analysing various factors such as income levels, insurance scheme design, and the impact of premiums on healthcare access[121–125]. These studies have found that the cost of health insurance premiums can be a significant barrier to health insurance enrolment. However, other studies have shown that social health insurance premiums can be affordable for most households if the premium cost is set at a level that reflects the benefits provided[119,126]. In general, research emphasizes the importance of designing social health insurance schemes that are affordable for people across all income levels, and ensuring that targeted subsidies are available to support those who may struggle to pay premiums[127]. This can help increase access to healthcare and improve health outcomes, especially in low- and middle-income countries where prepayment of healthcare is often limited.

2.10 Citizen engagement

Citizen engagement is an important aspect of creating effective and equitable health insurance programs, especially in low- and middle-income countries (LMICs). This involves actively involving individuals and communities in the design, implementation, and evaluation of health insurance programs[128,129]. The aim of citizen engagement in health and health insurance is to create a more transparent, accountable, and responsive system that caters to the needs of all citizens regardless of their socio-economic or health status[14,104,106,130]. By involving citizens in decision-making processes, health insurance programs can be tailored to meet the unique needs of diverse communities, promote health equity, and improve health outcomes[14]. Citizen engagement can take many forms, including public consultations, surveys, focus groups, and online forums[128,129].

In Canada, citizen engagement in healthcare is ensured through citizen advisory committees made up of citizens who provide input and advice on health policies and programs. For example, the British Columbia Ministry of Health in Canada has established citizen advisory committees to provide input on health system reform[131].

The National Health Service (NHS) in the United Kingdom uses a number of strategies to ensure citizen engagement at all levels of the organization. This is achieved through efforts to seek views and feedback of patients and the public through patient and public involvement (PPI) activities. This involves consulting with patients and the public on healthcare services and decisions that affect them, such as service redesign, policy development, and research. The NHS supports the establishment of independent local Healthwatch organizations that represent the views and experiences of patients and the public in their local communities[132].

Many general practitioner practices in UK’s NHS have patient participation groups (PPGs) that provide a forum for patients to voice their opinions and provide feedback on local healthcare services. [104][133]. In addition, the NHS has also established an online platform called NHS Citizen, which provides an opportunity for citizens to participate in the decision-

making process related to NHS policy and services[134]. Lastly, the NHS Constitution sets out the rights and responsibilities of patients, the public, and NHS staff promoting a culture of patient and public involvement within the NHS[135]. While there is still work to be done to ensure that patient and public involvement is fully embedded in the NHS, these initiatives have shown that involving patients and the public can lead to better healthcare outcomes and greater patient satisfaction.

Rwanda has also achieved high levels of citizen engagement in health insurance through a combination of government policies, community involvement, and innovative financing strategies[81]. These include the roll out of Community-based health insurance that is based on citizen involvement and health education through Community Health Workers(CHWs) which has helped to increase awareness and participation in the health insurance program[136]. Government subsidies also ensures that everyone has access to healthcare regardless of their income level, which has helped to increase participation in the health insurance program[137]. These strategies have contributed to high levels of citizen engagement in the country achieving high levels of population coverage.

2.11 Social solidarity

In LMICs, social solidarity can be a key factor in promoting health insurance enrolment among informal workers. Social solidarity refers to the willingness of individuals to contribute to a common pool of funds to ensure access to affordable healthcare for everyone[15]. Evidence shows that social health insurance schemes rely on this principle and can be an effective way of promoting collective action and risk pooling among communities[15,138]. There is a growing focus on the role of solidarity in promoting participation in public health programs globally [16,139–141].

Studies have shown that countries with high levels of social solidarity and trust tend to have more successful social health insurance systems[88,142,143]. For example, Germany's social health insurance system is funded by contributions from both employers and employees, and everyone is required to participate[144]. This system has been successful in providing universal healthcare coverage, and research has attributed this success to the country's strong culture of social solidarity and trust resulting from Germany’s political system that places strong emphasis on welfare state, high levels of education in the country and it largely formal economy[145]. In other parts of Europe, studies have explored the effects of social health program reforms on social solidarity, measuring it on three dimensions: entitlement, risk solidarity, and income solidarity[13,146].

Previous studies in sub-Saharan Africa have highlighted the influence of sociocultural beliefs around health insurance, the perception of risk and reliance on informal financial support as some barriers to health insurance uptake[147]. Studies have also highlighted the role of social capital in the growth of health insurance schemes in Africa[138,148]. Studies in South Africa, Ghana and Tanzania reveal varying levels of willingness to cross-subsidize across wealth quantiles[15]. Subsequently, differences in levels of uptake of health insurance have been attributed to a population’s tolerance for risk and income cross subsidies. Empirical evidence has demonstrated that social solidarity provides favourable conditions for the creating risk pools that form the basis of health insurance and tax based systems[88,142,143].

3 Universal Health Coverage in Kenya

3.1 Introduction

In the following section of the literature review, I present the research gap this study attempted to address and provide more background in the Kenyan context as far as the study concepts are concerned. A review of methods used in similar studies will also be included in a subsection followed by concluding remarks of the literature review process.

3.2 Research Gap

Informal workers constitute over 80% of the Kenyan workforce and contribute significantly to the Kenyan economy [149]. Yet the proportion of informal worker households closely mirrors the nearly 80% of Kenyan households that lack health insurance and are at risk of catastrophic health expenditure [12,29,150]. Because NHIF membership is mandated for those in formal employment, informal worker households whose membership is voluntary are at the greatest risk of suffering healthcare related financial hardship. Consequently, regressive out of pocket (OOP) payments remain a prevalent source of uninsured household health financing resulting in nearly 1 million Kenyans being pushed into poverty annually [4,29,151–153].

Similar to other LMICs, the problem of health insurance coverage among the informal workers poses a significant barrier or potential to achieving increased health insurance coverage in Kenya [154–156] . Taking up voluntary membership in an insurance scheme requires a willingness to prepay for healthcare, and willingness to have your financial contribution to the pool benefit others who were sicker ("risk cross-subsidization") and poorer ("income cross-subsidization") than you, otherwise referred to as social solidarity[16].

Solidarity has been positively associated with participation in prepayment and growing financial risk pools in Europe, US and some sub-Saharan countries[15,16,122,139,141,157–159] . It is founded on and influenced by trust in the scheme, and in the health systems' ability to provide a promised benefit package[138,160,161]. Existing literature on health insurance among the informal workers in Kenya have not adequately explored the willingness to prepay for healthcare their views on social solidarity-the willingness to tolerate risk and income cross-subsidization despite these being the basic tenet of insurance. With the increasing global and national focus on attainment of UHC through social health insurance, these factors form a part of the broad understanding of populations participation in insurance programs and tax collection[162,163].

Little is known about the affordability of NHIF premiums to informal worker households since a 230% increment of premiums in 2015[29]. Although this marked increase was implemented to finance the wider and more comprehensive benefit package, studies have shown that the increment has posed an additional barrier to informal workers' enrolment in NHIF. concep studies on the affordability of NHIF premiums have used a quantitative approach, and there is a death of qualitative studies. While these studies already pointed to the importance of affordability as a key determinant to health insurance enrolment, there is a dearth of qualitative studies explaining findings on affordability of NHIF premiums among rural informal workers[164].

What is also scanty in NHIF related literature is how NHIF as an insurer, ensures that Kenyans are engaged and can access the NHIF benefit package as this has been shown to inform their decisions to enrol. Although literature on NHIF has pointed to weak mechanisms within NHIF to receive complaints, these studies did not explore the level of citizen awareness of these mechanisms. A study in Kenya assessing citizen engagement found that citizen engagement mechanisms employed by NHIF were weak and could be improved by including their views and needs better[165]. The study however collected the views from policy makers and neglected the views of the citizens themselves. The views of the citizens are however key to increasing their buy in to programs like national health insurance [164,166].

These study therefore attempted to fill this gaps in literature by exploring reasons for low enrolment among the informal workers while considering the role of social solidarity, premium affordability and citizen engagement. I focused on enrolment within the national scheme in NHIF that offers voluntary enrolment for the informal workers household otherwise known as Supa+cover[167].

3.3 Social health insurance reforms in Kenya

The idea of social health insurance in Kenya can be traced back to the 1960s, when the government established the National Hospital Insurance Fund (NHIF) to provide health insurance coverage to formal sector workers[168]. Over the years, the NHIF has expanded its coverage to include informal sector workers and their families, as well as retirees and other groups[27]. However, the NHIF has faced numerous challenges, including limited coverage, inadequate funding, and poor management[169]. In the early 2000s, the Ministry of Health proposed the establishment of the National Social Health Insurance (NSHI) as a way to address these challenges and expand access to healthcare services to all Kenyans[170].

Charity Ngilu, who served as Kenya's Minister of Health from 2003 to 2007, was a key proponent of the NSHI scheme in Kenya through the introduction of the NSHIF bill in 2004[170,171]. The NSHI was envisioned as a mechanism for expanding access to healthcare services and ensuring that all Kenyans had access to quality healthcare regardless of their ability to pay[172–174].

The NSHI was designed as a contributory health insurance scheme, with contributions based on income and ability to pay. The funds would be used to finance a package of essential health services, including preventive, curative, and rehabilitative care. It included a detailed plan to increase coverage to 60-80% within 9 years. The bill also proposed making NSHIF mandatory with contributions from both employers and employees, as well as government contributions on behalf of poor households. Additionally, it suggested the creation of a single risk pool and a separate governance and policy direction away from the flawed NHIF. Although the bill was passed in parliament, the president did not assent to it and returned it for further discussion[172].

Despite initial support for the NSHI, the scheme faced numerous challenges, including political opposition, inadequate funding, and poor management[170,175]. While the Ngilu bill was never finally passed, its introduction led to incremental changes and the adoption of some of its components in NHIF reforms over time. In 2007, a change in government leadership led to a shift in healthcare policy, and the NSHI was abandoned in favour of other health financing mechanisms[17]. Nonetheless, the idea of social health insurance has

continued to be a topic of discussion in Kenya, and there have been ongoing efforts to strengthen the NHIF and expand coverage to more Kenyans. In recent years, the government has also launched initiatives to improve healthcare service delivery, including the Universal Health Coverage program, which aims to provide access to quality healthcare to all Kenyans by 2022[173].

3.4 Healthcare Financing in Kenya

In Kenya, healthcare is financed by a mix of various methods with a significant contribution from private household financing in the form of OOP – 26.6% of the Current Health Expenditure; (tax – 47.6%, donor funding – 19.1%) [176]. OOP persists despite evidence that expanding prepaid financing contributes to the global UHC goal by ensuring access to health services while preventing financial hardship related to seeking health [1,11,39,177,178]. Urgent measures are required to reduce the reliance on OOP payments to the recommended levels of 15-20% of the total health expenditure to mitigate against the risk of catastrophic healthcare expenditure[2].

There is also an opportunity for Kenya to improve health financing methods by increasing the healthcare sector budgetary allocation that has averaged <9.5% between 2018-2021[179]. According to the Abuja declaration that Kenya signed off on, countries need to strive to allocate no less than 15% of their total budget spending to achieve quality and healthcare [3,171]. In the recent years, the government has increased budgetary allocation to health, with health expenditure accounting for 6% of the GDP in 2021, up from 4.5% in 2014[176,179,180]. However, government allocation is still inadequate to finance the health functions. As the Kenyan government strives to achieve the recommended level, multiple avenues are being explored including contributory health insurance with mechanisms to provide coverage for the poorest households [32–34].

3.5 Healthcare system in Kenya

Kenya has a pluralist health system with service delivery offered in both public and private health facilities[19,181]. The public healthcare delivery system is divided into four tiers: community, primary care, county referral, and national referral[19]. Public facilities rely on user fees to raise revenue for operations. This is despite empirical data indicating that imposing user fees in healthcare facilities, coupled with the absence of health insurance, has resulted in a significant proportion of healthcare seekers resorting to OOP payments[81].

A number of health system reforms in relation to user fees in Kenya stand out(**Error! Reference source not found.**). In 1963, the government abolished user fees previously charged by the colonial government essentially adopting an National Health service system funded through taxation[172]. However, in 1989 user fees were reintroduced to finance operations in health facilities. They were abolished again in 1990 because of inequitable access and utilization of health services. A year later, user fees were once again reintroduced with exemptions for under-fives.

In 2004, user fees in public outpatient clinics were eliminated, with the exception of a set registration charge of Ksh 10 (US$0.08) for dispensaries and Ksh 20 (US$0.16) for health centers[181–183]. User fees were still charged by public hospitals as part of a cost-sharing

scheme in which the hospitals received direct budget line support from the central government but also charged patients. Following the election of a new government in 2013, user fees at health clinics and dispensaries were fully eliminated[181]. Donor support (through DANIDA funds) helped reimburse primary care facilities for user fees forgone[182]. There are however several reports that user fees persisted long after the ban of user fees in primary care facilities creating a barrier to healthcare access[184].

3.6 Devolution and healthcare financing in Kenya

In Kenya, a devolved government system was implemented in 2013 following the passing of the 2010 Constitution of Kenya aimed at addressing issues of inequality, marginalization, and exclusion in the country[185]. This system consists of 47 counties, each with its own elected governor, county assembly, and executive committee, with the power to raise and manage their own revenue and make decisions on issues such as healthcare, education, agriculture, and infrastructure within their jurisdictions[185]. While devolution has been credited with promoting grassroots democracy, improving service delivery, and spurring economic growth, there have also been challenges such as corruption, conflicts between the national and county governments, and inadequate funding[20,186,187].

In the devolved health systems, the provision of primary and secondary health services was shifted to county governments, while policy-making and regulatory authority as well as tertiary care remained with the national government[185,188]. However, the transfer of important hospital management committee responsibilities to county health departments and poor governance and capacity gaps led to weak county health systems and interruptions in service delivery[188,189]. Public county hospitals also lost autonomy and control over revenue sources, leaving hospital managers feeling powerless[188]. As a result, county health systems are characterized by inadequate funding leading to poor service delivery in primary and secondary care public facilities[190].

3.7 UHC progress in Kenya

Kenya has made significant progress towards achieving UHC in recent years including the implementation of UHC pilots to test and evaluate different models for providing affordable and accessible healthcare services to all Kenyans(**Error! Reference source not found.**) [191]. The UHC pilots in Kenya were initiated in four counties, namely Kisumu, Nyeri, Isiolo, and Machakos and were conducted between 2018 and 2019[191,192]. Residents of these counties were enrolled in a free UHC cover referred to as 'afyacare'[191].

The UHC pilots led to an increase in the number of people accessing health services. This was also accompanied by a reduction of the financial burden of seeking healthcare by eliminating user fees and increasing the coverage of health insurance. In addition, the pilots led to improved health outcomes, including a reduction in maternal and child mortality rates[191–193]. While the afyacare pilots did not have a well defined benefit package, the services accessed by beneficiaries in the four pilot counties included services defined under the Kenya essential package for health(KEPH)[191,194]. KEPH outlines essential services offered in the different levels of the health system in Kenya. Under the Afyacare mechanism, the UHC funding was also channelled to the Kenya Medical Supply Agency(KEMSA) for the provision of free medication. Additionally, the departments of public health and community

health also received additional funding for health promotion, prevention and surveillance efforts in the community[194].

In 2020, the president proceeded to announce the scale up of the UHC program to all the 47 counties and signed UHC scale up agreement with all governors[193]. What followed was significant injection of Ksh 41.9 billion in key areas of health over and above the county budgets[195]. Beneficiaries of the initial UHC pilot were issued UHC cards which were and were not given NHIF membership. However, current UHC scale up efforts ride primarily on the NHIF efforts and benefit package with NHIF being the main vehicle for delivery of UHC in the country[194]. The government of Kenya had committed to achieving UHC by 2022 but a lot remains to be done to ensure that all citizens have access to quality healthcare services. Some counties have also launched UHC schemes achieving varied levels of success in increasing coverage [196,197]

One of the critical challenges facing the implementation of UHC in Kenya is the issue of financing. The government must ensure that there is adequate funding for the program to cover all citizens.

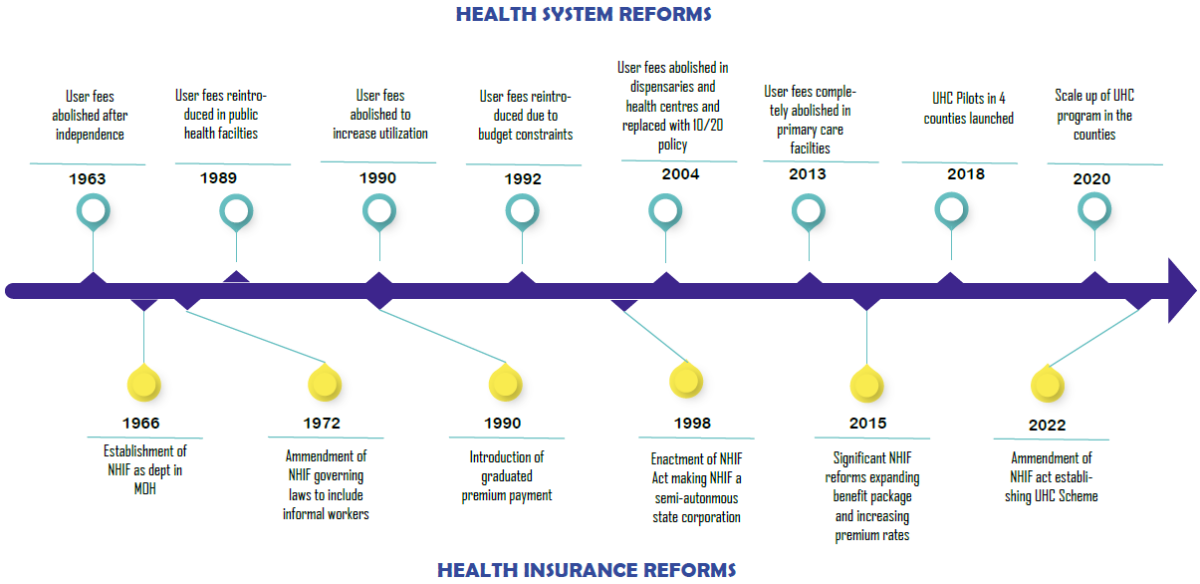


Figure 3: Summary of health system and health insurance reforms in Kenya based various literature[20,181,186,187,191,192,194]

3.8 The governance of NHIF

The NHIF governance structure includes the board of management, management, regional offices, advisory councils. The board is the highest decision-making organ of NHIF. It is responsible for setting the overall strategy and policy direction of the organization. The Board is appointed by the Cabinet Secretary for Health and is made up of nine members, including the Chairperson, the CEO of NHIF, and representatives from various government ministries and stakeholders[22,23].

The management team is responsible for the day-to-day operations of NHIF. It is headed by the CEO, who is appointed by the Board[198]. The management team comprises various departments, including finance, human resources, marketing, and customer service. NHIF

also has regional offices across Kenya, responsible for the implementation of the health insurance program at the grassroots level[199]. Each regional office is headed by a Regional Manager who reports to the CEO.

NHIF has advisory councils at the national and regional levels [198]. The National Advisory Council is composed of representatives from various stakeholders, including government, private sector, and civil society. The regional advisory councils are responsible for advising the regional offices on matters relating to the implementation of the health insurance program.

Previous reports on NHIF governance have pointed out the lack of technical experts in the board as one of its short comings. This has implication in the level of oversight that the board can provide to NHIF. The report tittled "the NHIF we want" recommended the inclusion of representatives from various technical institutions including academia [22]. Other studies have also highlighted the governance gaps in NHIF that limit its growth [169,200,201].

3.9 NHIF coverage

Kenya's national health insurer-NHIF, has undergone numerous reforms since its inception in 1966[168]. It covers health services in accredited private and public facilities in Kenya. It is one of the oldest social health insurance programs in SSA yet it has faced significant growth challenges especially in increasing informal worker coverage[168]. The NHIF, originally a division of the Ministry of Health (MOH), was created to offer formal sector employers health insurance coverage[12]. Formal sector employees had access to an inpatient benefit package and paid a set premium rate[181]. The NHIF's governing law was changed in 1972 to include coverage for informal workers. In 1990, a progressive premium payment mechanism was included as a further amendment to the law. The NHIF Act of 1998, which changed the institution from a department of the MOH to an independent state company, abolished the prior statute and replaced it. 2015 saw an amendment to the NHIF Act that increased rates as shown in Table 2 below [23,24].

Table 2 Current NHIF contribution rates (source NHIF website)

Formal Employee's Monthly Gross Income (Ksh)	**NHIF Rates Per Month (Ksh)**
0 and 5,999	150
6,000 – 7,999	300
8,000 – 11,999	400
12,000 – 14,999	500
15,000 – 19,999	600
20,000 – 24,999	750
25,000 – 29,999	850
30,000 – 34,999	900
35,000 – 39,999	950
40,000 – 44,999	1,000
45,000 – 49,999	1,100
50,000 – 59,999	1,200
60,000 – 69,999	1,300
70,000 – 79,999	1,400
80,000 – 89,999	1,500
90,000 – 99,999	1,600
100,000 and above	1,700

Informal sector cover (UHC Supa Cover	500 flat rate

There was also a marked expansion of the NHIF benefit package, which previously only covered inpatient care, to include outpatient care and a number of specialized services like renal dialysis. Other reforms have since included 1) overall governance and management reforms to reorganize the NHIF's functional structure 2) digital systems for claim, contribution and registration and more recently 3) amendments to the NHIF Act in 2022 [22–24].

Initially designed for the formal sector households, membership to the national scheme was only extended to informal workers in 1998 through the payment of a monthly premium of Ksh 160 (US$1.2) per family[29]. It is not surprising that informal membership continues to lag behind. A number of studies in Kenya have explored recent reforms and the impact they have had on enrolment[29,202]. These studies have made significant contribution by highlighting barriers such as registration processes, lack of awareness and the increased cost of health insurance premiums [203]. Key among the findings is that NHIF had not managed to mobilize enough funds to the national expenditure owing to feasibility challenges ranging from fragmentation of pools to inefficiencies in ensuring availability of services[29]. Because SHI pools like NHIF require large numbers of people contributing to the pool, it is important to address the challenges of enrolling the informal workers into NHIF.

3.10 Purchasing of health services by NHIF

NHIF purchases health services from both public and private facilities through a capitation system and a fee-for-service system[165]. Under the capitation system, NHIF pays a fixed amount per member to a healthcare provider or facility to provide a defined package of health services for a specified period of time. Under the fee-for-service system, NHIF pays healthcare providers or facilities for each individual service or treatment that is provided to NHIF members[166]. Reimbursement for inpatient services based on a fee-for-service model, while for outpatient services, a capitation model is used for the informal workers in the national scheme [204].

There are 3 main classes of NHIF contracts with healthcare providers: A, B and C [205]. These contracts outline the terms and conditions of the relationship between NHIF and the healthcare facility, including the services to be provided, the payment rates, and the quality standards that must be met[165]. Private facilities fall under class B or C and NHIF members seeking services in these classes are subjected to co-payment, which can be unaffordable for low-income patients[205]. By 2017, NHIF had accredited a total of 1,635 healthcare facilities, comprising of 727 government hospitals, 682 private hospitals, and 164 faith-based facilities[205].

3.11 Social Solidarity in Kenya

Few studies have assessed social solidarity in Kenya. The Kenya Household Health Expenditure and utilization Survey (KHHEUS) conducted in 2018 assessed social solidarity in health insurance[206]. According to the survey findings, 88.8% of respondents expressed their willingness to contribute to healthcare for themselves and their families, and more than 70% of them were willing to pay for health insurance as an act of solidarity with the less

fortunate. Half of the respondents did not agree with the notion that individuals should only be responsible for their own healthcare expenses[206].

The findings suggest that there is a strong sense of social solidarity among the Kenyan population when it comes to healthcare. The high percentage of respondents willing to contribute to healthcare for themselves and their families, and their willingness to pay for health insurance in solidarity with the less fortunate, indicates a sense of shared responsibility and willingness to support others in need. The fact that half of the respondents do not agree with the idea that individuals should only be responsible for their own healthcare expenses further reinforces this sense of social solidarity. This could have implications for healthcare policy in Kenya, as it suggests that there is support for policies that promote solidarity and shared responsibility in healthcare financing. The Health Financing Strategy outlines the government's commitment to achieving universal coverage through the implementation of social health protection mechanisms[20]. This includes the introduction of social solidarity mechanisms based on the principles of social health insurance and tax financing, aimed at providing financial protection to vulnerable groups, including the poor.

Other studies in Kenya have found that the Kenyan community embodies a robust sense of *harambee*, a Swahili term that translates to "pulling together," signifying their inclination towards communal sharing and support[160]. The notion of solidarity in Kenya, which is akin to group savings and other communal activities, is based on the idea of reciprocity. As a result, it is theorized that Kenya's culture of solidarity is inherently aligned with the concept of social health insurance. Studies in Kenya have however found that the existence of multiple NHIF schemes undermine solidarity[187].

3.12 Affordability of Premiums

Previous research has found that the affordability of NHIF premiums in Kenya is a challenge for some individuals and households, particularly those in lower income brackets. Studies have found that the current NHIF premiums were unaffordable for the majority of the informal sector population, which comprises a significant proportion of the Kenyan population[35,207–209]. Baraza E. (2017) et al. conducted a qualitative study focusing on informal workers' experiences and perceptions involving 39 in-depth interviews with participants based on their NHIF membership i.e. enrolled, formerly enrolled and never enrolled. The study found that the cost of premiums for the NHIF represented a major obstacle for both existing and potential members[35]. Another study by Okungu V. (2018) et al. also identified the affordability of premiums as one of the main concerns identified as a possible hindrance to the advancement of prepaid healthcare and UHC in Kenya[120]. These studies recommended that the government should consider reviewing the NHIF premium structure to make it more affordable for low-income households[35,207,210].

3.13 Catastrophic Health Expenditure and Impoverishment

A number of studies have focused on the issue of catastrophic health spending in Kenya using datasets from national surveys. Barasa et al. (2017) found that catastrophic health spending affects a significant proportion of Kenyan households, with the poorest households being the most vulnerable. They identified several factors associated with catastrophic health spending, including the employment status, presence of a chronic illness, hospitalization, and household size among others [211]. Another study in 2019 also found that catastrophic health

spending is a major problem in Kenya, with households spending an average of 15% of their income on healthcare[153]. They found that the burden falls disproportionately on the poorest households.

Jane Chuma and Thomas Maina (2012) also found that catastrophic health spending is a major issue in Kenya, with 1 in 10 households experiencing catastrophic health spending. They found that the main drivers of catastrophic health spending were hospitalization, use of private healthcare services, and the need for surgery[212]. Overall, these studies highlight the significant burden that catastrophic health spending places on households in Kenya, particularly those who are already vulnerable due to poverty. They identify several factors that contribute to catastrophic health spending, including the severity of illness, hospitalization, and use of private healthcare services[153,211,212]. The findings suggest the need for policies and interventions that can help to mitigate the impact of health spending on households, particularly the poorest and most vulnerable populations.

3.14 Citizen engagement and state accountability

In Kenya, several studies have investigated different citizen engagement strategies in health and health insurance. A report of a health financing reforms expert panel assessing the NHIF as a vehicle for achieving UHC in Kenya found that there was a lack of awareness and understanding of NHIF among the general population in Kenya[22]. The report revealed the need for more accessible and affordable NHIF services, better communication about NHIF benefits and enrolment procedures, and increased transparency and state accountability in the NHIF administration.

Another study found that most people were aware of the NHIF, but few were enrolled due to financial constraints or perceived low value for the services provided. There was a lack of information on how to enrol and the benefits of NHIF membership, and some participants reported dissatisfaction with the NHIF's responsiveness to their health needs[207]. Evidence also shows that complaints about the quality of services provided by NHIF have resulted in low levels of trust and confidence among citizens[36].

As part of its citizen engagement strategy, NHIF in Kenya has established a toll-free number for its members to provide feedback and make inquiries about the services provided. NHIF contact information shared across most platforms includes the NHIF toll-free number, 0800 720 601 stating its availability 24/7[213,214]. Members are advised to use the number to report any issues they encounter while seeking medical services, ask questions about their NHIF membership status or benefits, and provide feedback on the services provided. However, one study noted that the number is not accessible in most cases[165]. In addition, NHIF also uses social media, website, newspapers, and media pronouncements campaigns to increase awareness of their health insurance program and encourage citizens to enrol[166]. This approach however had limitations in terms of reaching a broader audience beyond those who had access to these media platforms.

Citizen engagement in healthcare delivery is a critical aspect of promoting community ownership and state accountability in the health sector and ultimately contributes to access and satisfaction on services covered by health insurance programs. Several strategies have been employed to ensure citizen participation in health service delivery in Kenya. A study titled, "Community participation in the collaborative governance of primary health care

facilities, Uasin Gishu County, Kenya" highlights the importance of involving community members in the governance of health facilities[215]. The authors suggest that this can be achieved through the formation of health facility management committees (HFMCs) comprising community representatives and health service providers. The study found that HFMCs can improve service delivery, promote state accountability, and enhance community ownership of health facilities.

Indeed, the Kenyan government has recognized the importance of citizen engagement in health facility management committees and has taken steps to promote it. For example, the Ministry of Health has developed guidelines for the establishment and functioning of health facility committees, which include provisions for community participation[216,217]. However, HFMCs have little success because of limited capacity, inadequate funding, limited engagement of citizens, poor financial accountability among members and political interference[218].

A policy brief titled, "Promoting Public Participation for Improved Health Outcomes" suggests several strategies for citizen engagement, including community mobilization, public forums, and community scorecards[215]. The development and dissemination of health facility service charters has also been used to increase citizen engagement in Kenya. This involves the creation of service charters that clearly outline the services that health facilities are expected to provide, as well as the rights and responsibilities of patients and health workers[219]. However, the difficulties associated with utilizing facility charters comprise of health workers not complying with the charter provisions, illegibility and language barriers, time constraints to read and comprehend them, which are frequently due to crowding pressures, as well as socio-cultural views on transparency[219]. Nonetheless, participants felt that these strategies can enhance community participation in health decision-making processes, increase awareness of health issues, and promote accountability of public providers.

A published review of the literature on engaging citizens and ensuring state accountability in health service delivery identified several strategies for citizen engagement in health service delivery, including community health workers, community advisory boards, and health facility committees[220]. The study found that these strategies can improve service delivery, increase access to health services, and promote community participation in decision-making processes. The study also highlights the importance of context-specific approaches and the need for sustained commitment and resources to achieve meaningful citizen engagement.

3.15 Methodological considerations

A variety of studies looking at the factors determining the uptake of health interventions like health insurance among populations have used survey methods or retrospective data analysis of program data and demographic health survey (DHS) [211,221–224]. These methods provide descriptive data for large population sets that other methods do not[15,164]. Surveys methods are particularly useful because of the importance they place on identifying a representative sample that is generalizable[225,226]. However, in order to gain deeper insight and understanding of the problems of health insurance enrolment, affordability of premiums, citizen engagement, social solidarity and the willingness to prepay for health services, qualitative methods can be used to complement quantitative survey methods.

A study in South Africa looking at social solidarity explored the concept using a mixed methods approach to assess the views and perceptions of civil society groups on collective action relating to the national health insurance scheme in South Africa[16]. Using focus group discussions(FGDs), questionnaires and observation of purposively selected respondents, the researchers explored concepts of trust, reciprocity and altruism. Other studies examining similar concepts of social solidarity employed survey methods to understand the willingness of households to cross-subsidize across risk and wealth [15,227]. Because such decisions typically are informed by the collective decisions of numerous households ultimately forming the collective action[13], eliciting responses from large sample sizes using a survey method can be useful in establishing a community's tolerance for social solidarity[138].

The subject of health insurance uptake has been explored using a variety of qualitative and quantitative methods[12,164,228]. A study exploring the determinants of dropout rates from Sudan's national Health Insurance Fund conducted a household survey targeting the informal workers[228]. Disproportionate sampling was used to draw an adequate number of households for three categories of interest: regular members, new enrolees and the drop out households. Analysis was carried out in two phases: descriptive analysis and regression logistics. In another study carried out among informal sector workers in Kenya exploring their preferences and implications for financing, the researcher applied multistage sampling to identify representative rural and urban dwellers. FGDs and in-depth interviews were conducted for the qualitative phase (12 FGDs and 16 community level IDIs)[229]. Interview questionnaires were also administered to 455 in another study to elicit the participant's preferences for contributory versus non-contributory financing. The subject of health insurance uptake has been explored using a variety of qualitative and quantitative methods[12,164,228].

Stratified random sampling has been used in another study exploring the critical elements that influence how diligently informal workers' pay their insurance premiums. The technique was used to identify the districts to sample from among a number of districts in Indonesia[230]. While a variety of sampling techniques have been used in studies assessing health insurance coverage, the guiding principle of the sampling method is to select a representative sample and stratified random sampling increases representativeness by categorizing the study population into strata according to factors that the researcher is interested in[231]. In administrative locations where homogeneity cannot be ascertained, stratifying the study population by the administrative location ensures that a representative sample is selected from each division.

Survey methods using structured administered questionnaires have been widely used by other studies to collect primary data for variables such as health insurance enrolment, affordability of healthcare and social solidarity. Provided an exhaustive list of options is provided to respondents and the choices are mutually exclusive, closed-ended questionnaire are preferred because they are easier to analyse and produce uniform responses from participants[232].

To further get in-depth information qualitative interviews with household respondents can complement quantitative survey methods. These can include focus group discussions with community representatives and in depth interviews with policy makers[190,233]. The varying methods with different study participants are to offer different perspectives on the problem from the household to the policymakers. FGDs have been used in studies where getting

information using semi structured tools with purposively selected homogenous groups to generate discussions through brainstorming. Because the nature of information this study would like to draw from FGDs in the study is not sensitive, FGDs are be suitable in eliciting the views of key community representatives with knowledge on health insurance[234].

Determining affordability requires a measure of a household's living standards such as consumption, income or expenditure[6,235][236]. A guide on analysing equity using household data highlights the difficulties in collecting and using income data in LMICs[6]. Consumption and expenditure measures are therefore popularly used in household health utilization and expenditure surveys[206]. Low literacy levels make it difficult to collect longitudinal expenditure data and studies opt for cross-sectional data collection with recall of expenses towards various household costs[237]. Lastly, because many rural households in SSA produce food for consumption, the value of these items can be recorded as expenditure data by converting the value of quantities consumed based on market prices[237].

3.16 Conclusion

The goal of this literature review is to summarize and critically examine evidence from studies that have looked at health insurance among informal workers. From this rigorous review of literature, we have provided much-needed context for this study and the justification for the methodological approaches to understanding the problem of interest. The existing gaps in literature formed the focus of my research using the suitable primary collection methods adopted from reviewed literature as covered in the methodological considerations. Because health insurance enrolment is a global challenge, situating this study within the existing field of knowledge provides the legitimacy required for the uptake of this study's findings. The subsequent chapter describes the proposed methods and sampling procedures for the replicability of this study in other settings.

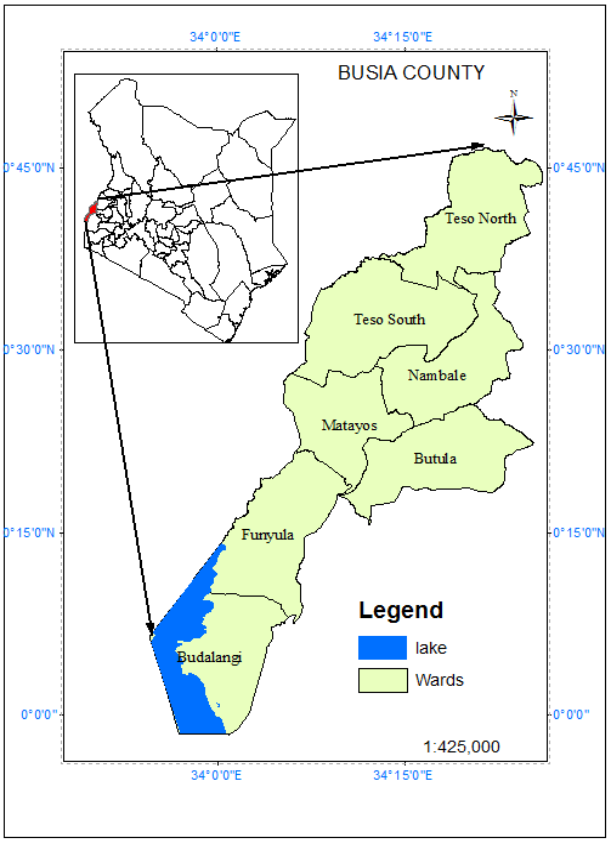
4 Research methods

4.1 Introduction

This chapter provides a description of the overall methodological approach of this PhD research. Detail of specific methods applied in the manuscripts and publication are provided in the following chapters 6,7 and 8. In this chapter, I present the study design, the data management, analysis, and the ethical considerations. I also provide a detailed description of the study setting, to provide context for the findings of this PhD research.

4.2 Design

This was an explanatory mixed methods study with qualitative and quantitative primary data collection. It was embedded in a program cross-sectional household survey conducted by AMPATH in western Kenya. I was part of the project team that designed the household survey tool that included questions related to my study. In addition, I conducted in-depth interviews with a sub-sample of households, focus group discussions (FGD) groups with community stakeholders, and key informant interviews with policymakers and implementers. Data collection began in August 2021 and ended in October 2021.



4.3 Study site

The study was conducted in Busia County within the western part of Kenya[238]. Kenya has a devolved government structure since the passing of the new constitution in 2010 with a central government and 47 county governments. Busia County is one of the 47 counties in Kenya and is located at the border of Kenya and neighboring Republic of Uganda along the shores of Lake Victoria (

Figure 5).

Figure 4 Map of Busia county and its administrative divisions (Source https://kcsepdf.co.ke/)

4.3.1 Busia county socio-economic profile

There are an estimated 893,681 people in the county and 85,977 people in Bunyala sub-county[239,240] The county's poverty levels are among the highest in the country with poor health indicators, low health insurance enrolment as well as high inequalities[241,242]. HIV prevalence rates in the county were high as Busia ranked 10th highest in the country and 1.1 times higher than the national prevalence rate of 6.7% in 2015[243]. There are 81 healthcare facilities in Busia County, including 1 county reference hospital, 6 sub-county hospitals, 12

health centers, 49 dispensaries, 10 medical clinics, 6 nursing homes, and 1 facility in the other categories[238].



Figure 5 Picture of Lake Victoria

Out of the total labor force in Busia, about 71% are involved in subsistence farming employ, while the remaining 29% are employed in trade, fishing, and other official and informal jobs, as well as jobs in the formal and informal sectors. The total unemployment rate in the county is 66.7% and is expected to rise given the underdeveloped industrial and production system[238].

The study took place in one of the 7 sub-counties within Busia County called Bunyala sub-County that has an estimated 85,977 households[244]. Bunyala sub-County has 6 administrative units (shown in ***Table 4*** and Figure 5). The study site was chosen because of ongoing population health program work by the Academic Model Providing Access to Healthcare (AMPATH). AMPATH is a collaboration between Moi Teaching and Referral Hospital, Moi University and a consortium of North American institutions led by Indiana University, that supports the Ministry of Health (MOH) in providing comprehensive care to a population of 8 million people across 10 counties in western Kenya [245].

4.4 Data collection and procedures

a) Household survey: Quantitative survey data was collected through an interviewer administered structured questionnaire to household members within their households. Interviewers made 3 attempts to reach a household representative selected to be interviewed. Households that were not available for interviewing either resulting from being absent or a refusal on the third attempt were excluded from the survey and considered a non-response.

Questions on social solidarity included in the questionnaire were adopted from surveys previously carried out in Ghana, Tanzania and South Africa where they used show cards to assess income cross-subsidization and asked questions on prepayment and risk pooling [15]. The show cards were adapted to fit the study setting. The interview tool was developed and

reviewed by a survey team to ensure the tool would collect relevant and useful data in line with the survey objectives. Questions on health care spending and utilization that were incorporated in the tool were adopted from national health household surveys in the subject Areas - Kenya demographic health survey (KDHS) and the Kenya Household Healthcare Expenditure and Utilization survey (KHHEUS)[151,246]. The English questionnaire was translated to the national language (Kiswahili) and the local dialect (Luyha) versions in order to provide households with desired language options to respond.

The questionnaires were administered to the selected households by data collectors accompanied by community health volunteers to help locate, identify and enter participating households. The CHVs however did not participate in the interviewing process. The household interviews took between 40-60 minutes per household. A team of 20 interviewers with experience in conducting national surveys was identified with the help of community leaders and six (6) supervisors who were identified from a qualified pool of AMPATH program staff. Interviewers were trained on data collection using tablet-based questionnaires and on survey concepts. Interviewers were also provided with area maps and study manuals containing study procedures and guidelines [15,151]. All data collectors were required to keep a field notebook to document their general data collection experiences. These experience were shared during supervision and debriefing sessions. Consent was sought from the household for inclusion in the qualitative phase.



Figure 6: Training of data collector within a homestead in the study site

Variables: The survey collected household information on household size, education level, health insurance status, health status, marital status, income level, asset wealth, household

spending and healthcare utilization, health status, common illness, social solidarity, willingness to cross-subsidize and prepay for healthcare, awareness of health insurance, NHIF benefit package, feedback mechanisms, awareness of performance reporting mechanisms, reasons for enrolling, dropping out and never enrolling. Figure 7 shows an image of data collection process in a household.



Figure 7: Data collection in a household

b) In-depth interviews with households: Thirty-six in-depth household interviews were conducted using an interview guide with participating households selected as described in sample selection section below. The questions focussed on social solidarity, awareness of entitlements and engagement mechanisms, health insurance enrolment and healthcare costs as well as the household sources of money used to pay healthcare costs in order to determine coping strategies

c) FGDs with community stakeholders: This study included 6 FGDs, one in each of the 6 locations with a total of 49 participants (30 males and 19 females). The FGDs collected views on citizen engagement and social solidarity. The questions were also developed based on the conceptual framework and research questions.

d) Key informant interviews with policymakers and implementers: Key informant interviews with policy makers and implementers was guided by an interview guide and included questions about existing policies and mechanisms employed by NHIF

for citizen awareness of their entitlements as well as empowerment and the perceived challenges implementing them if any. I also incorporated questions to elicit their views on social solidarity by administering same questions used on the survey on social solidarity to elicit their preference.

4.5 Linking objectives to data collection activities and analysis

This study took place in two consecutive phases-quantitative phase followed by a qualitative phase. In the quantitative phase, we conducted a household survey. For the qualitative phase in-depth household interviews, FGDs and KIIs were conducted to further explore the household, community stakeholders' and policy makers and implementers' perceptions and views on social solidarity, premium affordability, citizen awareness and entitlement as well as health insurance status. The study methods and sampling strategy for each study objective are as summarized in **Table 3** below briefly.

Table 3 Study objectives and methods

Objective	Study methods	Sampling plan
1.To determine the affordability of health insurance premiums among informal worker households	Household survey interviews	Stratified random sampling using locations as the stratum (n=1773)
	In-depth interviews with household heads	Subset of the household survey sample identified based on willingness to participate, health insurance status and/or socioeconomic status from preliminary household survey analysis (n=36)
2.To explore citizen engagement mechanisms employed by NHIF for informal worker households	Household survey interviews with household members	Stratified random sampling using locations as the stratum
	In depth interviews with households members	Subset of the household survey sample identified based on willingness to participate, health insurance status and/or socioeconomic status from preliminary household survey analysis (n=36)
	FGDs with Community stakeholders	Purposive sampling
	Policy document reviews Key informant interviews NHIF policymakers and implementers	Purposive sampling through snowballing

3.To assess social solidarity among the informal worker households	Household survey interviews	Stratified random sampling using locations as the stratum (n=1773)
	In-depth interviews with household members	Subset of the household survey sample identified based on willingness to participate, health insurance status and locations (n=36)
	Key informant interviews	Purposive sampling with snowballing in identification of respondents NHIF policy makers and implementers

4.6 Sampling

a. Household survey: In the household survey, I used stratified sampling to identify households to be interviewed, based on the administrative units or locations. The survey sampling frame was provided from a program database of all the household census in Bunyala conducted by AMPATH between July and August 2020. The households list generated from the database was used to assign household numbers that was used to randomize within the strata. Bunyala sub-county is divided into 6 locations and 19 sub-locations.

Sampling Frame

During the months of July to August 2020, the population health program carried out a documentation needs assessment in Bunyala sub-County to inform its interventions. The goal of the needs assessment was to establish documentation of the needs of the population and targeted all households to establish the number of children without birth certificates and adults with missing national ID cards. Data collected from all households during the exercise provided the sampling frame for this baseline survey. A household list generated from the needs assessment was used to select participating households in the sampling procedure described below.

Sampling Procedure

Stratified random sampling procedures were used to identify participating households chosen from population health need assessment data. A household list was prepared from the need assessment data and was used to select households to participate in the survey randomly. The 6 locations in Bunyala Sub-County formed the stratum for household sampling.

Sample size calculation
The sample size was determined by the following Fishers formula:

Notations:

We use the following symbols and notations:

N : Population size

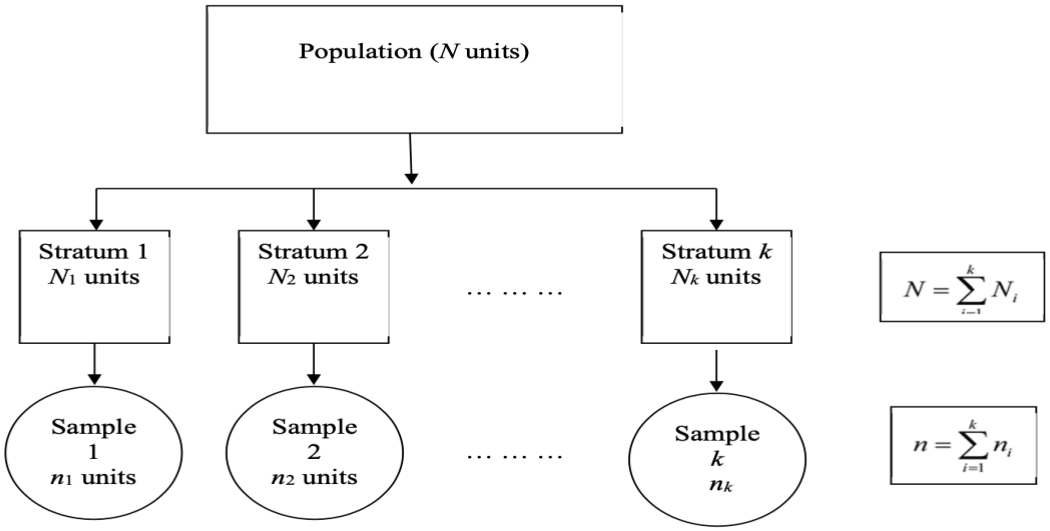
k : Number of strata

N_i : Number of sampling units in i^{th} strata

$N = \sum_{i=1}^{k} N_i$

n_i : Number of sampling units to be drawn from i^{th} stratum.

$n = \sum_{i=1}^{k} n_i$: Total sample size



This yields a sample size of (n_i) **2,031.** To provide for non-response we will adjust the sample size by 10% to ensure reduce the effects of non-response bias**.**

10% x 2031= 2,234

Each of the 6 administrative unit(locations) was treated as a stratum yielding 6 strata. For each stratum, we then went ahead and drew a sample of size *ni* from *i*th (i 1, 2, ..., *6)* stratum using simple random sampling, independently from each stratum, defined as:

$$\text{Finite population: } n' = \frac{n}{1+\frac{z^2 \times \hat{p}(1-\hat{p})}{\varepsilon^2 N}}$$

Where **z** is the z score set at 1.96 which corresponds to a 95% confidence level, **ε** is the margin of error set at 5%, **N** is population size for each stratum, and **p̂** is the population proportion of the primary outcome (Kenya's 2019 UHC effective coverage index) set at 52%. [247]

We then constructed the stratum using a proportionate allocation strategy. A sampling fraction in each of the strata that is proportional to that of the total N_i in each location. In

proportionate allocation, for fixed k, we selected n_i such that it is proportional to stratum size N_i, i.e.,

$$n_i \propto N_i$$

$$\text{or } n_i = \delta N_i$$

where δ is the constant of proportionality.

$$\sum_{i=1}^{k} n_i = \delta$$

$$\text{or } n = \delta N$$

$$\Rightarrow \delta = \frac{n}{N}.$$

$$\text{Thus } n_i = \left(\frac{n}{N}\right) N_i.$$

Table 4 shows the proportionate distribution of the sample.

Table 4 Distribution of households and corresponding sample sizes in Bunyala sub-County

Location Name	Number of households (N)	Sample size (n_i)	10% Non-response adjustment
Bunyala South	1,806	317	349
Khajula	2,316	330	363
Bunyala Central	3,116	342	376
Bunyala West	3,359	345	380
Bunyala North	3,413	345	380
Bunyala East	4,219	352	387
TOTAL	18,229	2,031	2234

Inclusion/exclusion: I included informal worker household members aged ≥ 18 years living in Bunyala sub-County, Busia for both for qualitative and quantitative household in-depth interviews. The primary interviewee was a member of the household who had a substantial understanding about the health status, spending and utilization of healthcare in that household[248]. For this study, household was defined as a family comprising a parent or guardian, children, relatives and employees who had lived in the same house for no less than 3 months continuously. Visitors in the household were excluded from the study [151]

b. Household in-depth interviews: Thirty-six households were drawn proportionately from each location from the quantitative phase in the household survey sample. This selection begun with identification of all the households per location who consented to being interviewed in the second phase of in-depth interviews. I then categorised these

households into 3 health insurance status groups in each of the 6 locations: currently insured, previously enrolled in NHIF and never insured[12,228]. Two household per category were purposively selected from each of the 6 locations thereby yielding the desired 36 households. The 6-participating household per location were identified purposively based their ability to provide household healthcare utilization and expenditure data.

c. Inclusion/exclusion: I included household members aged ≥ 18 years who were willing and able to share their health insurance experience related. Those who do not consent to a second interview were excluded from this stage.

d. FGDs with stakeholders: Six to eight community stakeholders were selected purposively to participate in 6 FGDs, one for each of 6 locations in Bunyala Sub-County. These were selected from village elders, chiefs and sub-chiefs, ward administrators, religious leaders and Civil Society Organization (CSO) members. Participants were identified through AMPATH field staff purposively selected for their active advocacy on health insurance related issues.

Inclusion/exclusion: I included community members and CSO members with substantial knowledge on NHIF and who represented the views of the community.

e. Key informant interviews (KII) with policy makers and implementers: I purposively identified 11 respondents for Key Informant Interviews. The participants were NHIF policy makers, insurance experts and NHIF policy implementers at the national level, health facility managers for KII. ***Table 5*** below shows the distribution of these participants.

Table 5 KII interview participants

	KII participant	No.
1	National policy makers	5
2	Insurance experts	1
3	Development partners	1
4	County level NHIF representatives	1
5	Health facility managers	1
6	Sub-County health management representative	2
Total		11

Inclusion/exclusion: I included policymakers and implementers had technical knowledge and/or experience of healthcare delivery and health insurance policy formulation and implementation in Kenya and were willing to participate in the study.

4.7 Data Management

a. Household survey from RedCap was stored on the AMPATH servers. Data cleaning was done for the admissibility of the data based on completeness and quality during data entry. Data was de-identified before analysis for confidentiality of household data.
b. FGDs, in-depth interviews and KIIs were recorded using audio recorders and notes taken by the interviewer during the interview process. Recordings were uploaded onto a study laptop after each interview and a copy was saved in a password protected folder. These were transcribed and translated prior to analysis.

4.8 Ethical Approval

Prior to starting the study, Institutional Research Ethics Committee (IREC) approval was acquired from the University of Witwatersrand (Certificate no. M210216) and Moi University/Moi Teaching and Referral Hospital (No. 0003935). The National Commission for Science, Technology, and Innovation (NACOSTI-P/21/12262) and the Busia County Health Department both granted additional permission. Participants who agreed to take part in the study provided written informed consent to participate in the interviews and to be audio-recorded in the qualitative interviews.

4.9 Rigor in Study

Rigor in my research was ensured in a number of ways to ensure validity, accuracy, credibility and generalizability of the study findings. For the survey, the data collection tools were pretested in pilot households in the study area not included in the study sample to check for problems and potential errors as well as assess the actual time it takes to complete the interview. Adequate training of study enumerators was also ensured. Findings from the quantitative phase were triangulated with data from the qualitative phase.

4.9.1 Positionality:

My own identity as an AMPATH employee conducting research in one of the program catchment areas has the potential to positively or negatively influence the responses from the participants because of AMPATH's association with HIV care. I took time to expound the larger scope of the research away from HIV/AIDS in an attempt to mitigate these effects.

5 Description of the sample

5.1 Distribution of the sample in the study site

The study covered the whole of Bunyala Sub County. The dots in the map below Figure 8 show the geospatial distribution of sampled households.

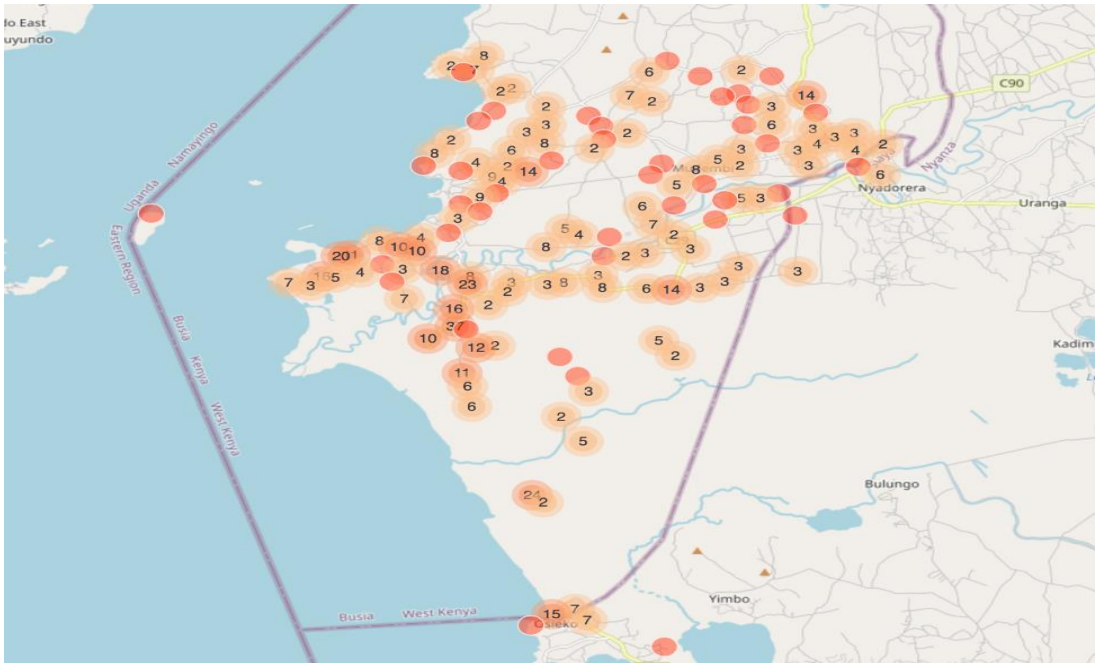


Figure 8: Geospatial distribution of the households

The survey reached 1,824 households and obtained consent from 1773 (97%) households. The study used stratified sampling using locations as the strata. The figure (Figure 9)below shows the number of households participating in the survey, categorized by location.

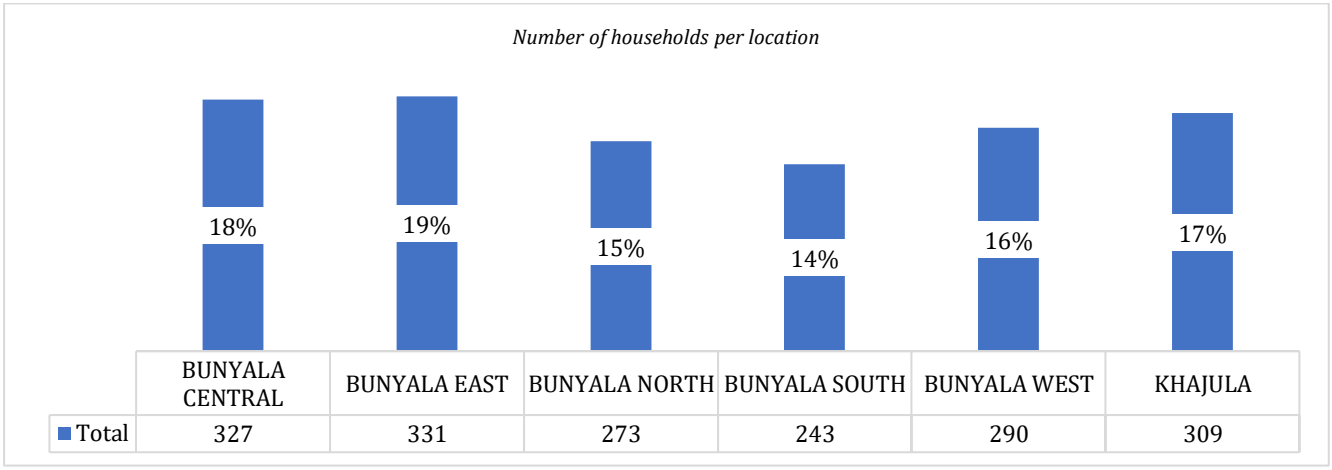


Figure 9: Number of households per location

5.2 Demographics

5.2.1 Gender and age

Majority of the respondents were female (64%). With regards to age, most of the respondents were between 25 and 44 years old (46%, 805), while most of the household members were children aged below 18 years (62%,4217) as shown in **Table 6** below

Table 6: Sample size age categories

Age categories	Household respondents	Household members
18-25	109 (6%)	1192 (17%)
26-35	424 (24%)	566 (8%)
36-45	385 (22%)	369 (5%)
46-55	303 (17%)	196 (3%)
56-65	283 (16%)	154 (2%)
66-75	177 (10%)	83 (1%)
76-85	78 (4%)	39 (1%)
86-95	13 (1%)	16 (0%)
>95	1 (0%)	5 (0%)
Grand Total	1773	6837

5.2.2 Relationship to the Household Head

Most of the respondents (95%) were household heads or spouses. There were special instances where other members if the households were asked to answer the survey questions on behalf of the household respondent based on the comprehension of the main household head (**Table 7**). The condition however was that they be knowledgeable of information regarding the household's characteristics and the rest of the household members. This was however, a small proportion of the respondents (5%)

Table 7 Relationship of respondent to household head

Relationship to household head	N, %
Self	1157 (65%)
Wife/Husband/Partner	532 (30%)
Son or Daughter	35 (2%)
Grandchild	16 (1%)
Parent	13 (1%)
Sister/Brother	8 (<1%)
Son or Daughter in-law	5 (<1%)
Parent in-law	3 (<1%)
Co-Wife	2 (<1%)
Not related	1 (<1%)
Other Relatives	1 (<1%)
Grand Total	1773

5.2.3 Marital Status

Most of the respondents were married (1106, 62%) as shown in Table 8 below

Table 8: Respondent's marital status

Marital status	**N, %**
Divorced/separated	148 (8%)
Married/ living together	1106 (62%)
Never married/never lived together	116 (7%)
Widowed	403 (23%)
Grand Total	1773 (100%)

5.2.4 Education Level

The survey only captured the education levels of household respondents. Out of the 1773 respondents, 1417 (80%) had ever attended school.

Most household respondents (1019,72%) have education levels below the primary school. Only 7% (101) have acquired higher levels of education, such as a diploma (80) and university (21).

Table 9: Insurance status and household characteristics of the respondents

		Have health insurance		
Variable	**Overall, N = 1,773[1] %(n)**	**No, N = 1,568[1] %(n)**	**Yes, N = 205[1] %(n)**	**p-value[2]**
age				<0.001
18-24	4.6(82)	99(81)	1(1)	
25-44	44.6(790)	88(692)	98(12)	
45-64	34.3(608)	86(524)	14(84)	
>64	16.5(293)	92(271)	8(22)	
sex				0.053
Female	63.7(1129)	90(1011)	10(118)	
Male	36.3(644)	86(557)	14(87)	
marital status				<0.001
Divorced/separated	(8.3(148)	93(137)	7(11)	
Married/ living together	62.4(1160)	86(951)	14(155)	
Never married/never lived together	6.5(116)	95(110)	5(6)	
Widowed	22.7(403)	92(370)	8(33)	
ever attended school				<0.001
No	20.1(356)	94(334)	6(22)	
Yes	79.9(1417)	87(183)	13(183)	
household size	4.7 (3.6)	4.7 (3.6)	5.1 (3.1)	0.069
occupation				<0.001
Formal employment	2.4(43)	21(9)	79(34)	
Homemakers(Stay at home)	16.1(286)	93(266)	7(20)	
Others (Specify)	0.6(11)	82(9)	18(2)	
Students	0.5(8)	100(8)	0(0)	
Unemployed/Seeking work	6.3(112)	92(103)	8(9)	
Working in informal employment (eg farmers, artisans ,juakali, business etc)	1,313.0 74.1(1313)	89(1173)	11(140)	
wealth quintile				<0.001
Q1	20.0(350)	94(328)	6(22)	
Q2	20.0(350)	93(327)	7(23)	
Q3	20(349)	91(317)	9(32)	
Q4	20(350)	89(310)	11(40)	
Q5	20(350)	82(286)	25(88)	
member financial group(chama)				<0.001
No	62.1(1101)	91(1006)	9(95)	
Yes	37.9(672%)	84(562)	16(110)	
admitted last 12m				0.10
No	93.4(1,656)	89(1470)	11(186)	
Yes	117.0 (6.6%)	84(98)	16(19)	
chronic ailment				0.005
No	950.0 (53.6%)	90(859)	10(91)	
Yes	823.0 (46.4%)	86(709)	14(114)	

[1]n (%); Mean (SD)

[2]Pearson's Chi-squared test; Wilcoxon rank sum test; Fisher's Exact Test

5.3 Health insurance enrolment status

Only 11.5% of the population had health insurance with 91% of them covered by NHIF. Seventeen percent of the insured sample were formal sector employees. Out of the 1,568 without insurance, 66 (4.2%) had been enrolled previously but defaulted on payments. Having health insurance was significantly associated with most household characteristics (age, gender, education level, occupation, household size, wealth and membership in a financial group). Having health insurance was also associated with health status specifically the presence of a chronic ailment. Health insurance enrolment was higher among respondents aged 25-44 years, males, married, those who are employed, attended school, the wealthiest, members of financial groups. The presence of a chronic illness in the family and those who had been admitted in the last 12months were also more likely to have NHIF than their counterparts although admission in the last 12 months was not statistically significant.

The fourth objective from this study was to understand how social solidarity, affordability of premiums, citizen engagement and other factors determine NHIF enrolment among the informal worker households. Table 10 below present the findings from a multivariate analysis where the binary outcome of interest was whether the respondent had health insurance or not.

Table 10 Estimating the likelihood of having NHIF insurance

		Unadjusted Estimates			**Adjusted Estimates**		
Characteristic		OR[1]	95% CI[1]	p-value	OR[1]	95% CI[1]	p-value
Age	18-24	0.13	(0.01, 0.65)	0.050	0.26	(0.01, 1.44)	0.2
	25-44	1.50	(0.95, 2.45)	0.091	1.20	(0.59, 2.48)	0.6
	45-64	1.66	(1.05, 2.73)	0.037	1.37	(0.72, 2.71)	0.3
	>64	—			—		
Sex	Female	—			—		
	Male	1.45	(1.08, 1.95)	0.014	1.09	(0.73, 1.62)	0.7
Marital status	Divorced/separated	—			—		
	Married/ living together	2.17	(1.17, 4.50)	0.022	1.85	(0.90, 4.30)	0.12
	Never married/never lived together	0.72	(0.24, 2.00)	0.5	0.41	(0.10, 1.54)	0.2
	Widowed	1.15	(0.57, 2.53)	0.7	1.25	(0.52, 3.24)	0.6
Ever attended school	No	—			—		
	Yes	2.20	(1.42, 3.58)	<0.001	1.14	(0.64, 2.11)	0.7
Household size		1.03	(0.99, 1.07)	0.12	0.96	(0.90, 1.01)	0.2
Wealth quintile	Q1	—			—		
	Q2	1.05	(0.58, 1.94)	0.9	0.77	(0.38, 1.57)	0.5
	Q3	1.50	(0.86, 2.67)	0.2	1.08	(0.55, 2.15)	0.8
	Q4	1.99	(1.17, 3.46)	0.013	0.98	(0.48, 2.04)	>0.9
	Q5	4.65	(2.88, 7.81)	<0.001	1.52	(0.68, 3.42)	0.3
Below poverty line	No	_			_		
	Yes	0.36	(0.26, 0.49)	<0.001	1.01	(0.61, 1.67)	>0.9
CHE	No	_			_		
	Yes	0.52	(0.27, 0.91)	0.032	0.41	(0.17, 0.87)	0.028
NHIF Affordability	No	_			_		
	Yes	4.24	(3.01, 5.93)	<0.001	1.76	(0.99, 3.13)	0.055
Member financial group chama	No	—			—		
	Yes	2.02	(1.50, 2.71)	<0.001	1.40	(0.96, 2.04)	0.081
Admitted last 12m	No	—			—		
	Yes	1.47	(0.84, 2.42)	0.2	1.42	(0.68, 2.81)	0.3
Outpatient visits last 4w	No						
	Yes	1.03	(0.83, 1.21)	0.7	1.05	(0.77, 1.30)	0.7
Chronic ailment	No	—			—		
	Yes	1.55	(1.15, 2.09)	0.004	1.61	(1.10, 2.37)	0.014

Aware NHIF supacover	No	—			—		
	Yes	3.08	(2.14, 4.57)	<0.001	1.04	(0.62, 1.72)	0.9
Aware NHIF supacover benefits	No	—			—		
	Yes	4.12	(3.04, 5.61)	<0.001	1.30	(0.82, 2.07)	0.3
Awareness of feedback mechanisms	No	—			—		
	Yes	35.7	(23.0, 56.6)	<0.001	15.7	(8.80, 28.7)	<0.001
Aware of NHIF financial performance	No	—			—		
	Yes	53.9	(26.2, 125)	<0.001	4.56	(1.81, 12.5)	0.002
Willingness to Prepay	No	—			—		
	Yes	2.86	(1.57, 5.85)	0.002	2.06	(0.97, 4.81)	0.074
Willingness to accept income cross-subsidies	No	—			—		
	Yes	1.85	(1.36, 2.55)	<0.001	0.75	(0.47, 1.24)	0.3
Willingness to accept risk cross-subsidies	No	—			—		
	Yes	2.44	(1.74, 3.49)	<0.001	1.96	(1.16, 3.36)	0.013
	1OR = Odds Ratio, CI = Confidence Interval						

5.4 Factors associated with NHIF enrolment

From Table 10 above, there were higher odds of having health insurance amongst those with a chronic ailment (AOR 1.61), those who are aware of NHIF feedback mechanisms and performance (AOR 4.56) and those who expressed willingness to tolerate risk cross-subsidization (AOR 1.96). This analysis also showed that there were lower odds of having NHIF among those who were experiencing CHE (AOR 0.41).

These results show that experience with catastrophic healthcare payments, the presence of a chronic ailment, being able to access NHIF and knowing the viability through performance reports and tolerance of risk cross-subsidization are strong predictors of NHIF enrolment among informal worker households. The association between NHIF performance and NHIF enrolment points to the importance of trust in determining health insurance enrolment.

6 PhD Paper 1

Title: *"It is like an umbrella covering you, yet it does not protect you from the rain":* A mixed methods study of insurance affordability, coverage, and financial protection in rural western Kenya

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"It is like an umbrella covering you, yet it does not protect you from the rain": a mixed methods study of insurance affordability, coverage, and financial protection in rural western Kenya

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Key words: Affordability, Health Insurance, Informal workers, Rural, Kenya

Abstract

Countries in Sub-Saharan Africa are increasingly adopting mandatory social health insurance programs. In Kenya, mandatory social health insurance is being implemented through the national health insurer, the National Hospital Insurance Fund (NHIF), but the level of coverage, affordability and financial risk protection provided by health insurance, especially for rural informal households, is unclear. This study provides as assessment of affordability of NHIF premiums, the need for financial risk protection, and the extent of financial protection provided by NHIF among rural informal workers in western Kenya.

Methods:

We conducted a mixed methods study with a cross-sectional household survey (n=1773), in-depth household interviews (n=36), and 6 focus group discussions (FGDs) with community stakeholders in rural western Kenya. Health insurance status was self-reported and households were categorized into insured and uninsured. Using survey data, we calculated the affordability of health insurance (unaffordability was defined as the monthly premium being >5% of total household expenditures), out of pocket expenditures (OOP) on healthcare and its impact on impoverishment, and incidence of catastrophic health expenditures (CHE). Logistic regression was used to assess household characteristics associated with CHE.

Results

Only 12% of households reported having health insurance and was unaffordable for the majority of households, both insured (60%) and uninsured (80%). Rural households spent an average of 12% of their household budget on OOP, with both insured and uninsured households reporting high OOP spending and similar levels of impoverishment due to OOP. Overall, 12% of households experienced CHE, with uninsured households more likely to experience CHE. Participants expressed concerns about value of health insurance given its cost, availability and quality of services, and financial protection relative to other social and

economic household needs. Households resulted to borrowing, fundraising, taking short term loans and selling family assets to meet healthcare costs.

Conclusion:

Health insurance coverage was low among rural informal worker households in western Kenya, with health insurance premiums being unaffordable to most households. Even among insured households, we found high levels of OOP and CHE. Our results suggest that significant reforms of NHIF and health system are required to provide adequate health services and financial risk protection for rural informal households in Kenya.

Introduction

There has been an increasing focus on achieving universal health coverage (UHC) with international calls to extend coverage of financial protection and the availability of quality health services to all people. For most low- and middle-income countries (LMIC), out-of-pocket (OOP) spending remains the dominant form of financing healthcare[4,79]. It is estimated that OOP spending on health causes 150 million people to suffer financial catastrophe and pushes 100 million people globally into poverty every year[2]. In a recent analysis of 36 sub-Saharan African (SSA) countries, only four had health insurance coverage rates above 20% (Rwanda, Ghana, Gabon and Burundi) and insurance coverage was highly skewed towards higher income households and those in the formal economy[5].

Countries in SSA are increasingly turning to mandatory social health insurance systems to increase coverage[4], and several have implemented or are in the process of implementing some form of mandatory health insurance programs[7][249].[249]. A mandatory health insurance program is one in which members and contributions are demanded by law from a certain set of people or the entire population and is often accompanied by efforts to subsidize poorer households [4][250]. Although declared compulsory, most "mandatory" insurance schemes cover households in the formal sector only while informal worker membership is voluntary in part due to weak mechanisms to enforce insurance mandates[251].[251]. In Kenya, the national social health insurer, National Hospital Insurance Fund (NHIF) has been mandatory for both formal and informal workers since the NHIF Act of 1998[24], and reinforced by amendments to the Act in 2022 that underscore mandatory membership[23].

Kenya has undertaken numerous health insurance reforms through NHIF aimed at increasing coverage among informal workers while also ensuring financial viability of the insurance program. Recent reforms include the expansion of the benefit package to include both inpatient and outpatient services; flexible monthly contributions; introduction of easy payment methods such as mobile money payments; and an upward revision of premiums to finance the expanded benefit package[27]. Monthly NHIF insurance premiums for informal workers increased significantly from Kenya Shilling (Ksh) 160 (US$1.3) to Ksh 500 (US$4) in the year 2015 raising questions about the affordability of health insurance for poorer households[27,35].[27,35]. The government has established various subsidy programs to promote access to reproductive, maternal and child health services among pregnant women (Linda Mama program); provide coverage to indigent households (national indigent program), older persons and persons living with severe disabilities (health insurance subsidy program); and free cover for secondary school students (Edu-Afya program)[252].[252]. Despite these efforts, inequitable and low coverage of insurance among informal workers in Kenya persists with only 8% enrolled in health insurance[31].

Increasing enrolment and coverage in health insurance programs for informal workers and their households, who constitute a majority of the population in many LMICs, is critical to advancing UHC. Currently, insurance schemes face several key challenges to expanding coverage of informal workers, with programs experimenting with subsidies or waivers for households that cannot pay, progressive premium pricing, and strengthening mechanisms for health insurance enrolment and payment[7]. To guide these efforts, additional data is needed to better understand health insurance enrolment and coverage among the informal workers,

including affordability of insurance premiums and the protection from financial risk provided by insurance coverage.

Kenya represents an important case study as it has consistently attempted to expand financial protection through NHIF in its quest for UHC. This includes a failed 2004 attempt at dramatically expanding NHIF's remit by moving toward comprehensive social health insurance[175].[175]. Smaller, incremental reforms in the 2010s improved the coverage, scope, and financial stability of NHIF[27]. Furthermore, NHIF plays a central role in recent national policy strategies like Vision 2030 and the "BIG four" agenda that aims to achieve UHC by 2022.[253][253][18]. Yet, to accomplish this, NHIF will have to expand health insurance coverage to the informal worker, something it has struggled to do in the past. For this reason, more research is needed to understand the barriers NHIF faces in reaching this large and vulnerable segment of the population. In this paper, we describe a mixed methods study that assessed health insurance coverage among the rural poor in western Kenya, including the affordability of health insurance premiums and the burden of health expenditures among insured and uninsured households.

Methods

Study design

We conducted a cross-sectional mixed methods study using household survey, in-depth interviews (IDI) with household respondents, and focus group discussions (FGD) with community stakeholders [254]. The study was embedded in a larger household survey study conducted between August and October 2021 by investigators at the Academic Model Providing Access to Healthcare (AMPATH), an academic collaboration between Moi University, Moi Teaching and Referral Hospital, and a consortium of universities led by Indiana University[245].We conducted a cross-sectional mixed methods study using household survey, in-depth interviews (IDI) with household respondents, and focus group discussions (FGD) with community stakeholders [254]. The study was embedded in a larger household survey study conducted between August and October 2021 by investigators at the Academic Model Providing Access to Healthcare (AMPATH), an academic collaboration between Moi University, Moi Teaching and Referral Hospital, and a consortium of universities led by Indiana University[245].

Study setting

Data was collected from households in Bunyala sub-county, with a total of 18,229 households, in Busia county in Kenya, located on the western border with Uganda where AMPATH implements a population health program[245].[245]. The UHC pilot site was chosen because of longstanding partnership between AMPATH and Busia County leadership implementing health programs in the region and disproportionate number of rural informal households and high levels of poverty. This study was embedded on baseline survey to inform roll out of UHC pilot implemented by the County Government of Busia in partnership with NHIF and AMPATH.

Study participants

We utilized a program database that included all households in Bunyala sub-county to randomly select households to participate in a household survey. The strata for our sample were made up of six administrative units called locations (average of 3,038 households per

location), which are the second smallest administrative unit after sub-locations. A household list was created from the database and used to randomly select households that would be invited to take part in the household survey under each stratum. Eligible household respondents were aged 18 years and above and who reported having sufficient information about household spending and healthcare use for themselves and household members. Interviewers made 3 attempts to reach a household representative to participate. Households that were not available for interviewing either resulting from being absent or refusal on the third attempt were excluded from the survey and considered a non-response. A total of 1,773 households took part in the quantitative survey.

For qualitative interviews and FGDs, we identified a sub-sample of households that participated in the household survey. From this group, for each of the 6 locations, we purposively chose two households from each of the following two groups to participate in IDIs: those who are currently enrolled in the NHIF, those who have previously enrolled in the NHIF but are no longer enrolled, and those who have never enrolled in the NHIF. We also purposively recruited 6-8 community stakeholders for FGDs. These included opinion leaders, local administration, civil society organization members, community health volunteers (CHVs), ward administrators, youth representatives, teachers and religious leaders identified based on their active advocacy on health insurance related issues. We conducted 6 FGDs, one in each of the 6 locations with a total of 49 participants (30 males and 19 females).

Table 11 Data collection method and study participants

Interview method	Number of interviews	Participants
Household survey	1,773	Household respondents (>18 years)
In depth interviews	36	Household respondents (>18 years)
Focus group discussions	6 groups with a total of 49 participants (30 male and 19 female)	Community stakeholders/representatives

Data collection

Household survey

A structured survey questionnaire was used by trained interviewers to collect individual and household level data, including household size, education level, health insurance status, health status, marital status, income level, healthcare spending and utilization, and health status. Local government representatives assisted in identifying data collectors who had prior knowledge in collecting data for national surveys. Interviewers received training by the study team on survey concepts, practices, and guidelines and using a computer tablet for data collection. The survey team worked with CHVs to approach household representatives at regularly scheduled visits to minimize disruptions and increase participation. The interviews were confidential and the CHVs did not participate in the interview process.

In-depth interviews and focus group discussions

IDIs were performed in-person at respondents' houses while FGDs were conducted at the nearest health facilities or community space by members of the study team trained in qualitative interviewing. Interviews and FGDs were conducted using a semi-structured interview guide designed to elicit household illness histories, experience with health insurance (or lack thereof), healthcare spending and affordability and coping strategies for accessing healthcare services. Each interview lasted 30-40 minutes on average while FDGs

were between 2-2.5 hours. Debriefing sessions in between interviews and FGDs were held periodically between BM, JG and ADK to improve the interviewing process and identify emerging themes to probe.

Data Analysis

Quantitative analysis

Descriptive statistics were calculated for household participants, including household size, education, marital status, income level, health status, and healthcare spending and utilization. Health insurance status was self-reported and households were categorized into insured and uninsured. Using these survey data, we calculated the affordability of NHIF premiums, OOP spending on healthcare and its impact on impoverishment, and incidence of catastrophic health expenditures (CHE) and household factors associated with CHE. Definitions and methods to calculate these outcomes are provided below.

Affordability of health insurance

To estimate the affordability of NHIF's premium rate of Ksh 500 per month for a household among uninsured households, we expressed the amount of the insurance premium as a percentage of the total monthly household expenditure among the uninsured. We set affordability the threshold at 5% as this is the standard benchmark for affordability in the literature[255][255].

OOP and impoverishment

OOP were defined as household healthcare costs including payments for direct medical services such as medications, medical fees, hospital / clinic fees, laboratory diagnostic tests and indirect healthcare-related costs including transportation costs to and from health facilities. We excluded costs covered by health insurance from OOP healthcare costs. We calculated total OOP on healthcare as a percentage of households' annual expenditure. We disaggregated OOP by household insurance status and whether OOP spending was for inpatient versus outpatient services.

We adopted the Kenya national poverty line of consumption expenditure of Ksh 3,252 (US$ 29.6) for rural areas per individual per month in order to assess the impact of OOP on poverty levels[256].[256]. Poverty levels (per capita) were calculated before and after OOP. We present three widely accepted measurements[6]: (1) the poverty household head count, which measures the percentage of households below the established poverty line; (2) the poverty gap, which measures the total deficit from the poverty line; and (3) the normalized poverty gap, which is calculated by dividing the estimated poverty gap by the established poverty line. The normalized poverty gap is helpful for cross-national comparisons between nations with various poverty thresholds and monetary systems.

Catastrophic health expenditures

To calculate CHE, we expressed total household OOP as a share of total non-food household expenditure over one year. We defined CHE as when OOP were at or above 40% of non-food expenditure as established elsewhere in the literature[27]. The incidence of CHE is represented by the proportion of households that had to pay for catastrophic medical expenses [6]. Despite estimating the percentage of families who experience CHE, the catastrophic head count does not provide information on the severity of the catastrophe (i.e., by how much a households'

OOP payment exceeds the catastrophic threshold). To estimate severity of CHE, we calculated a catastrophic overshoot defined as the average amount by which OOP payments, as a percentage of overall expenditure, exceed the catastrophic threshold. An average catastrophic overshoot was computed for all the sampled households.

We used bivariate and multivariate logistic regression to identify household factors associated with incurring CHE where the dependent variable was binary – i.e., a household incurred CHE or not. We used odds ratio (OR) and adjusted odds ratio (AOR) to report associations between household factors on the probability of incurring CHE. We incorporated variables that were significant at P-value <0.05 into a multivariable logistic regression model and included variables that we purposively selected based on the literature even if they were not significant in the bivariate analysis [138]. Confidence internals of 95% are reported and significance level $\alpha = 0.05$ was used.

Qualitative analysis

Audio recordings from the IDIs and FGDs were translated and transcribed verbatim by trained transcribers. Data were analysed using a thematic framework analysis approach[257].[257]. One author (BM) listened to audio recordings and read and reread transcripts to check for accuracy of the transcripts and identify preliminary themes and codes. Two additional authors (ADK and JG) read a sample of transcripts and agreed on a coding framework in an iterative process. One author (BM) coded transcripts using both inductive and deductive codes utilizing the NVIVO 12 analysis software. Repeating concepts emerging from the interviews were grouped into basic themes. Basic themes were then grouped into organizing themes in an iterative process, aimed at drawing the relationships between categories of organizing themes. Findings were interpreted based on connections between various themes and accompanied by supportive quotes from the interviews. Illustrative household cases were included to further contextualize participants' experiences and the interconnectedness of themes.

RESULTS

Household and respondent characteristics

A total of 1,773 households, representing 8,610 individuals, took part in the household survey. The average household size was 5 members. Sixty-four percent of the respondents were female and the average age of the respondents was 47 years.

Many households reported facing significant financial hardship. They struggled to meet basic household needs like food, housing and education. They reported going without meals, children being delayed joining school, being sent back from school while others did not proceed to tertiary institutions. Financial hardship was compounded during the study period by severe floods and other climate-related phenomena, socioeconomic consequences of the COVID-19 pandemic, and service delivery interruptions caused by repeated strikes by health professionals. Some of the respondents lived in regions periodically affected by floods caused by heavy rainfall and the overflow of Lake Victoria, affecting farming and fishing activities in the area.

"*We were dependent on Lake Victoria but right now fish quantities are small. I also used to engage in farming where I planted pawpaw, sweet potatoes and bananas but after the floods took away everything, I am back to zero."* IDI_B_Active_02.

Some respondents attributed their hard economic conditions to the COVID -19 pandemic that caused a substantial economic burden on households. One respondent reported worsened economic conditions during the pandemic resulting in significant drop in household income.

"*We have really struggled, especially last year [2020]. There are no jobs, corona is here, and there is a lockdown that even made it worse*" IDI_A_Never_01.

Health insurance coverage and affordability of health insurance premiums

The NHIF insurance premium would amount to more than 5% of household expenditure for 60% of uninsured households and 80% of insured households. Only 11.6% of the households reported having any form of health insurance with 91% of insured households reporting NHIF as their insurer. Among those without health insurance, 79% of the respondents cited the high cost of premiums as the main reason for lacking NHIF.

Participants expressed that NHIF premiums (Ksh 500 or US$4 monthly) were too high. Many households indicated they could not afford to enrol or keep up with the premiums as they would have to decide between meeting more pressing household needs or paying for insurance.

"*Perhaps I have earned Ksh 1,000 or Ksh 500 for this month; will I go to pay NHIF and my kids to sleep hungry-No? They should put an amount where the low-level people can pay without struggling.*" Respondent 3_FGD D.

Additionally, those who had defaulted from NHIF (i.e., failed to make monthly payments) also expressed concern that the additional penalties charged for defaulting were too high and were a barrier to re-activating their insurance. Vulnerable households such as widowed households and single parent homes particularly found it hard to keep up with paying monthly premiums and reported defaulting on payments to NHIF.

Both insured and previously insured respondents noted that the full cost of healthcare was often not covered by NHIF, with NHIF perceived to offer better coverage of inpatient costs compared to outpatient services. Unsurprisingly, many respondents with NHIF reported enrolling because of the presence of a chronic illness in the household requiring treatment. Anticipated medical procedures was also found to be a driver of health insurance enrolment as demonstrated by the case of one respondent, Cleophas (Case study 3). He enrolled for insurance because a healthcare provider advised him so that his frequent medical costs and the cost of an anticipated operation would be covered by NHIF. Despite numerous challenges he and his household have experienced using the cover, he continues to pay for the cover. Cleophas compares having NHIF to '*having an umbrella covering you yet it does not protect you from the rain'*.

Case study Household 3: Under coverage

Cleophas a farmer and his wife (56 years old) have four children-one in college and three children of high school going age. They also take care of three orphans aged 12, 10, and 7 years. He has NHIF and his wife and biological children are all included in his cover. Cleophas has had two hernia operations costing Kshs. 100,000(US$830) and Kshs. 81,000 (US$675) each. Both times, he fundraised for the hospital bills through friends, family and well-wishers. He also sold some cows to raise additional funds. It is then that he decided to enroll for NHIF because a provider advised him to get insurance to avoid incurring more high medical bills for future treatment. Recently, one of his daughters fell sick while in boarding school away from home and he had to send Ksh. 5,000(US$41) for her treatment even though she is covered under his NHIF plan. The outpatient facility she is registered under is closer to home but farther from her school and so they had no choice but to pay cash. Although she should have been covered under the Edu-Afya program that provides health insurance to all secondary students, she had not been registered through the school at the time. In the past, the family has used chama (community financial groups) loans to pay for healthcare. Despite having NHIF, Cleophas reports paying for many test and scans. He complains about the high cost of premiums but continues to pay because he needs to access treatment and procedures that are otherwise too costly but wishes the challenges with the cover would be addressed so he can be fully covered. (IDI_A_Active_02)

There were also concerns that the poor services offered at health facilities discouraged many people from enrolling for insurance because they would still have to pay OOP for medication at private chemists.

"*First of all, that amount is very high. 500 shillings is very high. Secondly, there are no drugs in the hospital, so insurance doesn't help me. It is better for me to just go to the chemist and buy drugs. I don't see the importance of NHIF*." IDI_A_Not_Active_01.

Public primary health facilities that were supposed to offer free health services often lacked medication and supplies. A few respondents reported only visiting the facility for diagnosis and proceeding to private chemists to buy prescribed medication. Accredited health facilities were located far and increased the cost of seeking care because of transport to the facility. Unsurprisingly, the quality of health services was also cited as a reason for not seeking care among the uninsured.

Public facilities were also noted to have frequent healthcare worker strikes that interrupted service provision in these facilities. These conditions forced the household to not seek care or to go to private or mission facilities making the cost of seeking care even higher. The pandemic also disrupted healthcare utilization because some of the healthcare facilities were converted to isolation centres.

"*When this skin condition recurred, I could not go back to the hospital because it was an isolation facility for those affected by corona and they did not provide care to other people as much*" IDI_A_Active_01.

Health utilization

Illnesses in the four weeks preceding the survey were reported for 3,070 (32.1 %) individuals, of which 1,137 (37%) did not seek care. Self-medication was cited by a majority of the respondents as the reason for not seeking care (48%) while the second leading reason was lack of money to pay for healthcare (24.6%) (Table 12). The reasons for not seeking care were similar across insured and uninsured households.

Table 12 Reasons for not seeking care by insurance status

Reason for not seeking Care	Uninsured % (n*)	Insured % (n*)
Self-medication	48(616)	46.7(529)
Lacked money	24.6 (316)	26.7 (302)
Illness not considered serious enough	16.9 (217)	16.1 (182)
Long distance to provider	2.7 (34)	2.6 (30)
Drugs not available at the health facility	2 (26)	1.9 (22)
Poor quality service	1.1 (14)	1.0 (11)
Fear of discovering	0.9 (11)	1.0 (11)
High Cost of Care	0.8 (10)	0.7 (8)
Terminal illness	0.5 (6)	0.5 (6)
Religion /cultural reasons	0.2 (3)	0.3 (3)
Other	2.3 (30)	2.6 (29)
Total	100 (1283)	100 (1133)

**Responses based on individual illness episodes and respondents could cite multiple reasons for not seeking care*

Healthcare seeking decisions were often based on perceived affordability and source of funds. Many reported not seeking care when they were sick, going to the nearest health facilities to avoid high transport costs, postponing medical procedures, avoiding private or 'big' facilities which were perceived to be expensive and using herbal medicine:

"The doctor prescribes you medicine and tells you to go buy but you don't have that money. You will just hold on to the painkillers that maybe you are given free at the hospital so you can buy some sugar and rice and the children can get something to eat. You just survive by God's grace." IDI_A_Never_01.

Most respondents opted to first buy drugs at local private chemists or shops and only proceeded to seek attention at the health facility if the condition got worse.

Incidence of OOP

Figure 11 shows mean household budget share of OOP payments by health insurance status. Overall, households spent 8% of their annual expenditure on outpatient services and 4% on inpatient services. Mean total OOP payments amounted to 12% of households' annual expenditures. Uninsured households spent a slightly larger share of their expenditures on healthcare (12%) compared to insured households (10%). However, average monthly OOP spending for the insured households (Ksh. 9,602(US$80)) was slightly higher than the uninsured (Ksh. 7,053(US$59)). Outpatient care constituted a higher share of expenditures compared to inpatient care, with the uninsured spending about 8% of their expenditures on outpatient care, while insured households spent 5%.

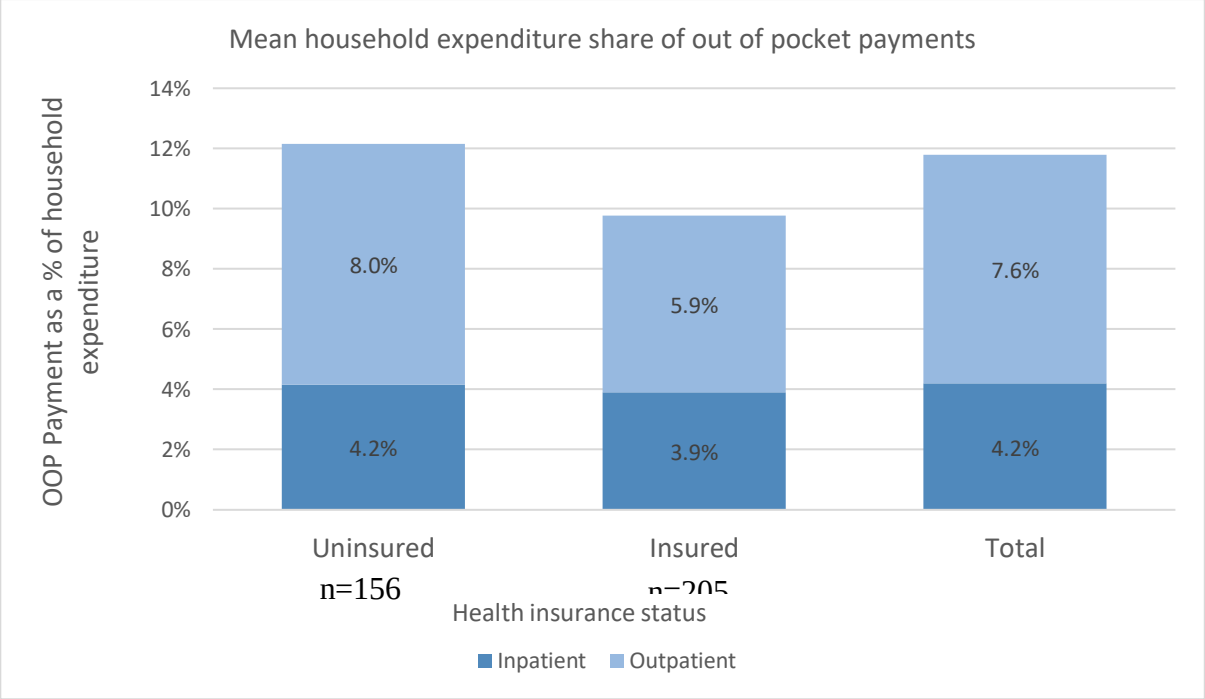


Figure 10: Mean household expenditure share of out-of-pocket payments by health by insurance status

Catastrophic Health Expenditure

Table 13 presents the estimates of the incidence and intensity of CHE. Insured households had lower incidence of CHE compared to uninsured households. Only 7% of insured households incurred catastrophic costs as a result of healthcare compared to 12.3% of uninsured households. In terms of intensity of CHE (CHE overshoot), household health expenditure exceeded the 40% threshold by an average of 17% for uninsured households and 11% for insured households. Overall, 11.7% (203 households) of all (insured and uninsured) sampled households experienced catastrophic expenditure.

Table 13 Incidence and intensity of catastrophic health expenditure

	Uninsured %(n)	Insured %(n)	Total % (n)
CHE Head Count	12.3(189)	7.0(14)	11.7(203)
CHE overshoot	17%	11%	16%

Proportion of households falling below the poverty-line before and after making OOP

Table 14 shows poverty rates before and after calculating OOP payments. The results show that 61.8% of individuals already lived below the national poverty line before paying for healthcare. After OOP payments, the poverty rate increased by 2.03 percentage points. The average deficit (that is, the poverty gap) to reach the poverty line of the population was Ksh 17,462(US$145) before taking OOP payments into account. After considering OOP payments, the average deficit increased to Ksh 18,378 (US$153).

Table 14: Poverty headcount before and after making OOP

	Individuals falling below the poverty line before OOP	**Individuals falling below the poverty line after OOP**
Uninsured Poverty headcount (%, n)	64.0(1003)	65.9 (1034)
Poverty Gap (KES, range)	17,744 (17,174-18315)	18,682(18,054-19,310
Normalized poverty gap (%, range)	45.5% (44.0-46.9)	47.9% (46.3-49.5)
Insured Poverty headcount (%, n)	44.9(92)	47.3(97)
Poverty Gap (KES, range)	14,390 (12,440-16340)	15,144 (12,951-17,338)
Normalized poverty gap (%, range)	36.9% (31.9-41.9)	38.8% (33.2-44.4)
Total Poverty headcount (%, n)	61.8(1095)	63.8(1,131)
Total Poverty Gap (KES, range)	17,462.52 (16,913.23-18011.81)	18,378.36 (17,772.35-18,984.37)
Normalized poverty gap (%, range)	44.7% (43.5-46.2)	47.09% (45.54-48.64)

Factors associated with the incidence of catastrophic expenditure

Table 15presents the results of logistic regression of the relationship between household characteristics and CHE incidence. In adjusted analyses, poorer households, those that reported an outpatient visit in the last four weeks or were admitted to a health facility in the last 12 months had increased odds of CHE. Households with insurance and wealthier households were less likely to incur CHE (with health insurance-OR=0.41, AOR=0.40 and households in Q5 OR=0.25, AOR=0.42).

Table 15: Logistic Model estimating likelihood of incurring catastrophic health expenditure

Characteristic		Unadjusted Estimates			Adjusted Estimates		
		OR[1]	95% CI[1]	p-value	OR[1]	95% CI[1]	p-value
Age	18-24	0.33	(0.11, 0.79)	0.024	0.51	(0.15, 1.47)	0.2
	25-44	0.29	(0.19, 0.45)	<0.001	0.53	(0.28, 1.01)	0.052
	45-64	0.53	(0.35, 0.80)	0.003	0.90	(0.53, 1.54)	0.7
	>64	—			—		
Sex	Female	—			—		
	Male	1.03	(0.72, 1.44)	0.9	1.54	(0.99, 2.38)	0.053
Marital status	Divorced/separated	—			—		
	Married/ living together	0.89	(0.49, 1.75)	0.7	1.06	(0.53, 2.30)	0.9
	Never married/never lived together	0.82	(0.31, 2.04)	0.7	0.95	(0.33, 2.67)	>0.9
	Widowed	1.55	(0.82, 3.13)	0.2	0.88	(0.40, 2.04)	0.8
Ever attended school	Yes	0.56	(0.39, 0.81)	0.002	0.90	(0.54, 1.52)	0.7
	No	—			—		
Have health insurance	Yes	0.41	(0.18, 0.80)	0.017	0.40	(0.17, 0.85)	0.027
	No	—			—		
Wealth quintile	Q1	—			—		
	Q2	0.78	(0.50, 1.20)	0.3	0.90	(0.54, 1.48)	0.7
	Q3	0.49	(0.29, 0.79)	0.004	0.55	(0.30, 0.98)	0.044
	Q4	0.24	(0.12, 0.43)	<0.001	0.34	(0.16, 0.70)	0.004
	Q5	0.25	(0.13, 0.44)	<0.001	0.42	(0.18, 0.96)	0.044
Below poverty line	Yes	3.73	(2.56, 5.56)	<0.001	3.14	(1.84, 5.51)	<0.001
	No	—			—		
Member of financial group chama	Yes	1.03	(0.73, 1.44)	0.9	1.47	(0.96,2.22)	0.71
	No	—			—		
Admitted last 12m	Yes	3.75	(2.31, 5.91)	<0.001	3.18	(1.78, 5.55)	<0.001
	No	—			—		
Outpatient visits last 4w	Yes	3.72	(2.94, 4.75)	<0.001	4.09	(3.13, 5.39)	<0.001
	No	—					
Presence of chronic ailment	Yes	1.98	(1.41, 2.81)	<0.001	1.43	(0.94, 2.17)	0.10
	No	—			—		
	[1]OR = Odds Ratio(natural odds), CI = Confidence Interval						

Financial burden of seeking healthcare

Most of the households described their health costs as high causing substantial burden on the household and resulting in major financial setbacks on the households. Cost of transport to health facilities contributed to the high cost of seeking care because patients often needed to be accompanied to health facilities, thereby doubling the cost of transport. One household respondent acknowledged the lurking financial risks in seeking healthcare even if one was not currently ill:

"*If you haven't gotten sick, it's easy to say healthcare costs are low, but if you have ever been very sick the way I had started going to Eldoret [location of a national referral hospital] or if you get a chronic illness, it costs you a lot of money. Serious sickness –and I am not talking about simple diseases like malaria- requires lots of money"* IDI_C_Not_Active_02.

Respondents repeatedly expressed feelings of anxiety and despair in their ability to meet high medical costs. Those without health insurance reported feelings of being worried about falling sick and feeling financially strained because of healthcare costs.

"My son is sickly and a month would not pass without us taking him back to the hospital. I have not started the treatment of my wife's illness which I am sure will pull me down even more especially mentally. I keep wondering when will be able I take her for medical attention. I don't know where I will start if we are referred to a bigger hospital? IDI_B_Never_02.

Many of the rural households included extended family members and therefore had increase healthcare needs. Case study 1 further illustrates the burden of seeking healthcare for a large rural household.

Case study 1: Burden of seeking healthcare

Evaline lives with her husband and 10 other family members including children, grandchildren and nieces. She and her husband suffer from chronic conditions. She has hypertension and painful arthritis on her knees. Her husband suffers from diabetes and has a chronic kidney condition. He has a wound on his leg that is taking long to heal because of his diabetes. Other health condition in the household include asthma, malaria, eye problems, pneumonia, and suspected mental illness. Evaline admits that she has used traditional medicine for her hypertension but also continues with her medicine. Despite having health insurance, the household spends a lot of money on seeking healthcare especially for her husband who depends on drugs for the kidney condition.

"We use a lot of money and that's why we are just here at home now, because we don't have the money to go to hospital. When you go to hospital they want a lot of money. For example, if you say that you will go to [private health facility X] they want almost 4000 shillings, so when we have to, we just go to [public facility Y] even if you don't get well, God will help you.

Her firewood selling business doesn't give them enough income and her husband cannot work because of his condition. On average, her hypertension medication costs Ksh. 600 monthly while her husband's drugs cost Ksh. 3,000 monthly. The last time he was admitted, their son paid the bill of approximately ksh. 20,000 through fundraising.

"You see when we are seeking treatment we need to give out money and that's where most of the money goes. Sometimes you have nothing, you are just there. Will you tell your child to take you to hospital? Sometimes even your child has no money. The child might delay in taking you to hospital until the illness goes away on its own… If you are unable to go to hospital, what will you do? It will just go away on its own." (IDI_B_Active_01)

Households reported multiple financial strategies to cope with the costs of healthcare, including selling household assets and livestock. Some participants also reported closing their businesses and delaying other expenditures like improving their housing. For instance, one respondent had to sell iron sheets he had bought to complete his new brick house to pay for a medical bill. These set the families back financially. "*If I had taken that 47,000($390) shillings and invested it in a business, it would have helped me in some way. But now, it didn't help me. Of course, it helped me because I was able to discharge my child. But it didn't really help me develop."* IDI_A_Not_Active_01 4). The other common means of

meeting healthcare costs was through borrowing from friends and family, fundraising and taking loans. Elderly respondents reported relying on their children to pay their medical costs and health insurance premiums. One respondent however expressed the unreliability of raising funds through friends and relatives because they were also likely to be financial insecure.

Benefits of insurance

Some respondents with active NHIF membership shared positive experiences of having NHIF including feeling confident in their health insurance covering their healthcare costs:

"*What motivated me to go for it [NHIF] was that I felt it would help instead of holding fundraising. When you have a sick patient in hospital who requires about 30,000 or 20,000 shillings for treatment, that card can help you cover the costs so I will figure out a way to pay for it.*" IDI_Active_B_02.

Households reported that NHIF had helped clear some high medical bills as highlighted in the case below.

Case study household 2: Benefits of health insurance

Maria is a 76-year-old female, widowed, currently incapacitated and reliant on her daughter in law to provide care. Maria suffers from arthritis, hypertension and ulcers. She has NHIF but has to buy medication out-of- pocket because the [public?] facilities do not have medication. However, her most recent inpatient bill of KSh. 16,000(US$130) was fully paid for by NHIF. Before enrolling for NHIF, her family had to fundraise to cover the cost of her care, which created many family conflicts. With NHIF coverage, family conflict has reduced and Maria's son believes that having the insurance has helped Maria feel more cared for and appreciate her family more. (IDI_F_Active_01)

DISCUSSION

We found that a vast majority of rural households did not have health insurance (88.4%) exposing them to financial risk while seeking healthcare. Health insurance was not affordable for majority of households - both insured (60%) and uninsured (80%). Rural households spent an average of 12% of their household budget on OOP spending which was catastrophic to 11.7% of the households. While uninsured households experienced higher and more intense levels of CHE compared to the insured households, both insured and uninsured households reported high OOP spending and similar levels of impoverishments by OOP. Participants expressed concerns about value of health insurance coverage given its cost, services, and financial protection relative to other social and economic needs that they face on daily basis. Households resulted to borrowing, fundraising, taking short term loans from family and friends and sale of family assets in order to meet healthcare costs

According to the Kenya Household health expenditure and utilization survey (KHHEUS) of 2018, 7.1% of the Kenyans incurred catastrophic healthcare payments while 7.9% of the rural population incurred CHE. The KHHEUS reported 46.9% of the population living below the poverty line in rural areas before OOP costs and rose to 49.1% when considering OOP costs [258] while our study reported 61.8% of the rural population living below the poverty and rose

to 63.8% after OOP costs. The difference between our finding and the national survey finding could be explained by the fact that KHHEUS is based on a national sample with both urban and rural population and was last conducted in 2018 while our study conducted in 2021 focused on a rural population in Busia County. It is plausible that our finding of 11.7% of households experiencing CHE is part of the upward trend in the incidence of CHE. The 2018 KHHEUS survey showed that more Kenyans (7.1%)[153] experienced CHE compared to the previous 2007 survey (4.6%)[212]. Previous studies have shown higher, more severe incidence of OOP and CHE among the rural population compared to urban areas[211,258]. The vulnerability of rural populations is further compounded by high poverty rates, reliance on small scale farming, effects of ecological factors like flooding and the economic effects of the COVID-19 pandemic reported in study setting. In addition, Busia county has one of the highest poverty rates in the country (66%) contributing to the unaffordability of healthcare among residents of the county[242,259].

Informal labour in Kenya is not homogenous and workers vary in their ability to pay for healthcare. According to NHIF's definition, informal workers refer to individuals who are unemployed, involved in casual labour or running small scale businesses[35].[35]. Attempts to mandate health insurance requires strategies to address 2 main segments of the informal worker population i.e. those who lack the ability to pay for health insurance and those who can afford health insurance but chose not to enrol. According to our findings, NHIF is unaffordable to 60% of the uninsured informal workers. Although slightly lower, our findings are consistent with previous studies that found NHIF unaffordable to 75% of the population and findings of other willingness to pay studies in Kenya revealed that households were only willing to pay 300 per month compared to the Ksh. 500 charged [27] [223].[223]. Among the insured, we found that NHIF was unaffordable to over 80% indicating that other more compelling drivers to enrolment despite unaffordability of premiums. Indeed, the presence of a chronic illness requiring frequent services as well as anticipated costly medical procedures were found to be the main drivers of enrolment consistent with findings of other studies on voluntary health insurance enrolment[224][260].[224][260]. Such adverse selection of members where high risk individuals enrol for health insurance limits risk cross-subsidization and destabilizes risk pools[261][262][261][262].

Countries that have achieved greater coverage using mandatory insurance have fully subsidized the membership for the poor[4][107].[107]. Many of the rural households participating in our study displayed high levels of vulnerability but were not beneficiaries of social protection programs. Studies in LMIC have found that a small proportion (30%) of the vulnerable groups are enrolled into social health insurance programs[54,263].[54,263]. In Kenya, significant gaps in the implementation of the health insurance subsidy program were reported indicating that 65% of the beneficiaries of the health insurance subsidy belonged to the richest quintiles [27,36]. More recently, the national indigent program rolled out registration of indigent households targeting 1 million households. The households included were identified from a list of vulnerable households provided by ministry of Labour and social services. There have been concerns however about the hastiness, inclusion process and the unclear strategies used to identify households to benefit from the national indigent programs. For health insurance subsidies to have the desired effect of extending coverage to the extremely poor, there is need to invest in robust national targeting mechanisms and framework of identification and verification of poor households [264][264].

Our study found that NHIF was unaffordable to 60% of the uninsured households, implying that 40% of the uninsured in Kenya can afford health insurance but only 11% of the population had enrolled. One of the reasons for low enrolment among those with the ability to pay, is the dissatisfaction with the NHIF cover. Respondents did not see the value of having NHIF because of unavailability of services in public facilities. Even though NHIF covers services in accredited public and private facilities, most rural communities have a limited network of private facilities[35]. Indeed, our findings reveal that inadequate coverage of health services in the NHIF benefit package and unavailability of services in public facilities results in high OOP among the insured as has been found in other studies[27,265]. These inadequacies forces households to incur OOP by purchasing drugs and services in the private market. Forcing households who can afford to enrol in NHIF with no clear strategies for addressing health system weaknesses and increasing awareness on the NHIF benefit package would be unethical. Efforts to increase coverage and financial protection among this population will need to be accompanied by strategies to address weaknesses in the benefit package and delivery of quality health services at the facilities.

Policy implications and recommendations

The need for financial risk protection among the vulnerable rural population is an important and urgent priority. Although mandating NHIF enrolment in Kenyans in line with global debates advocating for compulsory contribution, it is challenging to enforce mandatory payments among the informal worker[2]. Mandatory insurance programs can only be enforced through payroll deduction for the employed or by imposing sanctions for those who fail to comply[7]. Adequate caution needs to be taken in the enforcement of mandatory insurance to ensure that vulnerable households are not further penalised through such sanctions due to their inability to comply with compulsory enrolment into NHIF. The government should employ mechanisms to segment the informal worker population to differentiate those with ability to pay and those who cannot afford NHIF. Penalties should only be enforced among those with the ability to pay and are not enrolled in NHIF.

The government should prioritize rapidly rolling out the national subsidy program to cover poor households lacking the ability to pay for NHIF. The targeting of poor households should be strengthened to ensure the poor benefit from the programs. It is also important that those mandated to pay, are guaranteed access quality health services. This can be done by addressing the service delivery and supply chain issues that continue to drive OOP spending among the insured. Evidently, enforcing mandatory insurance for increased protection against OOP will not have desired benefits if the weaknesses in the benefit package and health service delivery are not addressed. The government therefore needs to prioritize broader health system reforms to improve health service delivery in public facilities. NHIF also needs to create adequate awareness on the services covered to ensure members are not charged for services that are covered by the fund. From our findings, adverse selection remains a threat to the NHIF scheme given the enrolment through health facilities. Because social health insurance cannot lock out members based on pre-existing conditions, enrolment NHIF needs to conduct extensive enrolment drives among the general population so as to include healthy members too.

Strengths and limitations

Although many studies in Kenya have assessed the impoverishing effects of catastrophic healthcare payments, few have focused on the informal workers in rural areas. This is important given ongoing policy debates to increase coverage among informal worker households. Previous studies have also been limited methodologically as most approached the gap from a quantitative approach. Our study employed a mixed method approach that provides a more nuanced understanding of the challenges faced by rural households.

However, a key limitation in our study is the low health insurance enrolment rates among the rural population which limited our ability to infer the level of protection NHIF offers among the insured because a small proportion of the population was covered by health insurance. In addition, our assessment of catastrophic payments and impoverishments only captures the negative effects on households that sought healthcare at the health facility. Although we appreciate the increased vulnerability of households not seeking care, our methodology did not estimate the effects on households that did not seek conventional care and is an area for future research.

Lastly, household expenditure was obtained by asking the respondents to recall expenditure for specific periods. This may be prone to recall bias but effort was made to minimize bias by using different recall periods for different items depending on the frequency of consumption. For instance, the recall period for items bought frequently such as food items is limited to the last 7 days and one-year recall period for items bought less frequently like land and education.

Conclusion

Rural populations have increased vulnerability to financial risk related to healthcare costs and lack adequate financial risk protection. While national reforms on NHIF illustrate commitment by the Kenyan government to the UHC agenda through mandatory NHIF membership, our findings showed that this commitment might be better informed by considering the affordability and extent of protection offered by NHIF. Not only is the NHIF premium unaffordable to majority of these households but the financial protection that it provides is inadequate to shield households against catastrophic healthcare payments because of inadequate benefit package and the unavailability of health services in public facilities. As such, it will be necessary to develop suitable strategies to ensure the inclusion of rural uninsured households who have limited ability to pay for healthcare and health insurance. Expansion of coverage will need to be accompanied by efforts to improve healthcare provision at public healthcare facilities. Therefore, to increase coverage among rural informal workers through mandatory enrolment and ensure that the vulnerable in Kenya and other LMICs settings are covered against catastrophic healthcare spending, there is need to simultaneously address affordability barriers to healthcare and health insurance enrolment and improve service coverage.

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Ethical Approval and consent to participate

This study was approved by the Institutional Research Ethics Committee (IREC) at the University of Witwatersrand (Certificate no. M210216) and Moi University/Moi Teaching and Referral Hospital (No. 0003935). The Kenya National Commission for Science, Technology, and Innovation (NACOSTI-P/21/12262) and the Busia County Health Department both granted additional permission. Participants who agreed to take part in the study provided written informed consent.

Consent for publication

Not applicable

Ethical Approval

Prior to starting the study, Institutional Research Ethics Committee (IREC) approval was acquired from the University of Witwatersrand (Certificate no. M210216) and Moi University/Moi Teaching and Referral Hospital (No. 0003935). The National Commission for Science, Technology, and Innovation (NACOSTI-P/21/12262) and the Busia County Health Department both granted additional permission. Participants who agreed to take part in the study provided written informed consent.

Competing interests

We have no conflict of interest to declare

Authors' contributions

BM, JG, and ADK contributed to the conceptualization of the study and drafted the manuscript. BM, JG, ADK, AK, CL and ER contributed to the development of data collection materials. BM, CL and ER contributed to the recruitment of participants and data collection. All authors contributed, edited and approved the submitted version

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Availability of data and materials

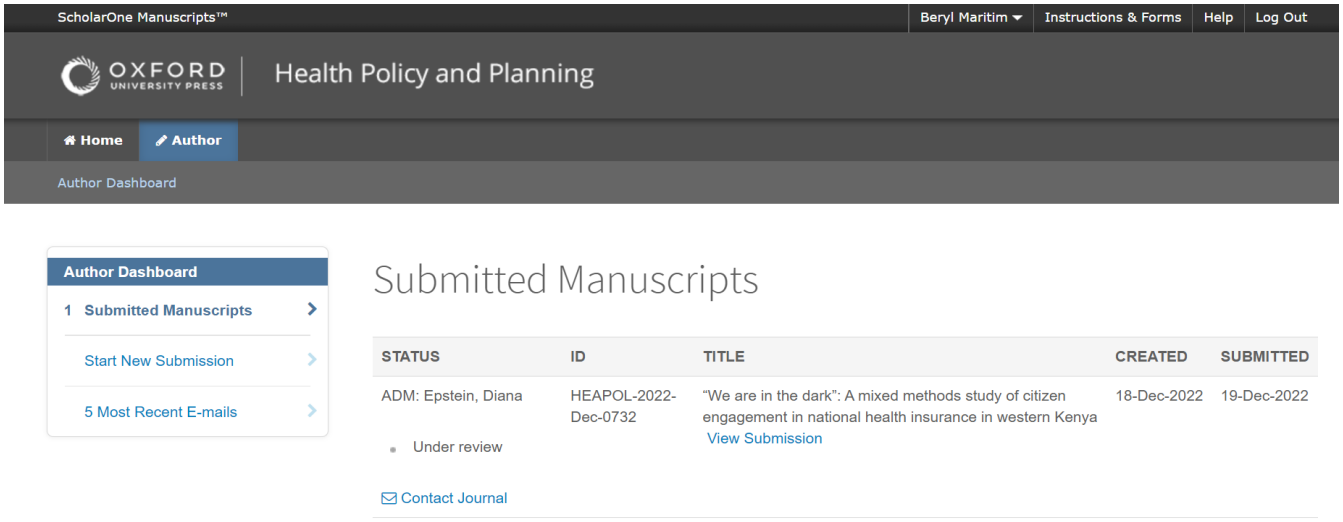
Data will be made available upon request

7 PHD Paper 2

Title: *"We are in the dark":* A mixed methods study of citizen engagement in national health insurance in western Kenya.

Authors: Beryl Maritim, Adam D Koon, Allan Kimaina, Jane Goudge**.**

Status: Submitted and under review in the journal of health policy and planning



Abstract

Many low- and middle-income countries (LMICs) are turning to social health insurance to provide financial risk protection for households. Despite the importance of citizen engagement in promoting participation in health programs, little is known about mechanisms employed in LMICs to ensure members are engaged. This paper explores citizen engagement efforts by the National Hospital Insurance(NHIF) among rural households in western Kenya. Our study adopted a mixed method design comprising a cross-sectional household survey (n=1773), in-depth household interviews (n=36), 6 FGDs with community stakeholders and key informant interviews (n=11) with policy makers. We used the RESYST citizen engagement analytical framework outlining the responsibilities of an insurer to beneficiaries. Our findings show that there was high awareness of NHIF but low levels of knowledge on services, feedback and accountability mechanisms. Sixty-three percent of the respondents were aware of NHIF but only 32% said they were aware of the benefit package. No one could provide the full list of services covered by NHIF in the benefit package. Barely half (48%) of the insured were satisfied with the NHIF benefit package. Nearly all of the respondents (93%) were unaware of mechanisms to reach NHIF for feedback or complaints. Of those who were aware of the feedback mechanisms, the majority (57%) mentioned going to NHIF office to get assistance. Ninety-seven percent of respondents were not aware of the NHIF performance reporting mechanisms. Respondents expressed desire to know the NHIF performance. Negative reports on NHIF performance in the media led to mistrust of the fund. Our results reveal that NHIF does not adequately engage citizens and this contributes to low enrolment and attrition from the scheme. Community engagement can foster transparency and trust in the fund. There is need to evaluate current NHIF citizen engagement frameworks to improve state accountability to citizen and incorporate citizen voice in processes.

INTRODUCTION

Many low- and middle-income countries (LMICs) struggle to expand population coverage through social health insurance[5][266].[266]. Evidence shows that effective citizen engagement initiatives are critical to the success of health insurance as it increases awareness of insurance benefits and improves beneficiary satisfaction in the services[267,268].[267,268]. Despite the widespread acceptance of citizen participation as a fundamental human right and a factor in the success of health programs, policy makers globally often neglect citizen engagement in policy formulation processes[129,269].

There is growing recognition of the role of citizen engagement in addressing public health problems since the formalization of community participation in health programs in the Alma-Ata declaration of 1978[270]. Community engagement acknowledges the central role of beneficiaries in decision-making, as well as in the execution and management of development projects and programs[270–272]. It refers to deliberate process to ensure the individual or collective community participation in design of healthcare delivery programs through feedback and accountability [112,128] It involves a process of informing, involving, consulting, collaborating and empowering citizens to participate in health initiatives. When done effectively, citizen engagement has many benefits including: 1) incorporating citizen voice in public policy and program design leading to more responsive programs, 2) promoting public accountability, 3) illuminating different perspectives to the problem, 4) greater responsibility and ownership of health programs and 5) empowering the community to advocate for their rights[128,269,271].

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Evidence on citizen engagement is dominated by literature from high income countries like Canada, and European countries[269,273].[269,273]. Studies in LMICs point to absence of citizens' voice in policy and fragmentation of knowledge[105,272,273][105,272,273] In Kenya, previous studies reveal varied and inconsistent information regarding which benefits are included in the national scheme and this has posed a significant barrier to increasing uptake [12,28]. Dissatisfaction with health services had also led to high attrition[12]. Evidence shows that weak citizen engagement mechanisms are responsible for limited understanding of NHIF benefit package and limited empowerment of the citizens[22]. The purpose of this paper is to examine awareness of entitlements, engagement and citizen engagement mechanisms employed by NHIF and how it affects health insurance enrolment among informal workers.

The Kenyan government has prioritized financial protection through the expansion of health insurance among the informal worker[31]. The national health insurer, National Hospital Insurance Fund, (NHIF) is envisioned to play a central role in providing universal coverage. NHIF is a government parastatal founded in 1966 and covers inpatient and outpatient care in accredited public and private health facilities. It provides coverage to nearly 20% of the population in Kenya[5]. Membership into the scheme is mandatory for formal sector employees through income related payroll deduction. Although there are plans to mandate membership for informal workers too, membership currently remains voluntary through payment of a monthly flat rate of Ksh. 500 per informal worker household. The informal workers scheme is called supa+cover[208][208] and covers a wide range of services (box 1).

Despite the importance of citizen engagement in growing health insurance coverage, little is known about how NHIF attempts to ensures that Kenyans are aware and can access the NHIF benefit package[129]. It is also unclear if citizens feel empowered with adequate information to hold NHIF accountable for the use of resources and their performance as a national health insurer. Previous studies have pointed to weak citizen engagement mechanisms, although these studies neglected the views of citizens[165].

BOX 1: NHIF Benefit Packages

- Outpatient Services – Consultation, Laboratory, investigations, daycare procedures, drugs and dispensation, health education, wellness and counselling, physiotherapy services, immunization, vaccines as per the KEPI schedule
- Inpatient Services
- Maternal care – Antenatal and Prenatal care and deliveries (Normal delivery and caesarian section)
- Reproductive health services: Family Planning
- Renal Dialysis
- Overseas treatment for specialized surgeries not available locally
- Rehabilitation for drugs and substance abuse
- All surgical procedures including transplants
- Emergency road evacuation services
- Radiology imaging services (X-rays, CT Scan, & MRI)
- Cancer Treatment

Ensuring citizen engagement in health insurance involves a number of actions (box 2)[274–276]. First, the needs, preferences and values of the population are determined in a process that involves assessing existing utilization of health services, the disease burden as well as citizen perspectives on choice of relevant benefits [277,278]. Secondly, the population is informed about these entitlements which are deemed to be the insurers' obligation to members. The third action is to ensure that the population have access to their entitlement from choices of providers[165,203,279]. Fourthly, a clear feedback mechanism is required to handle complaints

and concerns from the citizens. Lastly, there is need for public accountability on the use of resources and performance if the scheme[277].

METHODS

Box 2: Citizen engagement actions by insurers

- Assessing the health service needs, preference and values of the population and use to specify service entitlement/benefits
- Inform the population of their entitlement and obligations
- Ensure population can access their entitlement
- Establish effective mechanisms to receive and respond to complaints and feedback from the population
- Publicly report on use of resources of resources and other measures of performance
-

Study design

We used an explanatory mixed methods approach combining a quantitative cross-sectional household survey with qualitative interviews and focus group discussions [254]. The survey was embedded in a larger study conducted by researchers at the Academic Model Providing Access to Health Care (AMPATH) in western Kenya conducted between August and October 2021.

Study setting

Data was collected from households in Bunyala sub-county, in Busia County, Kenya. Busia is located on the western border with Uganda where AMPATH implements a universal health coverage pilot where household sensitization on NHIF and insurance subsidy for vulnerable households was implemented. The sub-county is made up of 6 administrative locations each with approximately 3,000 households. The population in Busia is predominantly rural with low socio-economic status. The site is situated on the shores of Lake Victoria and the main economic activities are fishing and small-scale farming.

Study participants

Study participants were identified from an AMPATH program database of all households in Bunyala sub-county. A list of the households was generated for each of the six administrative locations. Stratified random sampling technique was used to select households invited to participate in the study. The eligibility criteria were a household respondents aged >18 years and who reported having sufficient information about household healthcare use for themselves and household members.

We identified a sub-sample of households that participated in the household survey to participate in in-depth household interviews. In each of the 6 locations, two households were purposively selected from each of the following three groups: currently enrolled in NHIF, previously enrolled and never enrolled to provide multiple perspectives and experiences. We also recruited community stakeholders to participate in focus group discussions. Six to eight stakeholders were identified from each of the 6 administrative locations and comprised local leaders, ward administrators, civil society group members, religious leaders, and youth representatives identified for their active role and advocacy in health and community matters. A total of 49 (30 males and 19 females) stakeholders participated in the FGDs. We also

interviewed 11 policy makers and implementers at a national and sub-national level purposively selected through snowballing of Key informant participants. These were health facility officials, NHIF representatives, researchers, health financing experts and county health officials.

Table 1: Data collection method and study participants

	Interview method	Number of interviews	Participants
Quantitative	Household survey	1,773 households containing 8,610 household members with an average household size of 5 members.	Household respondents (>18 years) Sixty-four percent of the respondents were female and the average age of the respondents was 47 years.
Qualitative	In depth interviews	36	Household respondents (>18 years)
	Focus group discussions	6 groups with a total of 49 participants (30 male and 19 female)	Community stakeholders/representatives
	Key Informant interviews	11	Policy makers and implementers

Data collection

Quantitative:

Household survey

We used a structured survey questionnaire to train interviewers collecting household data including gender, education, marital status, health insurance status and health status. Interviewers were trained by the research team on key study concepts, ethics and gaining consent as well as the use of handheld devices for data collection. Area chiefs and assistant chiefs were used to identify interviewers based on prior experience in national survey data collection. Community volunteers were engaged to assist data collectors navigate the area and identify the households. Community health volunteers did not participate in the interview process for confidentiality reasons. Each household survey interview was about 1-1.5 hours.

The quantitative data collection tool was designed by the research team and included questions adopted from the national surveys: Kenya Demographic Health Survey and the Kenya Household Health Expenditure and Utilization Survey[151][246]. The English questionnaire was translated to Kiswahili and the local language, Luhya to provide respondents with language options for response.

Qualitative

In-depth interviews and focus group discussions

Household in-depth interviews took place at the respondent's houses. FGDS were conducted in local health facilities or community spaces. Qualitative interviews were conducted by 4 members of the study team trained in qualitative interviewing. Household and key informant

interviews took an average of 30-40 minutes each while the FGD ran between 2-2.5 hours. The study team had debriefing sessions between interviews to report challenges, improve the interviewing process. Qualitative interviews were guided by semi-structured interview guides designed to get the views on awareness, engagement and health care utilization experiences. All data collection tools were pretested and modifications made to address problems and potential errors.

Data analysis

We used the RESYT analytical framework on strategic purchasing that outlines the responsibility of the health insurance agency to its beneficiaries[280]. The constructs of the framework are listed in box 2 above.

Quantitative data analysis

We first conducted descriptive analysis to assess citizen awareness of NHIF, the benefit package, knowledge of feedback and performance accountability mechanisms by household characteristics identified from literature. We then used bivariate logistic regression to examine the influence of household characteristics where the dependent variable was binary if the household respondent i) was aware of the NHIF cover, ii) knew the benefit package. Odds ratios (OR) with their corresponding 95% confidence intervals were used to assess the strength of the associations between household factors and the outcome variables[138]. Associations between household characteristics and NHIF member satisfaction, awareness of feedback mechanisms and accountability mechanism was tested using Pearson's chi square test. Data analysis was done using R and relevant R packages.

Qualitative data analysis

Audio recordings from the IDIs, FGDs and KIIs were translated (where necessary) and transcribed verbatim by experienced transcribers who were fluent in the languages but not part of the study team. Transcriptions were compared against their corresponding audio files for accuracy. The author read the interview transcripts to familiarize with the data. Codes were developed jointly by (author and 2 co-authors) through a process of identifying key phrases and ideas from a selection of transcripts. The author coded the remaining transcripts using identified codes. A thematic framework analysis approach was used to analyze qualitative data. Organization and management of data was done using a using NVIVO 12 software[257].Themes were guided by the citizen engagement framework actions (Box 2) Lastly, we interpreted findings under each theme and included supportive quotes from interviews.

RESULTS

Citizen engagement in benefit package development

There were divergent views on the need for citizens' involvement and other stakeholders in benefits package design. According to an NHIF representative, citizen needs were adequately represented in the benefit package and the package was informed by epidemiological trends, the socioeconomic status of the population, and included chronic ailments associated with catastrophic events:

> *"We have looked at Kenya and seen the rise of the non-communicable diseases such as cancer and our current package tries to address more of those current challenges.*

We have gone to a great extent in response to public demand that we address the areas that Kenyans are struggling with" KII_11.

In response to view that NHIF benefit package was based on prevalence and burden of healthcare costs, a policymaker dismissed these claims saying the process was political and not informed by data. The benefit package was viewed by policymakers as a political decision that is not data-informed. County health officials and development partners felt that only top-tier level stakeholders were engaged in the development processes leaving out beneficiaries who are users of the package. Policy decision processes within NHIF was questioned and termed as 'opaque'. NHIF was seen to be lacking objectivity and seemed to only respond to Ministry of health's policy direction and not engaging other stakeholders adequately.

No one knows what's happening in NHIF- it is a black box. The directions that are taken are very difficult to justify with regards to public involvement in public participation. (KII_09)

There were also concern that NHIF lacked technical capacity required to develop a data-driven package. Gaps in health facility data and records that would be used to identify common conditions, prevalence of conditions, and disease trends also made this challenging. Community stakeholders believed that NHIF did not engage or factor in informal workers' needs, preferences, and values when they designed the "*Supa Cover*" package:

NHIF makes most of the decisions in the NHIF office in Nairobi. There is no way common mwananchi[citizen] is involved. He is just engaged in paying. (R7, FGD B)

I don't remember any forum where I have been involved as a citizen. But most of these things—I don't know where they are decided from. They are just pushed. One day you are told this is the cover and there you are. Maybe we are moving from this amount to this amount and you have no choice. Involvement, especially as far as decision making is concerned, I don't know where it's done, but if at all it is done, then it is very minimal. KII_03 (county health department representative)

Participants felt that NHIF enrolment policies were not considerate of the local cultural context. For instance, most marriages were polygamous and yet NHIF only allowed one spouse to be covered at the time of the study. Also, members of the community do not formalize their marriages*:*

Almost all of the marriages here are cultural so people don't have marriage certificates. The problem arises where one spouse is contributor and wants to cover the other one. The process of obtaining these papers is difficult and maybe at that time the spouse is sick" R5 FGD_C

Informing members of their entitlements

Most community members are aware of NHIF. Nearly two-thirds of the participants had heard of NHIF (63%) (Table 16). There were higher odds of awareness of NHIF among those with insurance (OR 2.92) aged 25-40 (OR 3.33), male (OR 1.26), married (OR 1.42), those who have ever attended school (OR 2.83), being wealthy (Q5 OR 4.43) and those who are members of financial group (OR 1.84); these associations were statistically significantly. Awareness was higher among those who had been admitted to hospital in the 12 months and

those who had chronic ailment although these were not statistically significant. There were lower odds of being aware of NHIF among those not formally employed.

However, only 32% of the respondents responded that they were aware of the NHIF benefits package. Awareness of the benefit package was higher among the insured (OR 3.86), those aged between 25-44 and 45-64 (OR 2.50), male (OR 1.25), married (OR 1.16), those who had ever attended school (OR 2.42) and those who are members of financial group (OR 1.62). Awareness of the benefit package was higher among those who had been admitted to hospital in the 12 months and those who had chronic ailment although these were not statistically significant. There were lower odds of knowing the NHIF benefit package among those not formally employed; these associations were statistically significantly. Overall, there was high awareness of NHIF but low awareness of the services covered

> *I hear that it pays for your medical bill, but I don't know exactly what it pays for. IDI A_Not_active_01*

NHIF members who used their card frequently, had better understanding of the benefits. Newly enrolled beneficiaries expected that NHIF covered all healthcare costs indicating that members do not receive comprehensive information on the benefit packages at enrollment. Of the respondents who said they were aware of the benefit package, we asked them to list the services that were covered by NHIF (Figure 12) The most known services were outpatient and inpatient services with 28% and 21% respondents being aware of these respectively. The least known services were the renal dialysis and imaging services with only 0.8% and 1.02% being aware. None of the respondents interviewed was able to list all the services covered by NHIF.

Airlifting is included in the package but they don't give the people all details. NHIF needs to inform members that they can be airlifted. It is the smaller details that the people don't have. KII_08

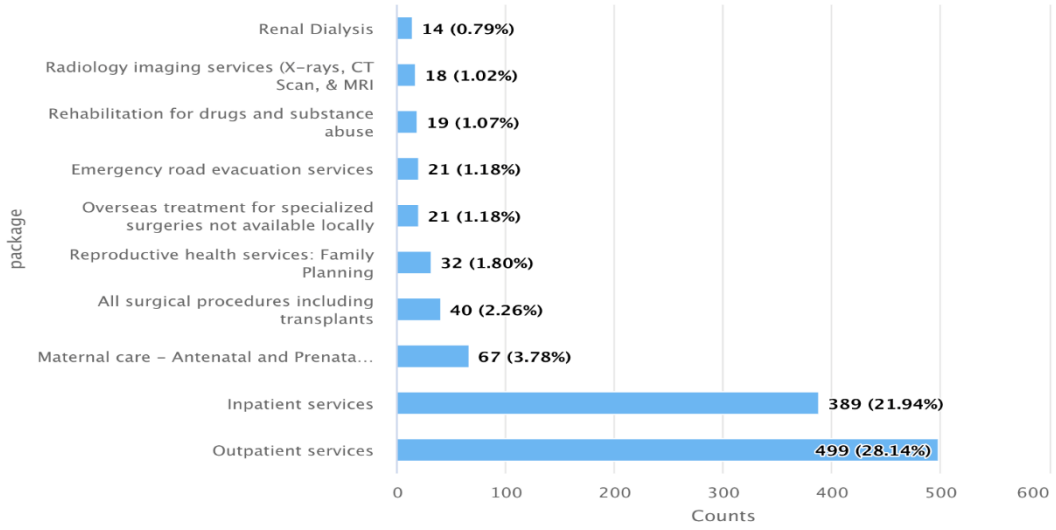


Figure 11: Count of respondents who named the services covered by NHIF supa cover

One respondent highlighted the negative consequence of low awareness of NHIF stating:

> *"Once you are in darkness it is impossible for you to sign up with them" IDI_A_Active 01*

There was generally low awareness of enrollment procedures, and premium payment channels among the community. There was also confusion regarding beneficiaries to include in the cover with some expecting that extended family members would be covered. Some members reported travelling to the branch offices to make their monthly contributions and were not aware of mobile money payment methods to pay premiums. Low awareness allowed false information regarding NHIF to thrive:

> *Sometimes people spread false stories. People can say that they pay one thousand shillings, yet that is not even the amount they pay. One would say, "if it is one thousand shillings, I am not joining." It would be better if NHIF talked about it themselves then we would know. (IDI_C_Never 01)*

Table 16 Awareness of NHIF supa+cover, benefit package

		Aware of NHIF supa+cover[1]				Aware of Benefits[2]			
		Yes %(n)	OR[1]	95% CI[1]	p-value[2]	Yes %(n)	OR[1]	95% CI[1]	p-value[2]
Have health insurance	No	60 (942)	1	1	<0.001	28 (445)	1	1	<0.001
	Yes	81 (167)	2.92	(2.05, 4.27)		60 (124)	3.86	(2.87, 5.23)	
Age	18-24	63 (52)	2.53	(1.54, 4.24)		23 (19)	1.37	(0.74, 2.44)	
	25-44	69 (549)	3.33	(2.53, 4.41)	<0.001	36 (281)	2.50	(1.81, 3.51)	<0.001
	45-64	64 (389)	2.60	(1.95, 3.46)		36 (216)	2.50	(1.79, 3.53)	
	>64	41 (119)	1	1		18(53)			
Sex	Female	61 (684)	1	1	0.024	30 (342)	1		0.032
	Male	66 (425)	1.26	(1.03, 1.55)		35 (227)	1.25	(1.02, 1.54)	
Marital status	Divorced/separated	61 (91)	1	1	<0.001	33 (49)	1	1	<0.001
	Married/ living together	69 (768)	1.42	(0.99, 2.02)		36 (403)	1.16	(0.81, 1.68)	
	Never married/never lived together	56 (65)	0.80	(0.49, 1.31)		23 (27)	0.61	(0.35, 1.06)	
	Widowed	46 (185)	0.53	(0.36, 0.78)		22 (90)	0.58	(0.38, 0.88)	
Ever attended school	No	42 (151)	1	1	<0.001	19 (66)	1	1	<0.001
	Yes	68 (958)	2.83	(2.24, 3.60)		35 (503)	2.42	(1.82, 3.25)	
Occupation	Formal employment	81 (35)	1	1		63 (27)	1	1	
	Homemaker	57 (162)	0.30	(0.13, 0.64)	0.001	23 (67)	0.18	(0.09, 0.35)	<0.001
	Others	45 (5)	0.19	(0.04, 0.78)		36 (4)	0.34	(0.08, 1.30)	
	Students	50 (4)	0.23	(0.04, 1.15)		12 (1)	0.08	(0.00, 0.54)	
	Unemployed	53 (59)	0.25	(0.10, 0.57)		22 (25)	0.17	(0.08, 0.36)	
	Informal employment	64 (844)	0.41	(0.18, 0.85)		34 (445)	0.30	(0.16, 0.56)	
Wealth quintile	Q1	45 (157)	—		<0.001	16 (57)	1	1	<0.001
	Q2	61 (214)	1.93	(1.43, 2.62)		26 (90)	1.78	(1.23, 2.59)	
	Q3	64 (222)	2.15	(1.59, 2.91)		33 (115)	2.53	(1.77, 3.64)	
	Q4	67 (235)	2.51	(1.85, 3.42)		37 (129)	3.00	(2.11, 4.31)	
	Q5	78 (274)	4.43	(3.20, 6.19)		51 (177)	5.26	(3.72, 7.53)	
Member financial group chama	No	57 (631)	—		<0.001	28(309)	1	1	<0.001
	Yes	71 (478)	1.84	(1.50, 2.26)		39(260)	1.62	(1.32, 1.98)	
Admitted last 12m	No	62(1,033)	—		0.6	32(529)	1	1	0.6
	Yes	65 (76)	1.12	(0.76, 1.67)		34 (40)	1.11	(0.74, 1.63)	
Chronic ailment	No	62(591)	—		0.8	31 (291)	1	1	0.2
	Yes	63 (518)	1.03	(0.85, 1.25)		34 (278)	1.16	(0.95, 1.41)	
	Total	63(1,109)				32 (569)			

[1] Have you ever heard of NHIF (National Hospital Insurance Fund)? | [2] Do you know what NHIF supa+cover

According to policy makers, informing members of their entitlements and obligations was the right of contributors. Although NHIF conducted numerous awareness campaigns that created widespread awareness of the NHIF brand they did not adequately teach people on benefits. Most members only learned of services covered while accessing care:

> *Creating awareness is very important, because when I am contributing something, I need to know what the benefits are. We have cases where a client with NHIF goes for a surgery not knowing how much NHIF would cover. During discharge, they are told NHIF will only pay a small part of the total bill. And the client says: 'I thought NHIF is paying for everything? This is because there is lack of information. KII_06*

Respondents reported hearing about NHIF from TV, radio, SMS, print media, and community sensitization meetings by partners working in the community. Participants recommended using physical meetings such as *barazas* (community meetings) and outreach programs as the most effective methods. Such forums could be mobilised through local administrators such as chiefs and village elders for a wider reach. The administrative office at the sub-county level reported having organised discussions to engage public members to increase NHIF enrolment in the area. Most community members had neither heard nor participated in such meetings. Rural populations reported having less access to information compared to urban populations:

> *The bad thing is that we live in the outskirts so sometimes the message can be passed and not get to us in the interior. IDI_B_Active_02*

Access to benefit package

Policy makers expressed concern that the NHIF benefit package "*looked good on paper but when you look closely at implementation, cracks begin to appear."* KII 04. According to one policy maker the NHIF benefit package provides comprehensive list of services that were often not accessible to the members:

> *A benefit package is not just lists; it's an entitlement that should result in a particular service being delivered. The issue is not whether the thing was listed. It is whether people receive those particular service at a particular health facility in the county. KII_09*

The views of the policy makers were consistent with the complaints from community respondents as availability of quality health services was a key concern. Public health facilities had staff shortages, frequent stock outs, and patients were often asked to buy supplies like gloves, bleach, and cotton swabs despite being covered. A respondent urged members to take responsibility to make inquiries about facilities before selecting their primary care facilities. In some cases, members were informed that some health services were not covered by the NHIF card and were required co-pay:

> *I had an experienced whereby I went to the hospital I chose but they still ask for cash for x-ray because they said they don't use [the NHIF] card in [the] x-ray [department]." FGD C_R2*

Members also felt that NHIF should only accredit facilities with the capacity to offer services to citizens. Members opted to drop out of NHIF as a result of poor access to their entitlement as they did not see the value of having insurance.

> *The services are the issue. If you ask the 50 % of the defaulters, it is because of services. They should improve on their services, otherwise this hospital insurance is good. (FGD C R1)*

The issue of selecting a primary healthcare facility was raised by many respondents. The lack of portability of services across primary care facilities resulted in respondents incurring out of pocket costs:

> *I was referred to another hospital which I was told to pay cash because my card could not pay for services at that facility. So I had to pay more than 10,000 which I didn't have. This [NHIF] card has not helped me and yet I am a contributor. It is so discouraging. (FGD C_R2)*

Others expressed concern that restricting members to one primary care facility was not good because "*illness doesn't say I will appear in certain place" R8 FGD C*

There were also complaints about NHIF members receiving poor treatment at the health facilities. According to policy makers, providers offered poorer services to NHIF members because of delay of reimbursements from the fund and NHIF is unable to hold the facilities accountable for complaints of poor treatment of members because they were guilty of not paying the facilities.

Health financing arrangements in devolved government system undermined service delivery in health facilities. According to policy makers, health departments were underfunded which led to unavailability of drugs and commodities to the health facilities. Despite generating revenue, resources from the health facilities were not used in those facilities*:*

> *"Getting that money back is a problem, and yet facilities can have over 100 deliveries in a month. That is good money that could support the facility. But we have been having stock outs of some very important materials in the maternity, like gloves, cotton wool, and oxytocin. Even jik! KII03*

Engagement, feedback, and grievances mechanisms

Nearly all the respondent (93%) were not aware of feedback mechanisms (Table 17). Of those who were aware, 57% mentioned visiting NHIF offices as the main method of providing feedback while 40% and 3% use phone calls and email respectively. Some respondents were aware of some beneficiary engagement platforms. One respondent mentioned a phone-based application that could be used channel grievances however most of the respondents were not aware of any feedback mechanisms. Most clients were not aware of NHIF toll-free lines while those who knew and tried to call the lines claimed that customer care agents rarely pick up. NHIF representatives confirmed that they are experiencing challenges due to a high number of calls and understaffing of the centre resulting in unanswered calls. Those who were privileged to have contact numbers of a NHIF staff could call to ask for assistance:

> *The staff give their numbers so that you can contact them using a personal line when you miss them in the office line. So long as you call them during working hours, they will serve you. FGD D_R2*

Although NHIF had staff based at the sub-county facilities, they are only mandated to handle minor complaints and grievances such as checking enrolment status. In most cases, beneficiaries were referred to NHIF branch offices approximately 60 km away from the study site to file complaints forcing them to incur transport costs. There was also lack of confidence that their complaints would be resolved. Complaints followed lengthy and complicated processes and clients had to make numerous calls and visits to file complaints. Inability to address complaints and grievances pushed some members to stop paying for NHIF.

> *Unless one does follow-ups, they[NHIF] don't address client issues. Instead, the staff asks them to come on a later date or refer to a senior officer. Sometimes they are forced to go to the regional office and if he's from the village, that discourages a someone and decides to abandon the issue altogether. KII 7*

A policy maker felt that NHIF should conduct regular customer satisfaction surveys:

> *NHIF does not do customer satisfaction surveys. The health facility staff end up being the ones to give NHIF feedback on their services. KII_03*

A senior NHIF official admitted the challenges in customer relations stating that there was internal restructuring within NHIF to ensure this was prioritized. Plans included the expansion of the customer call center and creation of a case management division to track patient complaints in the system.

> *Actually, there is a very big room for improvement. We would want to engage with our customers, and respond to their queries and inquiries. We want to ensure when it comes to the customer experience at the customer call centre, there is no call that's dropped. KII_11*

The NHIF official however added that some of the complaints about NHIF are historical:

> *Of course I realize that many of the complaints about the NHIF are based on misinformation. You hear someone is complaining about something which was fixed two years ago but is talking as if it is a current issue now. KII_11*

Table 17: Satisfaction with benefits package, awareness of feedback mechanisms and NHIF financial performance

		Of those insured, % dissatisfied[3]	Feedback mechanisms awareness		NHIF performance reporting mechanisms	
		%(n)	%(n)	p-value	%(n)	p-value
Age	18-24	0 (0)	100 (82)		100 (82)	
	25-44	24 (19)	94 (739)		97 (765)	
	45-64	35 (25)	92 (560)		98 (593)	
	>64	21 (4)	95 (278)	0.034	97 (285)	0.4
Sex	Female	29 (26)	95 (1,070)	0.006	98 (1,107)	0.009
	Male	28 (22)	91 (589)		96(618)	
Marital status	Divorced/separated	44 (4)	97 (143)	0.093	99 (146)	0.090
	Married/ living together	29 (36)	92 (1,023)		97 (1,069)	
	Never married/never lived together	0 (0)	94 (109)		97 (112)	
	Widowed	26 (8)	95 (384)		99 (398)	
Ever attended school	No	32 (7)	97 (346)	0.002	99 (353)	0.015
	Yes	28 (41)	93 (1,313)		97(1,372)	
Occupation	Formal employment	16 (5)	63 (27)	<0.001	79 (34)	<0.001
	Homemakers	22 (4)	96 (275)		98 (280)	
	Others	0 (0)	100 (11)		100 (11)	
	Students		88 (7)		100 (8)	
	Unemployed/Seeking work	62 (5)	94 (105)		97 (109)	
	Working in informal employment	31 (34)	94(1,234)		98 (1,283)	
Have health insurance	No	-	98(1,537)	<0.001	99 (1,560)	<0.001
	Yes	28 (48)	60 (122)		80 (165)	
Wealth quintile	Q1	38 (8)	97 (339)	<0.001	99 (347)	<0.001
	Q2	29 (5)	95 (334)		98 (343)	
	Q3	21 (6)	96 (336)		98 (341)	
	Q4	44 (14)	94 (328)		98 (342)	
	Q5	22 (15)	85 (299)		94 (328)	
Member financial group chama	No	23 (19)	95(1,048)	<0.001	98 (1,078)	0.040
	Yes	33 (29)	91 (611)		96 (647)	
Admitted last 12m		27 (41)		0.081		0.13
	No	47 (7)	94 (1,554)		97 (1,614)	
	Yes		90 (105)		95 (111)	
Presence of chronic ailment	No	25 (19)	94 (897)	0.12	97 (923)	0.7
	Yes	31 (29)	93(762)		97 (802)	
		28(48)	93(1,659)		97(1,725)	

Mechanisms for ensuring accountability, transparency and trust

Nearly all participants (97%) were unaware of any accountability reports or forums used by NHIF to report their performance (Table 3). One respondent said: *I don't know of any. I am in darkness*". IDI_A_Active_01. Participants demanded for public accountability, claiming citizens have a right to get information on how NHIF performed in a given period on collections, claims, and investments:

> *It is a right because they are the contributors of that fund. How do you deny them to know, is it a secret? Then why do you come for their money? (KII 08)*

There was significant mistrust in NHIF with respondents expressing concerns about negative news in the media. Mistrust was fuelled by allegations of fund misappropriation. One respondent referred to a report from an NHIF board member pointing out challenges in the fund:

> *Chinua Achebe said that if an alligator comes out of the water and says that the crocodile is sick, will you doubt the story? You cannot doubt the story because the alligator was with the crocodile in water. So, when a board member comes out and says that there are problems in NHIF, there are problems! R6_FGD D*

Policy makers felt that NHIF should publish their reports every financial year the way other institutions do consisting number of enrolees, revenue raised, and expenditures. Reporting on the number of enrolees promoted the scheme's legitimacy and encourage active members to continue paying and also act as an incentive for those not enrolled to join the scheme:

> *There is someone who has not registered and thinks that the government wants to eat people's money and so when they hear how many people are registered and it has helped them, he or she would want to join and be part of them. For some people seeing is believing IDI_C_Not_Active_01*

> *It is important because if you know [the performance], it also encourages others because you may think that you are alone or maybe the insurance is not real, but when you get to know that others are also registered, it encourages many more people to keep paying. IDI_B_Not_Active_02*

Performance reports on NHIF performance would attract different technical views and opinions to improve the running of NHIF. A policy maker pointed out that the viability of NHIF was in everyone's interest:

> *Everyone wants to make NHIF better because there is a lot at stake. If NHIF collapsed today, the entire health sector will collapse. Everyone's interest is to see NHIF succeed. KII_08*

Respondents recommended using physical meetings similar to annual general meetings to disseminate information on fund utilisation. This would also enable instant and direct feedback from citizens instead of sharing through the media. Other beneficiaries recommended using electronic media such as TV programs for a wider reach and be tailored for different audience.

> *Countrywide, the media teams should sit and explain to everyone, 'this year we have helped this number of Kenyans, and we had this amount of money. We are remaining with this amount in our kitty. IDI_A_Not_Active_01)*

Discussion

These results indicate that there was high awareness of NHIF but low knowledge on services, feedback and accountability mechanisms. Nearly two-thirds of the respondents were aware of NHIF but only a third said they were aware of the benefit package. None of the respondents interviewed could provide a full list of services covered by NHIF in the benefit package. Barely half of the insured were satisfied with the NHIF benefit package but were not aware of mechanisms to reach NHIF for feedback or complaints. Of those who were aware of the feedback mechanisms, the majority (57%) mentioned going to NHIF office to get assistance. Almost all were not aware of performance reporting mechanisms but most respondents expressed desire to know about the NHIF performance. Negative media reports on NHIF led to mistrust of the fund. Overall, NHIF stakeholder engagement was found to be inadequate and needing improvement.

Similar poor citizen engagement findings were reported in other studies conducted in LMICs, such as Nigeria and Mexico as well as high-income countries in Europe where there was lack of formal frameworks limiting citizen engagement in the design of the benefit package[22,28,104,130,267,281–284]. Political interference in NHIF policy formulation led to inadvertent bias against adequate citizen and other stakeholder engagement as has been found by other studies[22]. There is need for NHIF to establish formal mechanisms for incorporating citizen voice in its policy decisions.

Effective citizen engagement mechanisms in other countries utilize patient and population representation to incorporate citizen voice and participation in social health insurance[104]. The United Kingdom has used citizen juries and panels to involve the public and incorporate their preferences in setting priorities[104]. In Thailand, the Universal Health Coverage Scheme (UCS) conducts annual public gathering of beneficiaries and inform revisions in the benefit package[283]. The National Health Security Board (NHSB) overseeing the implementation of the UCS in Thailand is also required to have 14% citizen representation to add citizen voice in policy. Informal workers in Kenya lack representation in the current NHIF board and experts have advocated to include more citizen representation in the board[22][24]. Patient lobbying groups and civil society organizations also play a role in ensuring the citizen views are incorporated in NHIF policy[130].

There was lack of clarity among respondents about what services NHIF covers in its benefit package. The NHIF package was faulted for not being well defined and changing frequently leading to respondents having outdated information about NHIF. The package of health services offered in public health facilities is informed by the Kenyan Essential Package for Health (KEPH) for different levels for health system and differs from one level to another[130]. NHIF signed contracts with accredited facilities which outlined the services NHIF covered in these facilities however, NHIF members were not privy to this information[22]. In Ethiopia, the list of explicit services exempt from payment by community based health insurance are required to be posted at health facility charters[285]. Previous studies in Kenya reveal varied and inconsistent information regarding what was covered in the NHIF informal sector cover and this has posed a significant barrier to increasing uptake [12,28]. Evidence shows citizens are more likely to hold health insurance agencies accountable if the benefit package was well defined [286].

In ensuring access to their entitlements, we found that access was hindered by unavailability or poor health service delivery. Lack of drugs, supplies and reagents forced many individuals to spend money out of pocket outside the facilities. Other studies also documented these gaps and the effects on health insurance uptake[28]. Inability to guarantee the access to a promised benefit package leads to high defaults[12]. Unavailability of essential drugs and commodities in public facilities was blamed on poor health financing mechanisms in devolved systems that left the health sector underfunded [190]. NHIF clients are also discriminated in public health facilities because of late or non-reimbursement by NHIF as has been found by previous studies[28]. There is need for to improve health service provision at public facilities so as to guarantee access to the NHIF benefit package. NHIF also needs to strengthen their accountability to health providers by making timely payments to finance delivery of services at the facilities.

The role of client feedback in improving service quality is undervalued by NHIF. Majority of respondents were not aware of any feedback mechanisms they could use to channel complaints about NHIF services and providers' services. Complaints often followed long bureaucratic processes and were often unresolved. NHIF feedback mechanisms include filing complaints at their offices, calls and email as well as customer satisfaction surveys. Other studies have documented the weaknesses in these channels for offering redress[22,28]. Although suggestion boxes have been recommended in health facilities, their presence is meaningless if the management and the insurance agency do not prioritize and follow through the resolution of the complaints[130,267]. In Thailand Mexico and Philippines, the Universal Coverage Scheme operates a 24-hour call center and live chat services in their website to provide prompt responses to queries[283,287,288]. NHIF's call center lacks the capacity to handle large volume of calls. Robust case management systems to ensure resolutions are also missing[22]. To improve accountability to beneficiaries, NHIF should also set up clear formal complaint and feedback mechanisms including a well-staffed call center. Complaints raised about health providers should be adequately addressed as part of NHIF service monitoring to providers.

Our findings point to limited citizen engagement and gaps in NHIF accountability to its members. As Kenya moves towards UHC using NHIF as a vehicle, there is need to develop or adopt a consultative process and consideration of evidence in the benefit package design process. The Kenyan constitution of 2010 protects the rights of citizens to be participate in national policy formulation[185]. Participatory processes result in responsive policies with greater ownership[283]. In addition, empowerment leverages on information provided on the rights of beneficiaries. Inadequate access to information limits the ability of beneficiaries to advocate for their rights and also limits trust in NHIF. Our finding suggests that the NHIF processes could benefit from more transparency and participation of citizens to build trust in fund.

The strength of this paper is in the mixed methods approach to answering the question on the level of citizen engagement among informal workers. Triangulation of qualitative and quantitative data allowed for a more nuanced insight to the role of citizen engagement in growing coverage of health insurance. However, one construct of the framework used in analysis does not lend itself to quantitative inquiry and this study does not therefore present quantitative result on the level of citizen engagement in development of the benefit package. Another limitation is the choice of a rural study site limits the generalization of the findings

in urban areas with better access to information and health services. The study was also conducted in a site with ongoing NHIF sensitization efforts by AMPATH which may likely influence levels of NHIF awareness among the community.

From our findings, we make the following suggestions for improving citizen engagement and state accountability in NHIF coverage.

- NHIF should consider setting up community information hubs with NHIF agents available to provide information and respond to queries. Community hubs should be set up in other central areas to handle feedback and not necessarily at hospitals for people who don't like going to health facilities unless they are sick.
- NHIF information desks in health facilities should be empowered to provide information and manage client relations better.
- For campaigns in rural areas, NHIF should organize regular community events, ride on community dialogue days in the community to sensitize the community. Even though this was reported to be happening, the frequency and mobilization could be improved to attract more people. These events can be used to address knowledge gaps on NHIF, sensitize individuals on the benefit package and update information on the benefit package.
- Lastly, NHIF should also develop and implement a clear framework on stakeholder engagement.

Conclusion

There is high awareness of NHIF but low knowledge on services covered, feedback and accountability mechanisms. Limited access to information has led to low awareness and agency among NHIF members. This undermines their ability to advocate for their rightful access to health services. Rural populations were particularly disadvantaged in access to information and their entitlements because of limited access to communication channels used and the pro-urban distribution of health facilities. Lack of transparency on NHIF performance particularly led to mistrust in NHIF and has negative consequences on enrolment and growing NHIF coverage. There is an urgent need to prioritize strategies to strengthen NHIF accountability to members by increasing awareness on entitlements, adopting transparent management of NHIF and addressing structural barriers to quality healthcare provision.

8 PHD Paper 3

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Acceptability of prepayment, social solidarity and cross-subsidies in national health insurance: A mixed methods study in Western Kenya

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Abstract

Many low- and middle-income countries are attempting to finance healthcare through voluntary membership of insurance schemes. This study examined willingness to prepay for health care, social solidarity as well as the acceptability of subsidies for the poor as factors that determine enrolment in western Kenya.

Methods:

This study employed a sequential mixed method design. We conducted a cross-sectional household survey (n=1746), in-depth household interviews (n=36), 6 FGDs with community stakeholders and key informant interviews (n=11) with policy makers and implementers in a single county in western Kenya. Social solidarity was defined by willingness to make contributions that would benefit people who were sicker ("risk cross-subsidization") and poorer ("income cross-subsidization"). We also explored participants' preferences related to contribution cost structure – e.g., flat, proportional, progressive, and exemptions for the poor.

Results:

Our study found high willingness to prepay for healthcare among those without insurance (87.1%) with competing priorities, low incomes, poor access and quality of health services, lack of awareness of flexible payment options cited as barriers to enrolment. More than half of respondents expressed willingness to tolerate risk and income cross-subsidization suggesting strong social solidarity, which increased with socio-economic status (SES). Higher SES was also associated with preference for a proportional payment while lower SES with a progressive payment. Few participants, even the poor themselves, felt the poor should

be exempt from any payment, due to stigma (being accused of laziness) and fear of losing power in the process of receiving care (having the right to demand care)

Conclusion:

Although there was a high willingness to prepay for healthcare, numerous barriers hindered voluntary health insurance enrolment in Kenya. Our findings highlight the importance of fostering and leveraging existing social solidarity to move away from flat rate contributions to allow for fairer risk and income cross-subsidization. Finally, governments should invest in robust strategies to effectively identify subsidy beneficiaries.

INTRODUCTION

Many low- and middle-income countries (LMICs) struggle to provide adequate financial risk protection against high health care costs and are now experimenting with national social health insurance (SHI) schemes utilizing voluntary membership[2,13,39,44,250,289]. These types of SHI schemes face challenges expanding membership to informal workers who have low and fluctuating incomes but constitute a large proportion of the population in many LMICs[149]. The recommended path towards financial risk protection included prepayment and pooling systems where people pay before they are sick, by contributing to a pool from which they (and others contributing to the pool) can draw from in the event of sickness[2]. Taking up voluntary membership of an insurance scheme requires a willingness to prepay for healthcare, and willingness to have your financial contribution to the pool benefit others who were sicker ("risk cross-subsidization") and poorer ("income cross-subsidization") than you, otherwise referred to as social solidarity[16].

There is growing focus on the role of solidarity in promoting participation in public health programs globally[16,139–141]. Solidarity has been positively associated with participation in prepayment and growing financial risk pools in Europe, US and some sub-Saharan countries[15,16,122,139,141,157,158,290]. It is founded on and influenced by trust in the scheme, and in the health systems' ability to provide a promised benefit package[138,160,161]. Research into social solidarity can provide insight into the barriers to increasing participation in prepayment and pooling mechanisms in LMICs. In this paper, we explore the willingness to prepay and social solidarity among informal worker households in western Kenya as part of broader efforts to understand participation in SHI in similar LMIC settings.

Kenya's health sector is financed by a mix of methods with a significant contribution from private households in the form of out-of-pocket payments (OOP) (27% of the total health expenditure). Tax, donor funding, and health insurance account for 31%, 25%, 13% respectively [29]. Kenya has averaged less than 9% of its annual government budget allocation towards health in the 2014-2020 budgets[291], despite signing the Abuja Declaration, committing to a 15% allocation[292]. High poverty rates (almost 60% of the population live below the poverty line)[21] reduce the capacity to collect taxation and to expand SHI contributions [249]. Health insurance enrolment rates in Kenya are currently below 20%[256]. The result is an overreliance on out of pocket payment at the point of service.

The Kenyan government has prioritized universal health coverage (UHC) in its policy documents such as the 'BIG Four Agenda', Kenya's Vision 2030 and the national health policy[18]. The national UHC strategy intends to use the national insurer, NHIF, as a means to increase prepayment and pooling, and increase access to health care[21]. NHIF is a Kenyan government state corporation and the national social health insurer founded in 1966. It provides both mandatory membership to formal sector employees and voluntary membership to informal workers. Recent policy and legal reforms have aimed at strengthening NHIF's governance and increasing coverage especially among informal workers.

The Kenyan government has committed to gradually identifying and fully sponsoring the poorest households' NHIF membership[20]. These households are identified through a poverty list developed by the Ministry of Labour, Social Protection and Services and validated at community level to ensure the program benefits the poorest[21]. An impact evaluation of the health insurance subsidy program revealed challenges providing adequate coverage and

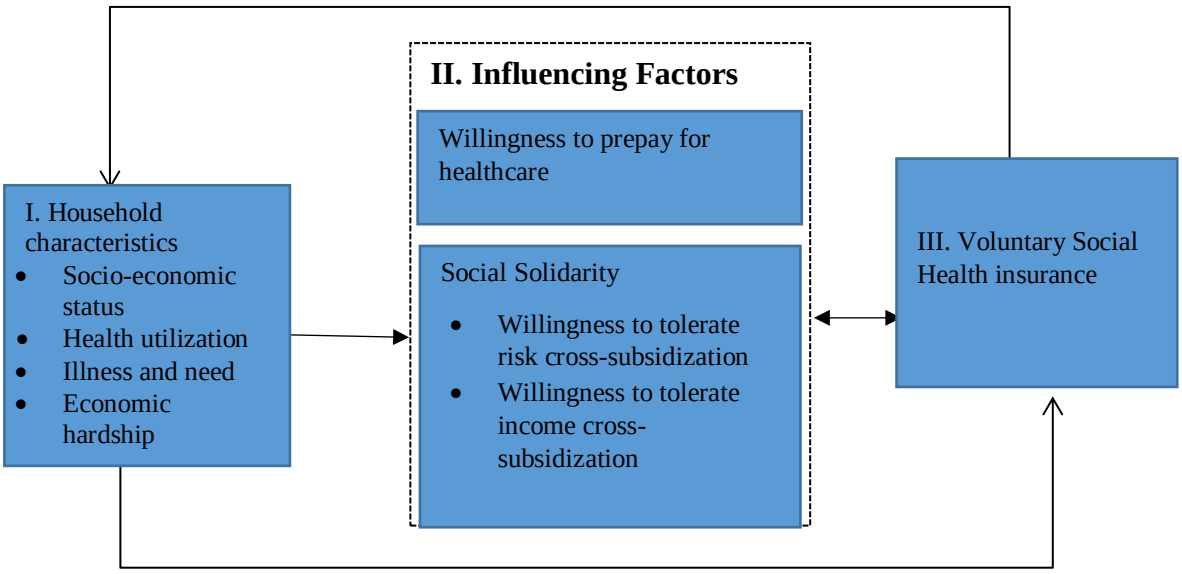
significant gaps in the inclusion of households. The program has been criticized for neither achieving desired financial risk protection nor increasing access to healthcare for poorer households.

Over 80% of the Kenyan workforce are informal workers[149], many running small businesses in the agricultural, food, crafts and transportation industries[293]. Those working in informal economy, defined as a 'parallel unregulated economy', are not subject to official labor laws"[293], making the levying of mandatory payments for health insurance on salaries impossible; as a result, health insurance payment, and membership, is voluntary. NHIF offers voluntary membership through a scheme known as supa+cover[35].

While voluntary health insurance offers an opportunity for the informal sector households to obtain the much-needed financial risk protection, the NHIF has however struggled to attract and retain new voluntary members [206]. In 2017, 73% of voluntary NHIF members did not renew their health insurance[29]. Low enrolment has slowed the growth of NHIF and threatens its viability. As Kenya attempts to increase health insurance coverage through NHIF, it is important to understand the population's willingness to participate in prepayment arrangements and their views on social solidarity [162].

For our study we developed a deductive conceptual framework (Figure 12) based on literature and the concepts we are focused on i.e. prepayment and tolerance of risk and income cross-subsidies. Household characteristics such as socioeconomic status, age, health and education influence views on willingness to prepay and social solidarity[15]. Social solidarity and household characteristics are in turn hypothesized to influence voluntary health insurance uptake[16,138]. This paper is part of a larger PhD study exploring the role of affordability and citizen empowerment and other determinants on health insurance enrolment, the findings of which will be reported elsewhere.

Figure 12: Conceptual Framework on willingness to prepay, social solidarity and health insurance



METHODS

Design

This was a mixed methods study with sequential qualitative and quantitative primary data collection [254]. The study was part of a broader cross-sectional baseline household survey conducted by Academic Model Providing Access to Health care (AMPATH) between August and September 2021.

Study site

The study was conducted in Bunyala sub-county, in Busia county, located on the western border with Uganda. Poverty levels are among the highest in the country with poor health indicators and low health insurance enrolment[242] [245].

Study participants

We interviewed household respondents (>18 years) with adequate knowledge on households spending and healthcare utilization (Table 18)[248]. Households were selected from an existing program database containing all households in Bunyala sub-County. The 6 locations in Bunyala sub-county formed the stratum for household sampling. A household list was prepared from the database and was used to randomly select households to participate in the survey under each stratum(n=1,746). We asked all respondents whether they would be willing to participate in a subsequent qualitative interview

For the in-depth interviews, we identified households who had participated in the quantitative phase, had been able to provide health care utilization and expenditure data, and had said they were willing to participate in a second interview. From this group, for each of the 6 administrative locations in the study site, we purposively selected two households from each of the following two groups: a) currently enrolled in NHIF, b) previously enrolled in NHIF, and c) never been enrolled in NHIF.

For the FGDs, we purposively recruited 6-8 community stakeholders. These were mostly community opinion leaders, local administration, CSO members, community health volunteers (CHVs), ward administrators, youth representatives, teachers and religious leaders identified based on their active advocacy on health insurance related issues. We conducted 6 FGDs, one in each of the 6 sub-location with a total of 49 participants (30 males and 19 females). Key informant interview participants were also selected purposively from policymakers and implementers at facility, sub-county, county and national levels through snowballing methods (n=11).

Table 18 Data collection method and study participants

Interview method	Number of interviews	Participants
Household questionnaire	1,746	Household respondents (>18 years)
Household in depth interviews	36	Household respondents (>18 years)
Focus group discussions	6 groups with a total of 49 participants(30 male and 19 female)	Community stakeholders/representatives
Key informant interviews with policy makers and implementers	11	Sub-County, County and National policy makers and implementers

Data collection

Quantitative

Trained interviewers collected the survey data using a structured questionnaire. With the help of local administration, data collectors with experience in national survey data collection were identified locally. The interviewers were trained on the use of tablet-based questionnaires and on the baseline survey concepts, procedures and guidelines [151][15]. Interviewers were paired with CHVs whose roles were to navigate the area and introduce the interviewers to the households. Interviews were confidential and CHVs did not take part in the interviewing session.

The survey collected household information on household size, education level, health insurance status, health status, marital status, income level, household spending and healthcare utilization, health status, common illness, willingness to cross-subsidize and prepay for healthcare. Questions on social solidarity that were included in the questionnaire are adapted from the surveys previously carried out in Ghana, Tanzania and South Africa where they used show cards to assess income cross-subsidization and asked question on prepayment and social solidarity[15]. Data collection tools were pretested in piloted and modifications made to address problems and potential errors. Potential challenges with the local interpretation of the show card led to some adjustments to fit the study setting context. In addition, we mitigated the effects of social desirability bias by triangulating data collection techniques to validate essential variables, using trained and skilled interviewers, and pilot-testing the tools. Survey data collection was conducted between August and October 2021.

Qualitative

All interviews were conducted in person with KIIs with policymakers taking place in the respondent's choice of location, household interviews in respondent homesteads while FGDs were conducted at the nearest health facilities or community space. The researcher (BM) conducted interviews with the policymakers and facilitated half the FGDs. The rest of the

interviews were facilitated by 3 trained research assistant. We explored respondents' views on social solidarity through semi-structured qualitative interviews using interview guides. BM, JG and AK held debriefing sessions after a batch of interviews to identify areas of improvement in the exercise. KIIs and household IDI interviews took an average of 30-40 minutes while the FDGs were between 2-2.5 hours. We conducted qualitative interviews between August and October 2021

Assessing willingness to prepay, social solidarity

We measured willingness to prepay among the respondents by asking whether they would agree to pay a small amount each month so that if they got sick, health care will be free. To measure social solidarity, we assessed the respondent's tolerance of income and risk cross-subsidization, we asked whether they would be willing to contribute the same amount of money each month as everyone else, even though others who are more poor or sick than them will use the services more. This question was related to cross-subsidization that happens in financial risk pools.

To assess the determine their preference for different relative contributions that offers desired cross-subsidization, we presented household respondents with four healthcare contribution options in the form of pictorial diagrams (show cards) with housing type as the form as measure of socio-economic status (SES) (Figure 13). The four option were (1) everyone pays the same amount (flat contribution); (2) everyone must pay according to their income (proportional contributions e.g. everybody pays 5% of their income irrespective of their income level); (3) all must pay something, but the poorest pay very little (all pay progressive contributions, where the percentage increases with income); (4) progressive contributions but the poor do not pay. Respondents were then asked to select one that resonated with their belief of how healthcare contributions should be made.

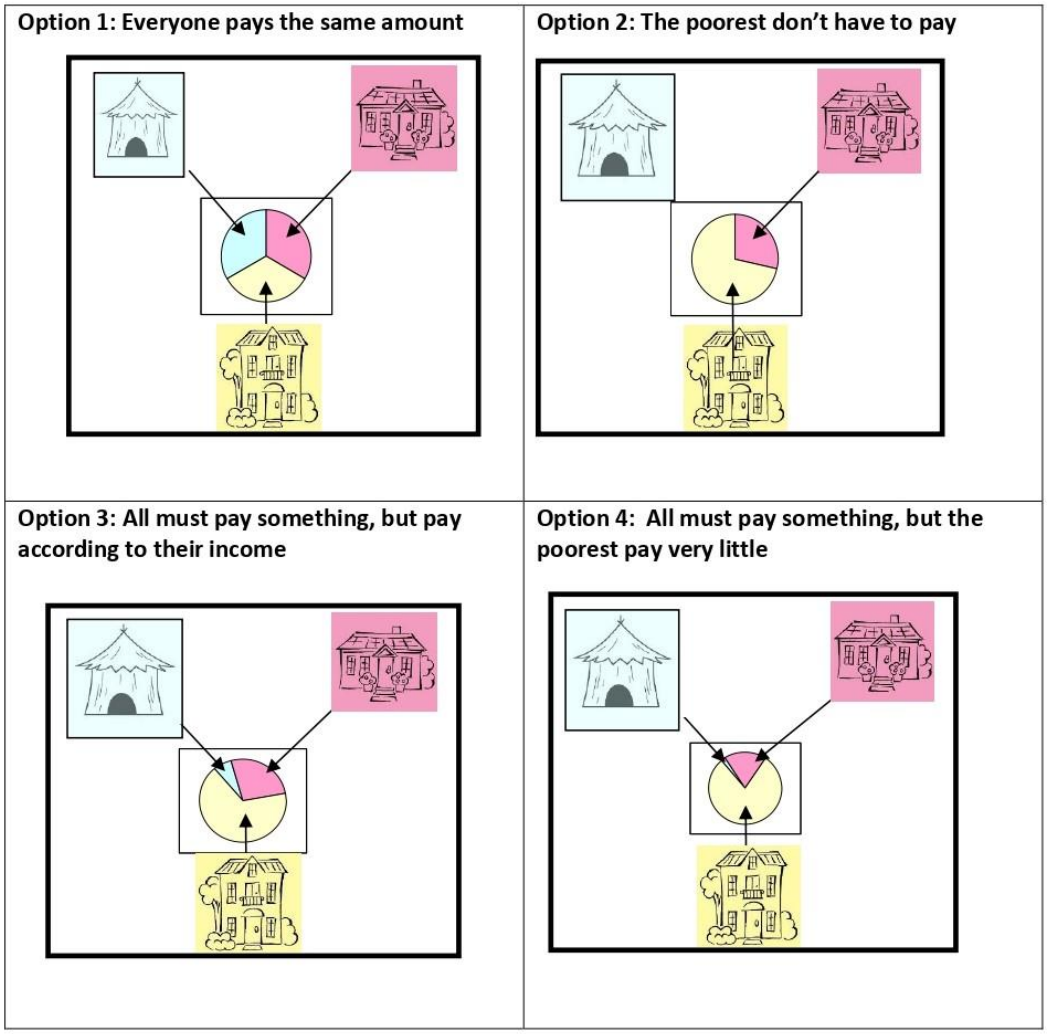


Figure 13: Show cards used in the study to determine preference of payment method adapted from Goudge et. al 2012.

Analysis

In the quantitative analysis**,** we first conducted descriptive analysis to examine willingness to prepay, and tolerate income and risk cross-subsidization by the socio-demographic factors identified in literature[15]. Secondly, we used bivariate logistic regression to examine the influence of population characteristics on the three outcomes of interest -willingness to prepay, and tolerate income and risk cross-subsidization. Odds ratio (OR) and corresponding confidence intervals were used to report the strength of influence of the sociodemographic factors on the 3 outcomes. The analysis was presented at 95% significance level at $\alpha = 0.05$. The analyses set the reference group for OR (odds ratio) as 1.0. Data analysis was done using R and relevant R packages.

The audio recordings from the IDIs with household heads, KIIs with policymakers and implementers, and FGDs were transcribed manually using Microsoft word and compared against their respective audio files for accuracy. Qualitative data was analyzed manually using a thematic framework analysis approach[257]. BM read through the transcripts to familiarize with the data first. Second BM, JG and AK began identifying key ideas and

phrases from a few sampled transcripts and developing labels or codes. Once the team agreed on the labels or codes, BM went ahead and applied them to subsequent transcripts. A mind map was then used to categorize the codes based on the study objective and conceptual framework. The main categories were social solidarity and pooling, willingness to prepay, barriers to prepayment and views on preference of payment approaches. In an iterative process, we drew relationships between the categories to identify and refine themes. Lastly, we interpreted the results and presented them under each theme and included supportive quotes from the interviews.

Ethical consideration

Ethical approval was obtained from University of Witwatersrand (Certificate no. M210216) and the Moi University/Moi Teaching and Referral Hospital Institutional Research Ethics Committee (IREC)-(No. 0003935), before beginning the study. Additional approval was obtained from the National Commission for Science Technology and innovation (NACOSTI-P/21/12262) and Busia County Health Department. Written informed consent were also obtained from participants willing to participate in the study.

RESULTS

Household survey findings

Willingness to prepay

Nearly all the respondents expressed willingness to prepay for their healthcare costs (88%) (Table 2). Respondents expressing willingness to prepay were 4.09 times likely to be aged 25-40 compared to those above 65 years. Higher likelihood of expressing willingness to prepay was recorded among respondents those who had attended school(OR2.82), those of higher SES (OR 4.07 and 3.12 for Q4 and Q5), and those with health insurance (OR 3.45). Interestingly, 87.1% of the respondents without health insurance expressed willingness to prepay. Also unexpectedly, lower likelihood of expressing willingness to prepay was recorded among respondents with chronic illness (OR 0.64). Lower likelihood was also reported among informal workers (OR 0.4). All these associations were statistically significant.

Social Solidarity-Tolerance of income and risk cross subsidization

Just over half of the sample (54.9%) were in favor of income cross-subsidies(IC) (Table 19) while nearly two thirds of the respondents (60.7%) were willing to tolerate risk cross-subsidization(RC). A higher likelihood of tolerating both income and risk cross-subsidies was expressed by the male respondents (IC: OR 1.4 and RC: 1.37). Higher likelihood of expressing tolerance for cross-subsidization was recorded among respondents those who had attended school (IC: OR 1.5, RC:1.77), those of higher SES (IC: OR 2.19 and RC 2.03 for Q5) and those with health insurance (IC: OR 2.03 and RC: 2.76). All these associations were statistically significant. Seemingly, tolerance of cross-subsidization increased with wealth. Lower likelihood was also reported among informal workers (OR 0.4) compared to those in formal employment and the divorced (OR 0.91, 0.84) compared to the married. Only 67.2% of those with health insurance were willing to cross-subsidize those who are poorer than themselves indicating a poor understanding of insurance.

Table 19 Willingness to prepay and tolerance of risk cross-subsidies among the respondents

			Willingness to prepay[2]			Income cross-subsidies3				Risk cross-subsidies[4]			
Characteristic		%(n)	OR[1]	95% CI[1]	p-value	%(n)	OR[1]	95% CI[1]	p-value	%(n)	OR[1]	95% CI[1]	p-value
Age	18-24	90.7 (714)	2.65	(1.43, 5.31)	0.003	55.4(439)	0.91	(0.57, 1.44)	0.7	61.1 (483)	0.86	0.54, 1.37	0.5
	25-44	91.4 (551)	4.09	(2.94, 5.73)	<0.001	57.5(347)	1.3	(1.01, 1.68)	0.039	65.0 (392)	1.51	1.17, 1.94	0.002
	45-64	73.5 (202)	3.89	(2.75, 5.54)	<0.001	49.5 (136)	1.47	(1.13, 1.91)	0.004	52.4 (144)	1.79	1.37, 2.34	<0.001
	>64	85.2 (69)	—			45.7 (37)	—			49.4 (40)	—	—	
Sex	Female	63.0(967)	—			52.3 (581)	—			58.2 (647)	—	—	
	Male	89.6(569)	1.1	(0.83, 1.46)	0.5	59.5 (378)	1.4	(1.16, 1.69)	<0.001	64.9 (412)	1.37	1.13, 1.66	0.001
Marital status	Divorced/separated	90.5 (134)	—			54.1(80)	—			60.8(90)	—	—	
	Married/ living together	90.4(989)	0.87	(0.47, 1.50)	0.6	56.1(614)	1.12	(0.79, 1.58)	0.5	61.9(677)	1.06	0.75, 1.50	0.7
	Never married/ never lived together	78.3(90)	0.45	(0.22, 0.90)	0.026	54.8(63)	1.32	(0.82, 2.13)	0.2	60(69)	1.22	0.75, 1.99	0.4
	Widowed	83.0(323)	0.49	(0.26, 0.88)	0.022	51.9(202)	0.91	(0.63, 1.33)	0.6	57.3(223)	0.84	0.57, 1.23	0.4
Ever attended school	No	79.7 (278)	—			49.0(171)	—			52.1(182)	—	—	
	Yes	90.1(1,258)	2.82	(2.12, 3.75)	<0.001	61.9(788)	1.5	(1.20, 1.88)	<0.001	99.6(877)	1.77	1.42, 2.22	<0.001
Occupation	Formal employment	95.3 (41)	—			76.7(33)	—			81.4(35	—	—	
	Homemakers(Stay at home)	83.5(232)	0.19	(0.03, 0.62)	0.022	46.4(129)	0.26	(0.12, 0.52)	<0.001	53.6(149	0.25	0.10, 0.52	<0.001
	Students	57.1(4)	0.06	(0.01, 0.46)	0.008	57.1(4)	0.37	(0.07, 2.13)	0.2	42.9(3)	0.16	0.03, 0.84	0.031
	Unemployed/Seeking work	78.5(84)	0.17	(0.03, 0.60)	0.018	54.2(58)	0.33	(0.14, 0.71)	0.006	59.8(64)	0.33	0.13, 0.73	0.01
	Working in informal employment (e.g. farmers, artisans, juakali, business e.t.c)	89.8(1,167)	0.4	(0.06, 1.30)	0.2	56.2(731)	0.37	(0.17, 0.72)	0.006	61.7(802)	0.35	0.15, 0.71	0.007
	Others (Specify)	72.7(8)	0.12	(0.01, 0.84)	0.033	36.4(4)	0.16	(0.04, 0.63)	0.011	54.5(6)	0.25	0.06, 1.06	0.056

Have health insurance	No	87.1 (1,345)	—			53.3(824)	—			58.5(904)	—	—	
	Yes	95.0(191)	3.45	(1.90, 7.06)	<0.001	67.2%(135)	2.03	(1.51, 2.76)	<0.001	77.1%(155)	2.76	1.99, 3.91	<0.001
Wealth quintile	Q1	79.5(276)	—			46.4(161)	—			52.7(183)	—	—	
	Q2	85.1(298)	1.67	(1.16, 2.42)	0.006	56.9(199)	1.74	(1.31, 2.30)	<0.001	60.9(213)	1.54	1.16, 2.05	0.003
	Q3	90.9(311)	2.37	(1.58, 3.62)	<0.001	51.5(176)	1.25	(0.94, 1.67)	0.12	56.4(193)	1.17	0.88, 1.57	0.3
	Q4	92.9(326)	4.07	(2.58, 6.63)	<0.001	53.8(189)	1.47	(1.11, 1.95)	0.007	63.2(222)	1.66	1.25, 2.22	<0.001
	Q5	91.3(325)	3.12	(2.03, 4.90)	<0.001	65.7(234)	2.19	(1.64, 2.94)	<0.001	69.7(248)	2.03	1.52, 2.74	<0.001
Member financial group chama	No	86.0(928)	—			52.5(566)	—			58.5(631)	—	—	
	Yes	91.2(608)	1.84	(1.37, 2.51)	<0.001	58.9 (393)	1.16	(0.97, 1.40)	0.11	64.2(428)	1.16	0.96, 1.40	0.13
Admitted last 12m	No	88.0(1,435)	—			54.9(895)	—			60.3(983)	—	—	
	Yes	87.8(101)	0.93	(0.56, 1.63)	0.8	55.7(64)	1.06	(0.74, 1.54)	0.7	66.1(76)	1.3	0.89, 1.92	0.2
Chronic ailment	No	89.9(842)	—			53.3(499)	—			60.0(562)	—	—	
	Yes	85.5(694)	0.64	(0.49, 0.83)	0.001	56.9(460)	1.11	(0.93, 1.33)	0.3	61.4(497)	1.01	0.84, 1.22	0.9
		88.0(1,536)				54.9(959)				60.7(1,059)			

[1]OR = Odds Ratio, CI = Confidence Interval

[1] I would agree to pay a small amount each month so that if I get sick, health care will be free, even if I am not sick now

[2] I would be willing to pay the same amount of money each month as everyone else, even though others who are more sick than I am will use the services more than me

[3] I would be willing to willingness to pay the same amount of money each month as everyone else, even though others who are more poor than I am will use the services more than me

Preferences for different relative contributions

Nearly half of the respondents (41.2%) were in favor of a progressive payment while only 4.9% of the respondents believed that everyone should pay the same amount (Table 20). The most popular options among the wealthy were the proportional payment (38.8%) and the progressive where the poor don't pay at all (23.1%). Surprisingly, among the poorest, progressive payments was the most popular option (54.2%) with option where the poor don't pay being much less popular (17.6%).

Table 20 Payment Preference and wealth quintiles of the respondents

Wealth quintiles	**Progressive but the poor don't pay n = 399 %(n)**	**Progressive n = 720 %(n)**	**Proportional n = 541 %(n)**	**Same flat amount n= 86 %(n)**	**p-value[1]**
Q1 (Poorest)	17.6 (61)	54.2 (188)	19.9 (69)	8.4(29)	
Q2	26.0 (91)	41.4 (145)	27.7 (97)	4.9 (17)	
Q3	22.5 (77)	43.9 (150)	30.7 (105)	2.9 (10)	<0.001
Q4	22.2 (78)	36.5 (128)	37.6 (132)	3.7 (13)	
Q5 (wealthiest)	25.8 (92)	30.6 (109)	38.8 (138)	8 (17)	
Total (%)	22.9 (399)	41.2(720)	31.0 (541)	4.9 (86)	

Qualitative findings

Willingness to prepay and understanding of pooling

Respondents expressed a preference to make small regular contribution in advance to access free healthcare when they needed it. One of the perceived benefits of prepayment observed by participants is that it helped people access care without delays: "*Sometimes one is in a critical condition and the treatment is required urgent. At that point, there is no time to sit down as a community and fundraise and fundraise. That can take time." (FGD F* R4). Most of the respondents cited the rising cost of treatment as well as higher incidence and unpredictability of illness as the main reason to prepay: *"It is easier to put money in a pot every month, so you can get free services when you need it, than you pay when you are sick. Diseases come when there is no money. (FGD C R2).*

Despite the recognized importance of prepayment, many households were not enrolled into any health insurance scheme and paid for their healthcare at the point of service. Lack of awareness of available insurance mechanisms was cited as the reason for not enrolling. Community representatives and policy makers also noted that majority of the population comprised of low-income earners with many competing priorities and healthcare did not rank top of the priorities especially for the youth: "*We are all different and all have different priorities on how to spend our income. You can't pay for insurance and yet you do not have food." (FGD F* R4) Respondents expressed the desire to make smaller and flexible contributions towards premiums.

Trust

Trust in the health system was repeatedly mentioned by in the interviews. Reliability and quality of services was a key consideration for making decisions to enrol for insurance. Respondents expressed mistrust in the health care delivery system citing negative attitude and discrimination against the poor. There were complaints of unfair treatment and unreliable services often discouraging prepayment or causing many to default from making regular contributions: '*There are people with diabetes and blood pressure who are always contributing for health insurance but when they get unwell and come here for service, there are no drugs. Will they continue to contribute? They will decide they would rather give cash and get services.'* (*FGD F* R4) Geographical distribution of health facilities was also a concern. Participants felt that the pro-urban distribution of health facilities and the quality of services favoured the urban dwellers and discouraged enrolment of rural populations.

Social solidarity and risk and income related contributions

The sense of community was central to cultural identity and individuals felt bound together by this understanding: "Within the African set up especially, we really tend to identify ourselves with our neighbours and our relatives. In as much as we will want to think about ourselves, most of the things we do in society usually involves others." (KII_033) Harambees (fund raisings) were the commonest form of solidarity often relied on for both financial and social security in times of need: "Even in common culture, fundraisings are part of our culture to raise money when people are unwell or sick. I think there is a common thread running through that people do support each other." (KII_09) However, respondents observed weakening ties evidenced by declining participation in fundraisings: "Actually when I look at the society now, it is like the issue of harambee is becoming very unpopular. There were years you used to call a harambee, and you would see a crowd. Nowadays you don't see that. Maybe people are fatigued, and they have better ways of dealing with their issues." (KII_11)

For many of the respondents, the health of the family formed the priority, with some participants expressing unwillingness to contribute to healthcare costs of people beyond their immediate family. "*If we said that we will pay for insurance that will cover the neighbours, we will have lied to ourselves" (FGD F* R6*).* Feelings of mistrust were expressed between members of the community with regards to their willingness to support others. Even when people declared good intent, they did not always honour them: *"Many times we hear someone saying at a burial, "These children belong to my brother. I will do this and this for them" but they never do it. When they leave, they are gone completely."* (FGD F R2).

Tolerance for risk and income cross-subsidization varied across the respondents. Some respondents expressed regard for the plight of others in the community especially those who were sicker revealing a higher to tolerance of risk cross-subsidization: *"Maybe you are the kind who is blessed and you never get sick, yet you have a neighbour who is always sick; if you helped in this case, isn't that a good thing?"* (FGD F R1). Income cross-subsidization received relatively less support. The idea that contributions could benefit those who were poorer was viewed as burdensome by some respondents: *"If we say we carry each other on the back, we will not be helping each other. It is good for everyone to be self-reliant (FGD C R6).* Respondents expressed particularly higher distrust towards the rich who were otherwise viewed as having acquired their wealth by exploiting the poor. These were followed by concerns that they would not agree to cross-subsidize the poorer because of their "cruel" nature.

Policy makers expressed concern that there was limited awareness and understanding of how insurance pools and often, when people contribute to insurance, they are not aware of the cross-subsidization element: *"When they pay premiums, they won't really be thinking that it would pay for someone else, and they might actually be displeased to know that it happens in practice." (KII_09)* A representative of NHIF further elaborates on an expectation that the pool should cover all medical cost revealing a lack of awareness on their entitlements and services covered in the benefit package. "*When most people contribute, they think we bank for them. When one has an accident and doesn't get approval for the surgery, they will ask, "Why? I have been being contributing all this time and I have not used this money. Who has been using it?" (KII_02)* There was need to sensitize the community on existing prepayment and pooling mechanisms as well as the benefit package to increase participation*:* "*Once people understand the importance of having a pool of resources to benefit the entire community, then it becomes cheaper for everybody." (KII_04).*

Preferences for different relative contributions

The flat payment method option was the least preferred approach because it allowed the least level of cross-subsidization and denied access to the poor. This option used by NHIF was the main reason many people didn't renew their membership: *"Today I may get Ksh 1,000 or Ksh 500 for this whole month; will I go to pay NHIF and my kids to sleep hungry? Of course not! So, I skip paying for that month. Once two months pass, I will become demotivated." (FGD D R3*). Respondents felt that it was not fair to impose equal contributions across people of different socio-economic status: "*You see not everyone is equal because what you earn is not same as what I earn, so we cannot pay the same." (IDI_A_Never_01).* However, others objected to contributions based on ability to pay because the same principle was not applied outside the health sector: "*If you go to shops, they haven't differentiated the price of items for the rich and the poor. If our wish is to be treated the same, I am for the opinion that the rates to be the same." (FGD B_R4)* Some participants believed that contributions be based on need not income but others believed that all should pay the same amount since sickness affected both the rich and the poor.

Should the poor pay?

The idea of exempting the poor elicited mixed views. Most of the community respondents feared that exempting the poor from making contributions would create dependency or condone laziness. Ensuring everyone contributed enforced a culture of hard work and eliminated the culture of receiving handouts: *"Free things bring laziness. People don't see a reason to work. They can be subsidized but it should not be completely free." (FGD D R4).* Some said that contributing promoted a sense of ownership, arguing that it would give everyone, and especially the poor, the right to demand for quality services. There was a recognition that healthcare was expensive, and respondents held the view that it was important to mobilize contributions from everyone as one policy maker stated*: "You know financing health is very expensive. If we say we will pay for the poor, we may not sustain it." (KII_01)* Respondents also argued that the poor placed a higher burden on the health system because they were a majority and often sicker, and therefore had to contribute.

In contrast, respondents who identified themselves as poor especially expressed the desire to be exempted and felt that the rich needed to contribute more in order to cross-subsidise the poor: *"I'd like them to pay for me, because if you tell me to pay from my income, I could not*

afford it." (IDI_F_Never_01). A few respondents felt that the poor could not afford to pay for healthcare and should be exempted from contributing and therefore supported subsidizing the poor. However, government processes to determine subsidy recipients were often not transparent. Respondents expressed mistrust in the government institutions' ability to objectively determine who to exempt*: "We see that we have government cash transfers. It has left out those people who have no means. And it has enrolled other people. Those with connections benefit while those people who have no means are left out." (FGD D R1)*

DISCUSSION

Our study revealed that there was a high willingness to prepay for health care among those without insurance but competing priorities, low incomes, poor access and quality of health services, lack of awareness of flexible payment options were cited as barriers to enrolment. While more than just over half of the respondents expressed willingness to tolerate risk and income cross-subsidization, suggesting a strong sense of social solidarity, that increases with socio-economic status. However, the wealthy were more in favour of a proportional payment, and the poor, a progressive payment, although there seemed to be limited understanding of the importance of pooling funds. Despite many reporting they could not afford to pay the membership fee, only less than one fifth of the poor (17.1%) felt the poor should be exempt. This may be due to stigma (being accused of laziness) and fear of losing power in the process of receiving care (having the right to demand care). Our findings suggest the concept of social solidarity was consistent with the historical African culture of standing with one another but over time the level of social solidarity was observed to be diminishing.

Our findings on social solidarity reveal a higher willingness to tolerate risk cross-subsidization compared to income cross-subsidization and was observed across each wealth quintile. This demonstrates a higher consideration for the sick than for the poor. The observed difference may also be indicative of the population's low tolerance of income cross-subsidies as poverty is perhaps thought to be a result of an individual's efforts. Indeed, some participants felt that contributing to healthcare cost of others was burdensome, unrealistic and the reluctance to contribute was justified by the need to promote self-reliance among the poor. These findings could explain rising opposition to attempts in Kenya to revise premiums for formal sector workers in order to cross-subsidize the poor. Such proposals were met with significant opposition by labour unions who preferred not to bear the responsibility of the poor[175]. Similar views and opposition to policy reforms favouring the poor were recorded in a study in other LMIC settings and were found to limit social solidarity[294][171]. The objective of pooling prepaid contributions is to redistribute financial risk associated with healthcare among members of the society and therefore solidarity and support for risk income and risk cross-subsidization provide a conducive environment for pooling in the context of voluntary enrolment into health insurance [15,160,206,295].

Willingness to tolerate cross-subsidization increased with an increase in wealth and education implying a better understanding of pooling principles among the educated and those in higher SES groups. For example, likelihood of expressing willingness to tolerate income and risk cross-subsidization was higher among the highest quintile(richest) than the lowest quintile (poorest). Sixty-nine percent of respondents in the highest quintile(richest) expressed support for risk cross-subsidization compared to 52.7% of the lowest quintile(poorest). These findings are consistent to the results of the SHIELD Study in south Africa where greater support for risk cross-subsidization was reported among the higher income groups (65%)

compared to the lower income groups (48%)[15]. It is plausible that willingness to cross-subsidize was corresponded with the ability of the individuals to contribute and therefore lesser ability to contribute led to less willingness to cross-subsidize.

Kenyans have long been pooling their money to protect themselves against the financial risks arising from high medical expenses. The culture of fundraising, commonly referred to as 'harambees' is a common form of solidarity and dates back to African cultural construct where solidarity among community and family formed part of individual identity. Similar findings are documented in other studies in South Africa where the African Ubuntu philosophy promoted communal relationships and mutual consideration for others[21]. Despite operating on similar principles of contribution and pooling, the culture of raising funds through harambees seems more acceptable than health insurance. This could be explained by the fact that harambees, tend to happen among smaller social networks where the beneficiaries are identifiable and do not require long term financial commitment. Achieving the same level of solidarity among a much wider, diverse population nationwide, for social health insurance is harder. However, despite the popularity and reliance on harambees as an informal financial security, our findings reveal concerns that the tradition of fundraisings was declining due to modernization and socioeconomic changes. With the weakening of social ties and hard economic times globally, this form of solidarity can no longer be relied on to provide pooling and financial protection as it historically did, warranting the expansion of enrolment into health insurance[138]. Higher levels of cross-subsidization can be achieved with nationwide pooling systems like health insurance compared the cross-subsidization of a small group of poor rural people sharing their limited resources. Nationwide pooling draws the rural poor into the same pool as the wealthier urban population.

Our findings show that poverty is a significant barrier to increasing prepayment through health insurance. Despite a high willingness to prepay for healthcare, and the willingness to cross subsidize, the ability to pay for health insurance was a significant barrier to participation in schemes. This is evidenced by results from the recent Kenya Household Health Expenditure and Utilization Survey (KHHEUS) 2018 where 42% health insurance enrolment was reported among higher wealth quantiles while only 2.9% of the lowest wealth quantiles have insurance[206]. Efforts to increase participation in health insurance schemes need to ensure the poorest are supported to access insurance through subsidy programs. Our study participants expressed concerns and fears of discriminatory treatment against the poor and the skewed distribution of resources, information and health facilities in favour of the wealthier populations. Health facilities were believed to discriminate against people of lower SES, offering them substandard care. Participants demanded equitable access and treatment across SES as a condition to enrol in prepayment schemes. Indeed, previous studies reveal that people of higher SES experience better healthcare than middle and lower SES[141,296].

Our study also revealed the difficulty of exempting the poor from making contributions because of the difficulties of determining income levels among informal workers. Recent global and national UHC policy reforms are anchored on the need to prioritize the needs of the poorest and vulnerable in order to achieve truly 'universal' coverage[9]. This raises a pertinent question on the best way to determine SES to exempt the poor. Programs meant to benefit the poor have often failed to have the desired impact because of reported errors in inclusion inaccuracies [36,296–298]. The difficulties in measuring poverty among informal workers is a major interest in many program areas[299]. The poor constitute a large proportion

of the population in LMICs. According to the recent national household survey on, it is estimated that about 60% of Kenyans live below the poverty line making the issue of poverty especially important [21]. Respondents in our study expressed concerns that the poor placed a high burden on the country's health sector. There were also concerns about exempting the poor from making payment promoted laziness. This implies a reluctance to cross-subsidize the poor.

Various dimensions of trust were found to contribute to willingness to prepay and level of social solidarity as revealed by our study findings. These dimensions include trust in the public health system, trust among scheme members and trust in the government institutions to objectively target vulnerable households to benefit from insurance subsidy program. Respondents based decisions to participate in prepayment schemes on perceived trust in the health system. They expressed mistrust in the formal public health system citing unreliability of services, poor services offered in facilities, negative staff attitudes, discrimination of the poor in healthcare delivery and pro-urban distribution of facilities. These views are validated by findings of previous studies that found that trust in the health system influenced participation in insurance schemes[122,138,161]. Perceived mistrust of government systems used in means testing to exempt the poor from contributing had failed in other programs. This is confirmed by other studies that found that 65% of the national health insurance subsidy recipients meant for the poor belonged to wealthier quintiles[296]. This is indicative of a targeting challenge that had led to mistrust of government systems used to establish vulnerability among community members-a common problem in many LMICs. Similar targeting challenges are reported in Ghana's National Health Insurance Scheme (NHIS)[15,300]. Efforts to increase coverage must therefore be accompanied by strategies to address trust and reliability of health services and systems.

Recommendations for policy

Our findings have a number of policy implications in Kenya and similar LMIC settings. First, social health insurance schemes have the opportunity to foster and leverage existing solidarity to increase participation in health insurance programs. Solidarity in insurance can be strengthened by ensuring better understanding of the concept of risk pooling. For instance, messaging about NHIF should deliberately frame the scheme as a central pot that all members benefit from and the premium contributions to the risk pool as individual contributions to the good of the community.

Second, trust in the health system and NHIF should be strengthened through improving communication and relationships between the community, healthcare providers, and NHIF. Citizen involvement and engagement is a key element in building trust. Policies that facilitate community engagement should be adopted and forums for citizen engagement by NHIF and the ministries of health should be established. To curb the low awareness on prepayment that persists, NHIF should focus efforts in creating awareness on NHIF processes, and health services covered by NHIF. There is also need for continuous monitoring of service delivery by NHIF accredited providers to improve quality of services. Lastly, there is need to build trust and transparency in the identification of beneficiaries for national social assistance programs including the national health insurance subsidy program. An important step to this is community verification of vulnerability as part of the identification process.

Limitation of the study

A key limitation of previous inquiries into the subject of social solidarity in health insurance is that they have been mostly quantitative and therefore did not describe the respondents reasoning underlying their responses on social solidarity. The mixed method study approach assumed in our paper attempts to bridge this limitation. This study took part in a small geographical area made up of a relatively ethnically homogenous population that is predominantly poor and should be interpreted with this consideration in mind. The results of our study can be generalized to other rural areas with low SES and informal workers. Further researcher would be required among urban population and among individuals of higher SES. We also acknowledge that other health economics methods have been used to explore willingness to pay. The goal of our paper was to get a broad understating on the risk and income distribution preference in the society. We did not take the willingness to pay approach on willingness to prepay and tolerance of cross-subsidization because we wanted to focus respondents' acceptance of the principle of prepayment and pooling. This is an important consideration for insurance coverage and presents preliminary work that further research can build off.

We therefore caution that these proportions may not translate to decisions to prepay for healthcare as they may be influenced by hypothetical bias. Hypothetical bias occurs when participants overstate hypothetical preference different from actual preference. Despite our best efforts to minimize their effect, social desirability and hypothetical bias may have led respondents to overstate willingness to prepay or cross-subsidize. Nonetheless we believe, our study is a novel exploration into the social solidarity, prepayment of healthcare and health insurance among informal workers. We presented findings that help us understand the role of health insurance related factors in determining health insurance enrolment. Further research is needed to the role of social solidarity on health insurance enrolment.

Conclusion

This paper assessed the level of social solidarity and willingness to prepay as a key consideration in gaining broader understanding of participation in social health insurance programs. We explored how individual socio-economic and health status influenced their views on willingness to prepay and social solidarity. Although there is a high willingness to prepay for healthcare, low incomes, inadequate awareness of prepayment mechanisms and poor service delivery at health facilities hinder voluntary enrolment into existing SHI schemes. Efforts to increase awareness would need to be coupled with similar efforts to improve health service delivery so as to build trust in the formal health system. Our findings suggest the importance of fostering and leveraging existing social solidarity to increase health insurance enrolment. NHIF can leverage existing solidarity and willingness to prepay for healthcare to increase enrolment into health insurance. However, there is an urgent need to revise payment approaches away from flat rate contributions currently employed in Kenya for the informal sector to allow for adequate risk and income cross-subsidization. Finally, the government should consider revising or ensuring proper implementation of targeting policies to ensure subsidy programs benefit intended beneficiaries. In this way, we propose that a stronger NHIF will help Kenya more fully realize its UHC ambitions.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author Contributions

BM, JG, and AK[3] contributed to the conceptualization of the project. BM, JG, AK[3] and AK[4] contributed to the development of data collection materials. BM contributed to the recruitment of participants, and data collection. BM, JG, and AK[3] drafted the manuscript, and all authors edited and approved the final draft.

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Data Availability Statement

The tools and emerging datasets for this study can be requested from the corresponding author with appropriate approvals.

9 Integrative discussion

9.1 Introduction

In this chapter I summarize the key findings from all three research papers. I also interweave the findings from the research papers and highlight the key themes in relation to the broad aim of the PhD study.

As hypothesized in the conceptual framework, this study found that willingness to prepay, tolerance for risk cross-subsidies, and citizen awareness of NHIF and its benefit package were associated with health insurance enrolment. Household characteristics influenced both the intermediary factors (social solidarity, citizen engagement and affordability) which in turn affected health insurance and enrolment. For example, socio-geographical factors such as living in a rural location limited access to quality health services due to the pro-urban distribution of facilities. The lack of access to quality services in turn informed the decision not to enrol for health insurance when access of quality health services was not guaranteed. Similarly, rural communities had limited access to information about NHIF which contributed to their ability to make an informed decision about health insurance membership. I also found an association between age, gender, education level, occupation, household size, marital status and health insurance enrolment.

Table 21: Study objectives and findings related to objectives

Objective	Chapter	Key findings
Determine the affordability of health insurance premiums	Chapter 6	Health insurance coverage is low among rural informal workers and cost of premiums was the main reason cited for not enrolling in NHIF. As the NHIF premium amounts to more than 5% of expenditure for 60% of households, it is unaffordable to majority of uninsured households and insured households in poor, rural communities. OOP payments cause catastrophic spending among both insured and uninsured demonstrating that the NHIF cover is limited in providing financial protection among members. Gaps in health service provision lead to unavailability of services forcing insured households to incur OOP.
Explore citizen empowerment mechanisms employed by NHIF	Chapter 7	There is high awareness of NHIF but low awareness of the benefit package, feedback mechanisms, and performance of NHIF. Majority of the insured were dissatisfied with the NHIF benefit package and the quality of the services in public health facilities.

		Negative reports on NHIF and the lack of public accountability and transparency eroded have trust in the fund
Assess social solidarity	Chapter 8	There was high willingness to prepay even among the uninsured but numerous barriers prevented households from enrolling in health insurance. More than half of the respondents expressed support for risk and income cross-subsidization. Across each wealth quintile, a greater willingness to tolerate risk cross-subsidization compared to income cross-subsidization was observed, indicating a greater prioritization of the sick over the poor. Willingness to tolerate risk and income cross-subsidization increased with household wealth. A progressive system was most preferred method of premium contribution while flat payments were least preferred. Exemption for the poor was unexpectedly less preferred even among the poor. Social solidarity was common in the culture and harambees (fund-raisings) were a common form of social solidarity.

9.2 Cross-cutting themes

In this section, I discuss the cross-cutting themes from the three research papers. The aim of this study was to describe and assess the reasons for low enrolment in the national insurance scheme among the Kenyan informal workers. By determining whether NHIF premiums are affordable to informal workers and if it offers adequate financial protection, if households are adequately engaged and informed about health insurance and lastly if they are willing to prepay and tolerate risk and income cross-subsidies, I hope to provide a deeper insight into the challenge of expanding coverage to this population.

9.2.1 Theme 1: Inequities in health insurance coverage

There is growing and compelling evidence linking social determinants of health to health outcomes where those with a lower socioeconomic status (SES) have poorer health indicators than those with a higher SES[54,301,302]. Similarly, this study found that disparities exist in health insurance coverage skewed against those of lower SES. The most recent Kenya Demographic Health Survey (KDHS) 2022 report shows deepening inequities in health insurance coverage in Kenya. According to report, the lowest wealth quintile had the lowest NHIF enrolment with 95% lacking health insurance[26]. Other countries in SSA have recorded similar levels of inequities in health insurance coverage[54].

My findings also indicate that there are gender disparities in health insurance coverage with 10% of female respondents having health insurance compared to 13.5% males. This disparity is comparable to that reported in the KDHS 2022 where health insurance coverage was also found to be higher among the males (41%) compared to females (39%). In addition, KDHS 2022 reported higher enrolment among the urban populations (35.3%) compared to the rural population (17.5%)[26]. My study found a significantly lower enrolment of 11.5% among the rural population in the study site compared to the national estimate which can be explained by the low SES of the community and poor accessibility of health services in the study site.

Inequities were also apparent in the intermediary factors associated NHIF enrolment. A higher likelihood of expressing support for both risk and income cross-subsidization was associated with wealth, education, and having health insurance. Support for progressive payments was also higher among the wealthier and those in formal employment. Awareness of NHIF was also positively associated with the younger respondents, those who were married, the wealthy, the educated and members of microfinance groups.

Exposure to financial risk as indicated by catastrophic health expenditure (CHE) was significantly associated with lower SES i.e. lower levels of education, wealth, marital status and ownership of health insurance. Poorer households, those that reported an outpatient visit in the last four weeks or were admitted to a health facility in the last 12 months had increased odds of experiencing CHE. Households with insurance and wealthier households were less likely to incur CHE.

A study conducted in 17 LMICs, found that households belonging to the wealthiest quintile had a 61% higher likelihood of enrolling in insurance compared to those from the poorest quintiles across all countries[54]. Furthermore, those with higher education had a 64% greater chance of enrolling in insurance than those with lower levels of education. This is significant as informal worker households, which are often found in rural areas, have lower incomes, less education, and limited access to information, all of which are factors that predict a lack of health insurance[303]. These results demonstrate that despite significant efforts in by some countries such as Kenya, health insurance programs are still excluding vulnerable populations, highlighting serious inequities within health insurance programs in LMICs.

The inequitable coverage of health insurance schemes is the basis of Kutzin's argument against the focus on social health schemes because they offer coverage for the few people who can afford to be covered[304]. The author argues that employer-based health insurance schemes lead to fragmentation of the healthcare financing, with different schemes covering different groups of people and enabling access to different healthcare services. This can result in inequitable access to healthcare services. Instead, the author suggests that LMICs need to develop a more comprehensive health financing system that is designed to achieve UHC equitably.

9.2.2 Theme 2: Prioritizing population coverage or comprehensiveness of the package?

Often countries like Kenya find it easier to begin covering the formal workers and civil servants and later extend to informal workers who are harder to provide coverage for[305]. The NHIF in Kenya was initially created to provide health insurance cover to civil servants and employees of certain parastatals but later extended coverage to informal sector in 1998[27]. The civil servants scheme rolled out in 2012, has a wider, more comprehensive benefit package compared to the national scheme available to other formal workers or informal

workers[27]. This has resulted in disparities in health access, as highlighted by one study[306]. Evidence also shows that such schemes do not naturally evolve to cover the wider population[304]. Instead, the initially covered groups, who are typically well-organized and influential, use their power to improve their benefits and subsidies rather than extending them to the broader population.

Another approach used by LMICs is to provide a basic benefit package to a larger number of people. The argument in favour of prioritizing increased population coverage using a basic package is that it can lead to greater equity in healthcare access and more widespread health improvements[305]. By providing a basic level of essential services to a larger population, more people can access healthcare services, which may lead to improved health outcomes across the population[307]. Moreover, a basic benefits package is generally less expensive to implement, which makes it a more feasible option for LMICs with limited resources. Countries like Rwanda, have achieved significant improvements in population coverage and in maternal and child health indicators by using this approach focusing on primary healthcare and essential health services[5,136].

On the other hand, the argument for providing a comprehensive package is that it can lead to more comprehensive and better-quality healthcare services for a smaller population, which may lead to more significant health improvements in the long run[305]. This approach may be particularly relevant for populations with specific health needs, such as those with chronic diseases or disabilities, or for marginalized populations with limited access to health services. However, evidence from other countries shows incremental expansion of coverage can lead to the creation of multiple schemes with various risk pools. These pools can further promote inequity especially if they offer different benefit packages. Moreover, efforts to merge established pools can be particularly challenging without strong political goodwill[305].

Therefore, Kenya and other LMICs need to balance the benefits and drawbacks of both approaches when deciding where to start in providing universal coverage. In general, LMICs with limited resources should prioritize increasing population coverage using a basic benefit package with a focus on primary health care services while working towards building a more comprehensive package over time[305]. This allows for more people to have access to basic healthcare services while also building towards a more comprehensive package in the future.

The introduction of new revenue-raising mechanisms or increasing the share of total public spending devoted to health is a common strategy used by governments to fund universal coverage systems. This can involve increasing taxes such as progressive general taxes as well as allocating more of existing public resources towards health programs and services[305]. The need for healthcare financing through taxation becomes even more necessary in countries with large proportions of informal workers as the capacity to generate revenue through social health insurance among informal workers remains limited. It thus follows that the bigger the informal sector, the greater the need for augmenting public expenditure[107].

9.2.3 Theme 3: Segmenting informal workers based on ability to pay

If Kenya choses to continue to focus on health increasing coverage using contributory system, policymakers must consider the characteristics of the informal workers and the impact that has on ability to pay for NHIF. This study found that even though a majority of the informal workers are unable to afford health insurance, a sizable proportion could afford health insurance even though a small percentage were actually enrolled in NHIF. Our

findings showed that NHIF was affordable to 40% of the respondents. The blanket use of the term informal workers gives the false impression of homogeneity. To address the issue of health insurance enrolment among informal workers, there is a need for segmentation that allows different premium rates based on income levels.

Attaining segmentation requires a process of determining eligibility for subsidies and identifying households through various targeting approaches. Targeting and identification of vulnerable households can be done using a variety of methods. Direct targeting employs the use of means tests using set of household characteristics that are strongly correlated with income or wealth, such as household size, education level, and ownership of assets to estimate household income. The advantage of using these methods is the level of accuracy and verifiability because of the use of observable household indicators like the living conditions (permanent house, roofing type etc.). However, these methods are often costly and administratively burdensome making their use in LMICs limited despite their accuracy[301,308]. Indirect targeting utilizes less rigorous means. This includes the use of socio-economic status such (formal or informal occupation), demographics (gender and age) as well as geographical location as means of identifying households to benefit from subsidies[309].

In a study of Asian LMICs, countries applied various eligibility criteria for subsidies for vulnerable groups. For instance eligibility could be based on the poorest 20% relative to the national poverty line, older persons, children, informal workers and gender[309]. Geographical regions with high poverty rates, ethnic minorities and other socio-demographic characteristics were also used to determine eligibility for subsidies[309]. The inclusion of vulnerable households such as the poorest, elderly, orphans and the people living with disabilities in the national subsidy programs represents efforts to capture the informal worker population and providing coverage to the most vulnerable[27].

The other justification for segmentation of informal workers stems from the preference for progressive contributions which was one of the key findings from my study. Stratification based on wealth is challenging among the informal workers. Rwanda has attempted to implement this in its Community-Based Health Insurance (CBHI) schemes. In 2010, the Rwandese Ministry of Health (MoH) adopted the stratification of premiums based on the wealth of the beneficiaries as a principle in its CBHI policy[48]. The objective was to make CBHI subscription progressive while maximizing resource mobilization. To overcome this challenge of informality among the scheme members, the MoH opted to rely on the wealth classification exercise conducted regularly since 2001 for the ubudehe program. Ubudehe is a social protection program managed by the Ministry of Local Government that categorizes households based on their wealth at the community level, to differentiate social interventions. However, the accuracy of wealth classification exercise has been questioned[48].

In 2021, the Kenyan government announced the rollout of the national indigent program targeting 1 million vulnerable and poor households[179]. The national targeting methods for the enrolment of indigent program beneficiaries uses a community-based targeting where the community defines vulnerability and leaders decide who benefits from assistance programs. However, evidence has shown that community-based targeting is open to bias and inaccurate with numerous inclusion and exclusion errors noted[308,310]. The current use of these methods in NHIF seems to be inadequate and inaccurate in capturing the vulnerable informal workers as has been documented elsewhere[27]. Indeed, an assessment of the NHIF subsidy program

beneficiaries indicated that 65% of the beneficiaries belonged to the wealthiest two quintiles when the asset index scores of a nationally representative household survey data set (KDHS) were used[27]. Additionally, the mobilization of these efforts whenever there is assistance being offered creates an incentive for a biased selection of households to benefit from the subsidy.

The relevant arms of the government such as the national and subnational ministries of labour, gender and social security should maintain a list of updated households to benefit from different social programs to be used to recruit for the subsidy program. This would prevent hasty subjective processes that often lead to inclusion and exclusion errors. Overall, there is urgent need for a national targeting framework harmonizing national and county targeting procedures as well as strong oversight in these processes.

While the national subsidy program is commendable, this only translates to 8% out of the estimated 12.2 million households in Kenya[311]; many indigent households weren't included. There is therefore a need to rapidly scale the program in order to provide financial protection to more vulnerable households. As found in this study, NHIF was unaffordable for the majority of the informal workers. This implies that without subsidies, it is going to be difficult to grow NHIF membership among informal workers.

Mandating contributions among those with ability to pay is the first step towards achieving universal coverage. The government of Kenya intends to mandate health insurance for all persons over the age of 18 years and plans to impose penalties on those who do not enrol[23]. Suggested sanctions include requiring proof of NHIF registration when accessing other government services. Other discussions also point to linking deductions to mobile money transactions and banking services which are in high use in Kenya. It has been suggested that the government should dedicate some effort to gradually grow and formalize the majority of micro and small enterprises so as to create a structure for deducting progressive income related contributions for health insurance. Providing other legal frameworks governing labour is also crucial including the enforcement of minimum wage[303].

9.2.4 Theme 4: Trust

Trust was a cross-cutting theme influencing social solidarity, willingness to prepay, citizen engagement and accountability. Multiple dimensions of trust were highlighted in this study. First, trust in NHIF influenced individuals' decisions to enrol in the health insurance scheme. Studies have found that when people do not trust the insurance provider or the scheme, they may not sign up for coverage[14]. NHIF's lack of accountability and transparency influenced the public's perception of NHIF and their decision to enrol. Weak governance systems within NHIF have also led to reports of corruption within the fund. This study's finding shows that this has negative consequences as people are reluctant to enrol in NHIF as a result of several reports alleging corruption. Indeed, previous studies in Kenya have highlighted the need to strengthen the governance and management of NHIF to boost enrolment[312].

Willingness to prepay was dependent on trust in the health system and the assurance that health services would be accessible when there was need. Those who trust the health system are more likely to perceive their health insurance coverage as valuable and necessary, while those who distrust the health system may view their coverage as a burden or as insufficient to meet their healthcare needs. These findings are similar to those found in a study in Ghana's national health insurance[138].

9.2.5 Theme 5: Coverage without protection: Health system challenges

One of the key findings of this PhD is the level of protection NHIF offers its members. Households with NHIF could not access the care they needed at public health facilities because of constant stock out of medication and basic commodities forcing them to incur OOP or to forgo treatment altogether. Other studies have also found that OOP costs are driven by the unavailability of services in public facilities forcing individuals to seek care in more expensive private facilities[313]. Purchasing of drugs and commodities in the private markets also led to an increase in OOP costs among respondents.

The availability of health services plays a crucial role in determining whether people will enrol in health insurance schemes. The lack of access to quality health services due to the poor distribution of health facilities in rural areas has been identified as a major challenge for informal workers residing in rural areas. Furthermore, the devolution of health services to counties has resulted in inadequate health service provision, leading to challenges in health financing arrangements. These findings are similar to other studies linking NHIF enrolment to the availability of health services in public facilities[37,312]. People are more likely to enrol in health insurance schemes if they have access to quality health services. Overall, improving the availability of health services, particularly in rural areas, is crucial for increasing health insurance enrolment among informal workers. Additionally, it highlights the need for adequate health financing arrangements to ensure that health services are adequately funded and accessible to all.

The push for UHC has emphasized the need for wider reforms in healthcare systems beyond financial reforms [3]. For instance, Thailand has successfully implemented a UHC scheme that provides basic healthcare services to all citizens irrespective of their socioeconomic status [51,95,96]. The country began its journey towards UHC in the 1970s by implementing various healthcare reforms, such as expanding access to primary healthcare and increasing the number of healthcare workers [47,314–317]. These measures formed the basis for the launch of the Universal Coverage Scheme in 2001, which offers a comprehensive package without requiring co-payments[305]. Consequently, Thailand has seen a decline in out-of-pocket expenses for healthcare.

Poor services in public health facilities often result in patients seeking medical care in private health facilities making healthcare even more unaffordable to most households[5]. Even though NHIF accredits private facilities, it does not cover the full costs of healthcare in private facilities. Other studies have also found the increasing preference for private facilities in Kenya over public facilities and the consequent rapid growth of the private healthcare in Kenya and other LMICs [318–320]. These countries must prioritize investments in strengthening their publicly funded healthcare systems as these are essential to reducing the burden of OOP for healthcare in these countries and ensuring that everyone has access to the healthcare services they require.

9.2.6 Theme 6: The threat of adverse selection in health insurance enrolment

The results of my study indicate that adverse selection is a significant driver of health insurance enrolment. Even among informal workers who have insurance coverage, the cost of NHIF premiums was often unaffordable in relation to their total household expenditures. Enrolling in NHIF was seen as a way to hedge against healthcare costs, but many individuals would drop out after their costs were covered.

In some cases, healthcare providers recommended NHIF enrolment to patients requiring expensive medical procedures, which led to the enrolment of individuals with greater health needs. However, community-based enrolment strategies such as door-to-door registration provide a better opportunity to recruit both healthier and sicker populations and allow for more effective risk cross-subsidization. These efforts are essential for increasing awareness about NHIF and expanding insurance coverage to a wider population [221].

Adverse selection is a common issue in social health insurance schemes in LMICs where individuals with poor health status tend to enrol in the insurance scheme[262,321]. This can result in higher costs for providing healthcare services to the insured population than the premiums collected, potentially leading to financial difficulties or insolvency for the insurer. The problem is exacerbated when insurance is not mandatory, allowing individuals to choose whether or not to enrol based on their perceived risk of needing healthcare services and ability to pay health insurance premiums. Indeed, a study conducted in Kenya found that perceived health status and ability to pay for health insurance were stronger predictors of NHIF enrolment than other household characteristics, posing a threat to the sustainability and viability of NHIF.

9.2.7 Theme 7: Incorporating citizen's voice in NHIF

Citizens should be involved in the development and implementation of NHIF and broader health financing policies. Evidence shows that citizen engagement is essential to the success of any social health insurance system, as it helps to ensure that the needs and preferences of the community are adequately addressed[14,97,267]. This study found that citizen engagement in NHIF among rural informal workers is low. There are gaps in citizen engagement in the development of NHIF policy, awareness of NHIF benefits, feedback channels and the performance reporting by NHIF.

Citizens need avenues to provide feedback on the quality of care they receive, as well as any challenges they encounter in accessing health services. This feedback should then be used to improve the system and ensure that it meets the needs of the citizens it serves. This can be achieved through public hearings, stakeholder consultations, or town hall meetings[129]. It is important that these mechanisms are also accessible to rural informal workers so as to ensure their participation.

This study found that limited awareness on the NHIF benefits persists despite numerous campaigns by NHIF. Rural populations expressed the desire to be educated on the benefits of social health insurance, how to access health services, and their rights and responsibilities under the system. Their recommendation is that these health education campaigns be conducted through community meetings, radio programs, and other media.

Citizen representation in NHIF governance also ensures that the voices of citizens are heard in the decision-making processes of the system. The Kenyan Constitution recognizes the importance of citizen engagement in the governance process. Article 1 of the Constitution states that all sovereign power belongs to the people of Kenya, and that the people may exercise this power either directly or through their democratically elected representatives[322].

Article 10 of the Constitution requires that public participation be promoted in all areas of governance[322]. This means that citizens have a right to participate in decision-making processes at all levels of government, including in the development and implementation of policies and programs[323]. The Constitution also provides for the right of access to

information held by the state or any other person that is necessary for the exercise or protection of any right or fundamental freedom[322]. As a public institution, NHIF is expected to abide by these statutes by sharing information about its financial performance with the public.

In addition, civic society organizations have a very important role to play to advocate for the citizens and represent their views[324][323]. Other avenues that may be underexplored on issues to do with social health insurance is the petition by citizens through peaceful and unarmed assembly, demonstration and picketing as provided by the current constitution as part of social accountability[325][322]. Overall, the area of citizen engagement is key to increasing population coverage and there is urgent need to institutionalize citizen engagement in NHIF[22].

9.2.8 Theme 8: Anchoring NHIF reforms on evidence

This study took place amidst a myriad of political declarations on health insurance in Kenya. Among these is the intention to make health insurance compulsory among informal workers. Previous reforms have also coincided with political changes such as the introduction of the BIG FOUR agenda when the previous government was re-elected in 2018[21]. Health financing across the globe is indeed a policy issue, making it difficult to delineate the reforms from the prevailing political environments. Often, governments see these as what has been described as 'windows of opportunity' to bring about change[171].

Kenya's current government has made it clear that social health insurance is central its development agenda. Most recently, the declaration to rebrand NHIF a national Social Health fund outlines a plan to consolidated the different pools under NHIF[326]. While consolidating the National schemes will achieve better income and risk cross-subsidization, standardization of the benefits should also be prioritized to promote fairness and reduce the risk of discrimination against certain population groups [27].

Japan achieved is one of the few countries that has achieved the consolidation of health insurance schemes through a series of legislative and administrative reforms[305]. In the 1920s and 1930s, Japan established various health insurance schemes for different population groups, such as employees, farmers, and fishermen, resulting in fragmentation and inefficiencies. The government later initiated a series of reforms to consolidate these schemes and create a single, universal health insurance system. They also introduced various regulations to standardize benefits and premiums across different insurance schemes.

In 1972, Japan passed the National Health Insurance Law, mandating that all citizens and permanent residents enrol in the national health insurance program, which replaced all previous insurance schemes[305]. The law also required the establishment of regional health insurance associations to manage and deliver health services. These reforms helped to consolidate the fragmented health insurance system in Japan and create a universal system that covers the entire population. The government's commitment to ensuring access to affordable healthcare for all through public expenditure has helped to make Japan's health system one of the most effective and efficient in the world. Political goodwill is important in the adoption of sound health financing reforms, there is need to anchor these reforms on evidence.

My study also provides critical evidence of the difficulties in achieving high levels of population coverage by adopting contributory financing as a primary method of financing.

The unaffordability of NHIF among majority of the population requires the Kenyan government to explore non-contributory means to achieving UHC. This includes the use of taxes to finance healthcare in Kenya. International health financing policy guidelines discourage the over-reliance of contributory systems like health insurance and advocate for the adoption of tax-funded non-contributory systems that offer more redistributive qualities[39,107,304,327]. Unlike contributory health insurance, a tax funding approach has the potential to expand coverage faster and may be more administratively efficient[29][328].

Like other LMICs, Kenya's insistence on contributory financing of healthcare can be equated to what a recent study referred to as "an addiction to a bad idea" [110]. While contributory scheme can be politically popular in LMICs, potential benefits of such schemes must be weighed against the potential drawbacks including their potential to be regressive and inequitable[110].

9.3 Limitations

This study has some limitations. First, this was focused on a rural population with high rates of poverty and have higher levels of informality making the findings on affordability, citizen engagement and social solidarity generalizable only in area with similar settings.

This study was conducted in the height of the COVID 19 pandemic which had significant impact on my research. Government imposed travel restrictions for instance led to delays in the commencement of data collection. I also had to ensure safety precautions were met such as providing masks and hand washing equipment during data collection which drove the research costs upwards. Because the study site is a 4-hour drive from my work station, the study team and I had to adhere to strict travel restrictions specifying number of people traveling in one vehicle and the curfew restricting travel during specified times. The ban on large public gathering imposed during the pandemic added difficulties of conducting research. Participants in focus group discussions had to be limited to adhere to these rules.

The state of affairs during the pandemic may also have an effect on the levels of social solidarity elicited by the participants. There is evidence that the pandemic period led to changes in social interaction or standards (otherwise known as anomie). However, studies that have investigated the effects on social solidarity have had mixed finding with some reporting an erosion of social solidarity and others finding no changes and others reporting an increase in solidarity related to the COVID-19 pandemic[329–331]. Based on these findings, we would like to acknowledge the potential effects of the COVID-19 pandemic on the social solidarity findings in reported in this study.

Participants for key informant interviews in this study were often engaged in pandemic response and preparedness efforts at the national and sub-national levels. As a result, I was not able to interview all the participants I had intended and managed to interview 11 out of 15 participants. Nonetheless, saturation was reached with the participating policy makers.

Another limitation noted during household interviews and focus group discussions is the emotive nature of health and NHIF in Kenya. While I put in place measures to mitigate this in the participant consenting stage, strong opinions on NHIF and views about the state of health in rural public facilities dominated the interviews and stretched the discussions well beyond the scope of the study.

Table 10 presents the results of the logistic regression estimating the likelihood of having health insurance. These findings are helpful to assess the household factors that predict NHIF enrolment among informal worker households. However, we understand that variables in our regression model used to produce these results, such as NHIF-related awareness variables, and CHE, may be influenced by NHIF enrolment. While we did not perform a specific endogeneity test in this study, we recognize that this is an important aspect of the analysis. We acknowledge the limitations of these results in claiming causal effects given the potential endogeneity issue. Further research is needed to conclusively explore this aspect further.

Lastly, I captured the burden of healthcare costs among those who reported illness and sought outpatient or inpatient care in the health facilities. The cost of healthcare to households that sought care from traditional healers was not captured although these might be significant. The indirect costs of healthcare such loss of productivity was also not factored in even though for informal workers relying on manual and casual labour, this may be significant too.

9.4 Policy implication and recommendation

While Kenya has made significant progress towards achieving UHC, unaffordability of NHIF limits the growth of population coverage in NHIF and the redistributive capacity of the NHIF pool. This implies that the country is not able to mobilize adequate resources to finance health service delivery through NHIF. Ultimately, this influences the range of services in public health facilities. In the absence of comprehensive coverage of services in health facilities, NHIF is not able to provide adequate financial protection as members are still forced to pay out of pocket for services not covered by NHIF.

The current health financing mix is not optimal for the goal of attaining UHC. Significant proportion of healthcare financing is reliant on household contributions through OOP or health insurance. While an increasing number of low- and middle-income nations have set up health insurance systems, it is not the sole route to UHC.

Mechanisms to ensure progressive contribution should be explored to capture informal workers with the ability to pay including the option of funding healthcare through progressive taxes. To eliminate the problem of adverse selection, ensuring equity in health access and provide universal coverage, investing in non-contributory systems shows greater long-term returns. Countries like Kenya should steadily move toward tax-funded systems and increase allocation to their health systems.

The significant role of affordability, citizen engagement and social solidarity among informal workers has implications on design and implementation of NHIF insurance programs.

Policy level implications of these study findings are as follows:

- NHIF should enhance its engagement with the community. There is need to develop a clear framework for citizen engagement within NHIF. This framework should address strategies for creating awareness, communication channels and feedback mechanisms, and the regular sharing of reports on performance. Increased engagement with members can also be achieved by decentralization of NHIF services to local facilities and communities. The engagement should also focus on increasing awareness of pooling and creating awareness of NHIF as a formal risk pooling mechanism.

- There is need to strengthen health systems to address gaps in health service delivery. These include addressing staffing challenges, supply chain issues and quality of services that are barriers to health access among the insured.
- There is also a need to enhance NHIF monitoring of facilities. To ensure service providers deliver high-quality services to its members, NHIF should improve its quality management procedures and the enforcement of contract requirements.
- The county governments need to amend their health financing arrangements to ensure adequate financing for service provision in public health facilities. Since devolution, public service providers in most counties no longer have the freedom to use and access NHIF funds. Devolution has made it necessary for facilities to remit all the facility collections from user fees and NHIF reimbursement to county revenue accounts. This is a result of healthcare facilities losing their financial independence and deprived facilities from the funds needed for service provision in these facilities.
- NHIF enrolment strategies should aim for more enrolling people through broader community sensitization efforts so as to create a healthy risk pool.
- NHIF should progressively consolidate its different health insurance scheme pools to a single pool system for better cross-subsidization
- Finally, there is urgent need to adopt non-contributory strategies for covering rural informal workers. The difficulty in mandating insurance among informal workers makes the case for implementing non-contributory systems for offering larger coverage among this group. The government of Kenya should consider funding healthcare for informal workers through taxation.

9.5 Future direction

More research is needed to understand the role of affordability, citizen engagement, and social solidarity in coverage in sub-Saharan countries. Little comparison can be drawn across regions due to the paucity of knowledge in SSA and other LMICs.

9.5.1 Future research

1 Future research should consider affordability, citizen engagement and solidarity in non-contributory coverage in SSA. In this thesis, I highlighted the role of these concepts in social health insurance. Using various methodological approaches, the same concepts should be considered in relation to non-contributory systems in LMICs. In addition, social solidarity and citizen engagement can also be explored among formal employees contributing to the national insurer through mandatory payroll taxes.

2 Future research should explore the topic of affordability, citizen engagement, and social solidarity in health insurance in other study settings. This thesis was limited to a rural population and it would be interesting to assess the level of social solidarity in an urban setting for instance. Affordability and level of citizen engagement are hypothesized to vary significantly in a more urban community. Such findings would provide further insight into the challenge of increasing coverage among urban informal workers.

3 In this study we focused on how social solidarity affected health insurance enrolment in Kenya. Given the numerous reforms to NHIF, it would be interesting to monitor how these reforms affect social solidarity among members of the scheme.

4 With the rollout of the national indigent program, future research should explore the extent of coverage offered by NHIF among the indigent program beneficiaries. These investigations should also consider using more diverse methods such as experimental studies (e.g. control trials) and longitudinal studies. This would inform the scaling up and implementation of the pilot.

5 More research is needed to understand social accountability by NHIF focusing on providers. Complains arose about the communication and accountability of NHIF to health service providers. These should be explored with the view of increasing accountability in the NHIF-provider relationship.

6 Further research is needed to understand the burden of healthcare cost among those who do not seek care in health facilities. These include those who seek alternative treatments such as herbal and traditional treatment for their ailments.

7 More research is needed to capture the views of healthcare providers on the adequacy of NHIF coverage. My study focused on the views of rural community members, stakeholders and policy makers. The views of the healthcare providers would offer more insight into the health system challenges hindering service provision.

9 Conclusion

This study aimed at describing and assessing the reasons for low enrolment in the national insurance scheme among the Kenyan informal workers. This study found that affordability, citizen engagement and social solidarity contribute to health insurance coverage among informal workers. The majority of the rural informal workers are vulnerable to catastrophic health spending and are not covered by any form of health insurance. Despite the high willingness to prepay for healthcare among the uninsured rural informal workers, the cost of premiums is unaffordable to the majority of informal sector. Also the coverage NHIF provides remains inadequate in providing coverage from catastrophic spending. The unavailability of health services in public health facilities contribute to high OOP, limiting the coverage offered by NHIF to its members. In addition, the lack of accountability by NHIF and reports of corruption erodes trust in the scheme and discourages informal workers from enrolling in the scheme.

This PhD demonstrates the importance of affordability, citizen engagement, social solidarity and other factors in NHIF enrolment among informal workers. The findings underscore the need to address affordability barriers to NHIF enrolment, increase citizen engagement to boost awareness and trust in the fund, leverage and foster social solidarity to increase enrolment among informal workers. Ultimately, achieving universal health coverage (UHC) in LMICs is a complex and challenging process. LMICs have to overcome the challenge of inadequate healthcare financing, a large rural population as well as health systems challenges.

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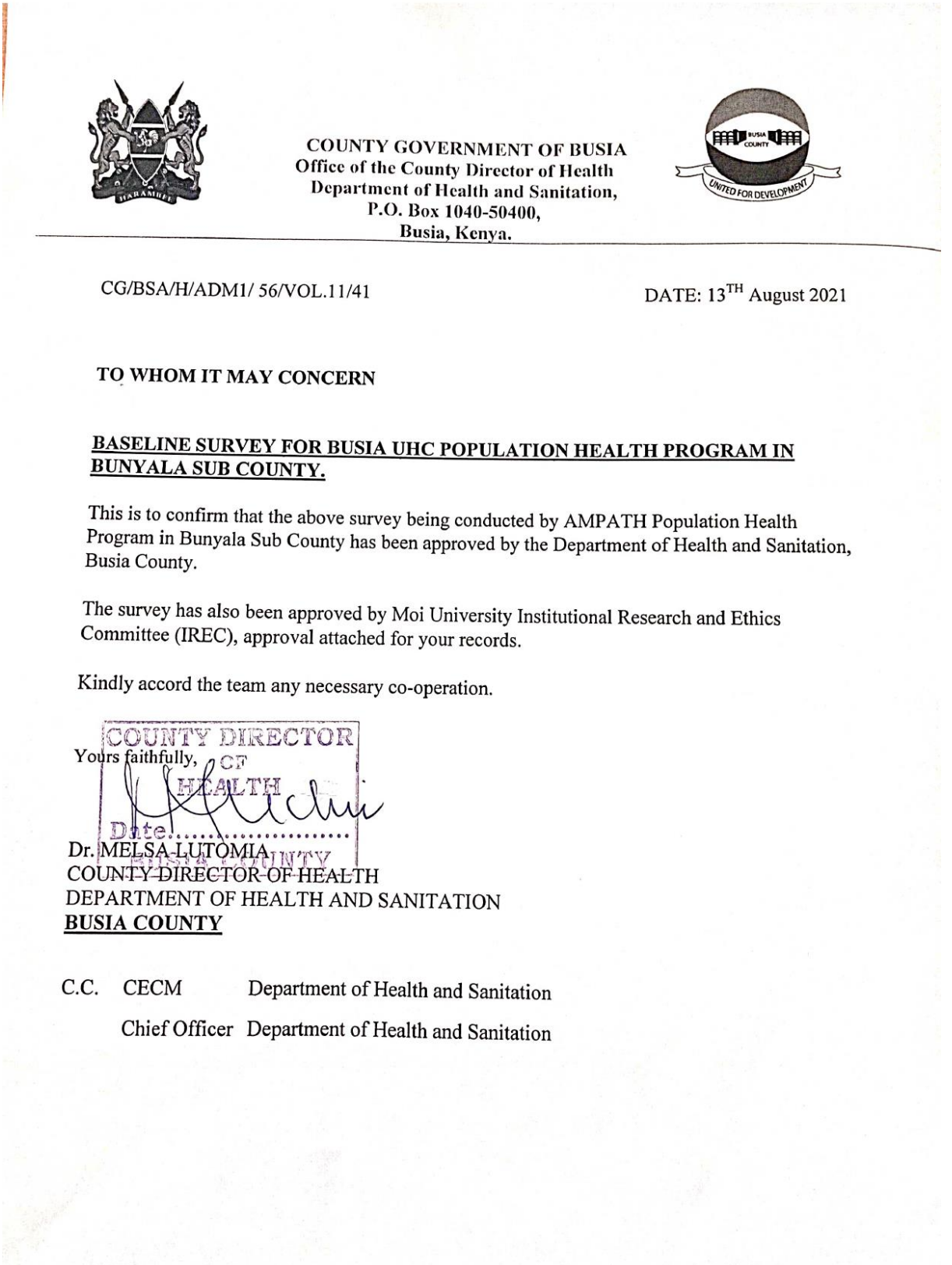
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Appendices

Appendix I: Busia county government approval to conduct research



COUNTY GOVERNMENT OF BUSIA
Office of the County Director of Health
Department of Health and Sanitation,
P.O. Box 1040-50400,
Busia, Kenya.

CG/BSA/H/ADM1/ 56/VOL.11/41

DATE: 13TH August 2021

TO WHOM IT MAY CONCERN

BASELINE SURVEY FOR BUSIA UHC POPULATION HEALTH PROGRAM IN BUNYALA SUB COUNTY.

This is to confirm that the above survey being conducted by AMPATH Population Health Program in Bunyala Sub County has been approved by the Department of Health and Sanitation, Busia County.

The survey has also been approved by Moi University Institutional Research and Ethics Committee (IREC), approval attached for your records.

Kindly accord the team any necessary co-operation.

Yours faithfully,

COUNTY DIRECTOR OF HEALTH
Date.....
BUSIA COUNTY

Dr. MELSA LUTOMIA
COUNTY DIRECTOR OF HEALTH
DEPARTMENT OF HEALTH AND SANITATION
BUSIA COUNTY

C.C. CECM Department of Health and Sanitation
Chief Officer Department of Health and Sanitation

Appendix II: Ethical approval from HREC at University of the Witwatersrand

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R14/49 Miss Beryl Maritim et al

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M210216

NAME: (Principal Investigator)	Miss Beryl Maritim et al
DEPARTMENT:	School of Public Health, Centre for Health policy Moi University, AMPATH, Busia County, Kenya
PROJECT TITLE:	Examining the Role of Social Solidarity, Affordability and Citizen Empowerment in Determining Health Insurance Coverage in Kenya
DATE CONSIDERED:	26/02/2021
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Prof Jane Goudge and Dr Adam Koon
APPROVED BY:	CB Penny Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	24/08/2021

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions.Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. I **agree to submit a yearly progress report.** The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in **February** and will therefore be due in the month of **February** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Beryl Maritim — Principal Investigator Signature

25/08/2021 — Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix III: Permission to conduct research from NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **103878**

Date of Issue: **12/August/2021**

RESEARCH LICENSE



This is to Certify that Dr.. Jeremiah Laktabai of Moi University, has been licensed to conduct research in Busia on the topic: BUSIA UHC/POPULATION HEALTH PROGRAM BASELINE SURVEY IN BUNYALA SUB-COUNTY, BUSIA for the period ending : 12/August/2022.

License No: **NACOSTI/P/21/12262**

103878

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

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THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013

The Grant of Research Licenses is Guided by the Science, Technology and Innovation (Research Licensing) Regulations, 2014

CONDITIONS

1. The License is valid for the proposed research, location and specified period
2. The License any rights thereunder are non-transferable
3. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research
4. Excavation, filming and collection of specimens are subject to further necessary clearence from relevant Government Agencies
5. The License does not give authority to tranfer research materials
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Appendix IV: Consent forms for quantitative survey and qualitative interviews

Consent for Household in-depth interviews

Study title: BUSIA UHC/POPULATION HEALTH PROGRAM BASELINE SURVEY IN BUNYALA SUB-COUNTY, BUSIA

Greeting

Introduction:

Hello, my name is_____and I work with the Academic model providing access to healthcare (AMPATH). We are conducting a research to better understand the healthcare and economic activities among people in the region of Bunyala sub-County, Busia. We would like to understand the reasons people are not enrolling on health insurance and I would like to get your views on the problem by asking you some questions. Everything that you say during the interview will be kept confidential. Research is a process used in seeking new knowledge.

Purpose of the study

We are conducting a survey to better understand the state of health insurance enrolment among those who are not employed in the formal sector living in Bunyala sub-County, Busia

Invitation to Participate

I invite you to take part in this study to understand health insurance enrolment among the informal sector. You were selected because you live in Bunyala sub-County where I am conducting the research. I request you to keenly read this form or listen carefully as I read it to you. You are free to also ask any question may you have about the study.

What is involved in the study

We will ask you a few questions and take notes during the interview. We will also record our conversation using a recorder. Everything that you say during the interview will be kept confidential. That is, any information that could be used to identify you will not be shared with anyone outside the research team. The information that you share will be kept securely stored at all times. This interview will take about 1 hour of your time.

Risks of being involved in the study

The risks of participating in this survey are low. If you feel uncomfortable with certain questions you can choose not to answer them. You can also stop the interview at any time.

Benefits of being in the study:

There is no direct benefit in participating in this study. However, we hope you will participate in this survey since your views are very important and could help in providing better health services to your community in the future.

Participation is voluntary

This survey is voluntary and you are free to withdraw at any time if you wish without the need to give reasons

Payment and costs

You will not receive payment or reward for taking part in this study and there will be no cost associated with participation. However, a small inconvenience fee of Ksh. 500 will be paid to you.

Confidentiality:

Your personal information will be treated in the strictest confidence and will only be available to the Principal Investigator (PI) and the lean research team. The only exceptions - and all of these are rare - would normally be:

1. personal information may be disclosed if required by law
2. the Human Research Ethics Committees of University of Witwatersrand and the Moi Teaching and referral Hospital Ethics Review Committee may exceptionally require personal data to respond to a formal complaint, or for a compliance audit

If results are published, this may, exceptionally, lead to cohort, or more rarely, individual identification. All data collected in the course of the study will be securely retained for two (2) years, if a scientific publication arises from the study and six (6) years, if there is no publication. Thereafter it will be destroyed accordingly.

Anonymity

The information you give us during this survey will not be identified to you personally and your identification will remain anonymous.

Contact details of researcher/s: If you have any questions or concerns about this survey you can contact Beryl Maritim at AMPATH on 0722799685. For any questions relating to your rights as a research participant please contact the secretary at the Moi Teaching and referral Hospital/Moi University Institutional Ethics Review Committee on phone number 0787723677.

Outputs

This study will result in research publications disseminating the study findings. Thank you for reading this Study Information Sheet.

Participant consent

Thank you for agreeing to participate in our study. Could you please sign here to show that you have accepted to participate in the study? You will be given a copy of the consent for your records.

Participant's Printed Name: _____

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

Printed Name of Person Obtaining Consent: _____

Signature of Person Obtaining Consent: _____ Date: _____

CONSENT TO AUDIOTAPING & TRANSCRIPTION

This study just described to you also involves audio taping your interview with the researcher. Neither your name nor any other identifying information will be associated with the audiotape or the transcript. Only the research team will be able to listen (view) to the tapes. The tapes will be transcribed by the researchers and erased once the transcriptions are checked for accuracy. Transcripts of your interview may be reproduced in whole or in part for use in presentations or written products that result from this study.

I hereby consent to audio recording of the interview

I understand that:

- The recording will be stored in a secure location (a locked cupboard or password protected computer) with restricted access to the researcher and the research supervisor.
- The recording will be transcribed and any information that could identify me will be removed,
- The recordings will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research
- Anyone wishing to access this information in the future will first have to obtain the approval of the Moi Teaching and referral Hospital/Moi University Institutional Ethics Review Committee
- Direct quotes from my interview, without any information that could identify me, may be cited in the research report or other write-ups of research.

By signing this form, you are consenting to:

□ having your interview taped;

□ to having the tape transcribed;

□ use of the written transcript in presentations and written products.

By checking the box in front of each item, you are consenting to participate in that procedure.

Name of Participant: _____

Date: _____

Place: _____

Consent for FGD with community stakeholders and CSO members

Study title: BUSIA UHC/POPULATION HEALTH PROGRAM BASELINE SURVEY IN BUNYALA SUB-COUNTY, BUSIA

Greeting

Introduction:

Hello, my name is_____and I work with the Academic model providing access to healthcare (AMPATH). We are conducting a research to better understand the healthcare and economic activities among people in the region of Bunyala

sub-County, Busia. We would like to understand the reasons people are not enrolling on health insurance and I would like to get your views on the problem by asking you some questions. Everything that you say during the interview will be kept confidential. Research is a process used in seeking new knowledge.

Purpose of the study

We are conducting a survey to better understand the state of health insurance enrolment among those who are not employed in the formal sector living in Bunyala sub-County, Busia

Invitation to Participate: I invite you to take part in this study to understand health insurance enrolment among the informal sector. You were selected because you live in Bunyala sub-County where we conducting the research. I request you to keenly read this form or listen carefully as I read it to you. You are free to also ask any question may you have about the study.

What is involved in the study.

We will ask the group a few questions and take notes during the discussions. We will also audio-record/tape the group discussions using a recorder. Everything that you say during the group discussion will be kept confidential. That is, any information that could be used to identify you will not be shared with anyone outside the research team. The information that you share will be kept securely stored at all times. This group discussion will take about 1 hour of your time.

Risks of being involved in the study:

The risks of participating in this survey are low. If you feel uncomfortable with certain questions you can choose not to answer them. You can also stop the interview at any time.

Benefits of being in the study:

There is no direct benefit in participating in this study. However, we hope you will participate in this survey since your views are very important and could help in providing better health services to your community in the future.

Participation is voluntary:

This survey is voluntary and you are free to withdraw at any time if you wish without the need to give reasons

Payment and costs

You will not receive payment or reward for taking part in this study and there will be no cost associated with participation. However, a small inconvenience fee of Ksh. 500 will be paid to you.

Confidentiality:

Your personal information will be treated in the strictest confidence and will only be available to the Principal Investigator (PI) and the lean research team. The only exceptions - and all of these are rare - would normally be:

1. personal information may be disclosed if required by law

2. the Human Research Ethics Committees of University of Witwatersrand and the Moi Teaching and referral Hospital Ethics Review Committee may exceptionally require personal data to respond to a formal complaint, or for a compliance audit

If results are published, this may, exceptionally, lead to cohort, or more rarely, individual identification. All data collected in the course of the study will be securely retained for two (2) years, if a scientific publication arises from the study and six (6) years, if there is no publication. Thereafter it will be destroyed accordingly.

Anonymity

The information you give us during this survey will not be identified to you personally and your identification will remain anonymous. However, other participants in the Focus Group discussion may very well recognize you and while the we may request confidentiality, I am not in a position to enforce it.

Contact details of researcher/s: If you have any questions or concerns about this survey you can contact Beryl Maritim at AMPATH on 0722799685. For any questions relating to your rights as a research participant please contact the secretary at the Moi Teaching and referral Hospital/Moi University Institutional Ethics Review Committee on phone number 0787723677.

Outputs

This study will result in research publications disseminating the study findings.

Thank you for reading this Study Information Sheet.

Participant consent

Thank you for agreeing to participate in our study. Could you please sign here to show that you have accepted to participate in the study? You will be given a copy of the consent for your records.

Participant's Printed Name: _____

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

Printed Name of Person Obtaining Consent: _____

Signature of Person Obtaining Consent: _____ Date: _____

CONSENT TO AUDIOTAPING & TRANSCRIPTION

This study just described to you also involves audio taping your interview with the researcher. Neither your name nor any other identifying information will be associated with the audiotape or the transcript. Only the research team will be able to listen (view) to the tapes. The tapes will be transcribed by the researchers and erased once the transcriptions are checked for accuracy. Transcripts of your interview may be reproduced in whole or in part for use in presentations or written products that result from this study.

I hereby consent to audio recording of the interview

I understand that:

- The recording will be stored in a secure location (a locked cupboard or password protected computer) with restricted access to the researcher and the research supervisor.
- The recording will be transcribed and any information that could identify me will be removed,
- The recordings will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research
- Anyone wishing to access this information in the future will first have to obtain the approval of the Moi Teaching and referral Hospital/Moi University Institutional Ethics Review Committee
- Direct quotes from my interview, without any information that could identify me, may be cited in the research report or other write-ups of research.

By signing this form, you are consenting to:

□ having your interview taped;

□ to having the tape transcribed;

□ use of the written transcript in presentations and written products.

By checking the box in front of each item, you are consenting to participate in that procedure.

Name of Participant: _____

Date: _____

Place: _____

Consent for Key informant interviews with policy makers and implementers

Study title: BUSIA UHC/POPULATION HEALTH PROGRAM BASELINE SURVEY IN BUNYALA SUB-COUNTY, BUSIA

Greeting

Introduction:

Hello, my name is_____and I work with the Academic model providing access to healthcare (AMPATH). We are conducting a research to better understand the healthcare and economic activities among people in the region of Bunyala sub-County, Busia. We would like to understand the reasons people are not enrolling on health insurance and I would like to get your views on the problem by asking you some questions. Everything that you say during the interview will be kept confidential. Research is a process used in seeking new knowledge.

Purpose of the study

We are conducting a survey to better understand the state of health insurance enrolment among those who are not employed in the formal sector living in Bunyala sub-County, Busia

Invitation to Participate

I invite you to take part in this study to understand health insurance enrolment among the informal sector. You were selected because of your involvement/knowledge on NHIF policy formulation or implementation. I request you to keenly read this form or listen carefully as I read it to you. You are free to also ask any question may you have about the study.

What is involved in the study.

We will ask you a few questions and take notes during the interview. We will also record our conversation using a recorder. Everything that you say during the interview will be kept confidential. That is, any information that could be used to identify you will not be shared with anyone outside the research team. The information that you share will be kept securely stored at all times. This interview will take about 1 hour of your time.

Risks of being involved in the study

The risks of participating in this survey are low. If you feel uncomfortable with certain questions you can choose not to answer them. You can also stop the interview at any time.

Benefits of being in the study

There is no direct benefit in participating in this study. However, we hope you will participate in this survey since your views are very important and could help in providing better health services to your community in the future.

Participation is voluntary:

This survey is voluntary and you are free to withdraw at any time if you wish without the need to give reasons

Payment and costs

You will not receive payment or reward for taking part in this study and there will be no cost associated with participation. However, a small inconvenience fee of Ksh. 1 000 will be paid to you.

Confidentiality:

Your personal information will be treated in the strictest confidence and will only be available to the Principal Investigator (PI) and the lean research team. The only exceptions - and all of these are rare - would normally be:

1. personal information may be disclosed if required by law
2. the Human Research Ethics Committees of University of Witwatersrand and the Moi Teaching and referral Hospital Ethics Review Committee may exceptionally require personal data to respond to a formal complaint, or for a compliance audit

If results are published, this may, exceptionally, lead to cohort, or more rarely, individual identification. All data collected in the course of the study will be securely retained for two (2) years, if a scientific publication arises from the study and six (6) years, if there is no publication. Thereafter it will be destroyed accordingly.

Anonymity

The information you give us during this survey will not be identified to you personally and your identification will remain anonymous.

Contact details of researcher/s: If you have any questions or concerns about this survey you can contact Beryl Maritim at AMPATH on 0722799685. For any questions relating to your rights as a research participant please contact the secretary at the Moi Teaching and referral Hospital/Moi University Institutional Ethics Review Committee on phone number 0787723677.

Outputs

This study will result in research publications disseminating the study findings.

Thank you for reading this Study Information Sheet.

Participant's Printed Name:

_____

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

_____

Printed Name of Person Obtaining Consent: _____

Signature of Person Obtaining Consent: _____ Date:

_____

CONSENT TO AUDIOTAPING & TRANSCRIPTION

This study just described to you also involves audio taping your interview with the researcher. Neither your name nor any other identifying information will be associated with the audiotape or the transcript. Only the research team will be able to listen (view) to the tapes. The tapes will be transcribed by the researchers and erased once the transcriptions are checked for accuracy. Transcripts of your interview may be reproduced in whole or in part for use in presentations or written products that result from this study.

I hereby consent to audio recording of the interview

I understand that:

- The recording will be stored in a secure location (a locked cupboard or password protected computer) with restricted access to the researcher and the research supervisor.
- The recording will be transcribed and any information that could identify me will be removed,
- The recordings will be erased within either (a) two (2) years of the publication of the research findings, or (b) six (6) years, if no publications arise from this research
- Anyone wishing to access this information in the future will first have to obtain the approval of the Moi Teaching and referral Hospital/Moi University Institutional Ethics Review Committee
- Direct quotes from my interview, without any information that could identify me, may be cited in the research report or other write-ups of research.

By signing this form, you are consenting to:

□ having your interview taped;

□ to having the tape transcribed;

□ use of the written transcript in presentations and written products.

By checking the box in front of each item, you are consenting to participate in that procedure.

Name of Participant: _____

Date: _____

Place: _____

Appendix V: Household in-depth interview guide

Semi-structured interview questions for understanding healthcare experiences, utilization and insurance at the household level

Interview date: _____/_____/_____

Start time: _____

Introduction:

The research assistant starts by introducing him/herself to the household. They will then explain the purpose of the study and the topics to be covered during the interview. The household head will be made aware of interview proceedings including the use of an audio recorder as well as their right to now participate at any point prior or during the interview. A consent will be obtained from those willing to participate

Notes

*Non-payment of NHIF premiums for more than 1 year are considered dropouts.

*Members who have defaulted payment of premiums for a period less than 1 year are only considered inactive

PRELIMINARIES

Thank you for accepting to be interviewed again so we can learn more about your views on health and health insurance. We are going to talk about health and how one can access healthcare. We would like to hear your views and remember, there is not right or wrong answer because we are interested in your opinions and experiences.

1. Let us begin by taking about your household. *Probe for*:
    - Please tell me what you do for a living.
    - Tell me about the composition of this household.

(Probe for family size of the illnesses and any chronic conditions)

2. How would you describe the state of your family's health? *Probe for*
    - Tell us about the common illnesses the family has experienced in the past (Among children, among adults)
    - Maternity/immunization

(Probe for frequency of the illnesses and any chronic conditions)

3. Could you think back to a time a member of your family was ill and tell us about that experience? *Probe for:*
    - Where do you seek care and why?
    - Who decides when and where to seek care and how are the decisions made?
    - Are there times you have not sought care? What do you do in such cases? (Probe for all healthcare options: self-medication, herbal medicine, traditional healers)
    - What did you think about the cost you had to pay to access healthcare?

4. How has your family been able to meet the cost of healthcare? What are some of the sources of funds for healthcare for your family? *Probe for:* (*Family income, sale of family assets, waivers, any external support, government subsidies like Linda Mama*)
5. Can you please describe to me how the cost of healthcare has impacted your family? *Probe for:*
    - On your financial position (wealth)
    - On your ability to access food
    - On your ability to send your children to school

6. Do you know about health insurance? *Probe for:*
    - How does health insurance works?
    - Please tell me what you know about National Hospital Insurance Fund (NHIF).
    - Do you think health insurance is important? Why or why not?
7. During our interview with you before, you mention you were _____ (*check status from household survey- enrolled, previously enrolled or never enrolled*). Could you tell us more about your health insurance status?

Depending on health insurance status probe for reasons below

1. [For those on NHIF and have an active cover (see definition above)]
    a) What things have made it easy for you to remain insured under NHIF?
    b) Are there any challenges you are experiencing staying active on NHIF?
    c) Please describe your experience using insurance the last time you used it while seeking care.

2. [For those who had NHIF but have dropped out or are inactive (see definition above)].
    a) What were some of the things that have made it challenging for you to remain insured under NHIF?
    d) What were the reasons/circumstances that led to your enrolment?
    e) Why have you been unable to keep up with your NHIF premiums/dropped out?

3. [For those who have never enrolled in NHIF]
    a) Tell me the reasons why you have never enrolled your household on NHIF? (Probe for knowledge/financial reasons/other insurance covers)
    b) Tell me about a time when a family member was sick, and you sought care. How did you pay for the medical expenses?
    c) Please also tell me about a time when you considered enrolling in NHIF. Can you explain why you didn't?
    d) What should be done for you to be able to enrol your family in NHIF?

A. Social solidarity

Present show card. During our previous interview, you chose this option for the way people should contribute towards NHIF. Could you tell me more about the reasons you selected this?

(interviewer note: please read out the option selected by the respondent so it is captured on te recording)

Do you still want to choose this option, or has your view changed?

Which of these options do you think best indicates what you think each person should contribute towards the health insurance scheme?'' (Respondents will be asked to choose between four illustrated scenarios (see Figure 1 for an example-. Appendix III Show cards) representing differing degrees of cross-subsidization:

i. Everyone pays the same amount (flat contribution);
ii. The poorest don't have to pay.
iii. All must pay something but pay according to their income.
iv. All must pay something but the poorest pay very little.

B. Citizen empowerment

1. I would like to hear your thoughts about the NHIF benefit package. In your view, does NHIF cover all/most of your household health needs? *Probe for:*
   a) What are some of your household health needs that are not covered by NHIF?
   b) How important are your health needs that are not covered by NHIF, compared to those that are covered?
2. Can you think of a time when anybody in your family was not able to access NHIF services despite being insured? Please tell us about that. *Probe for:*
   a) Which services were they not able to access (Inpatient/Outpatient/Radiology/Lab/others)
   b) What were the reasons they were not able to access NHIF services?
   c) What did they do when they were not able to access healthcare through NHIF cover?
3. What do you think about NHIF? *Probe for:*
   a) Are you aware of any platforms on which NHIF reports to the citizens how they use their money and how many people they have enrolled?
   b) Have you participated in any forums in which NHIF tells citizens how they use their money?
   c) In your opinion, should NHIF contributors know:
      a. how NHIF uses its money?
      b. how many people they have been able to enrol?
   d) In your view, do you think it's the right of the contributors to know the how NHIF is performing? Tell us why you think so.

e) Could you tell us if there was ever a time you had a complaint, a question or any feedback to NHIF?
    a. Were you able to communicate this to NHIF? If so, how? If not, why?

Thank you so much for your time. Again, we would like to assure you that the information you have shared with us today remains confidential.

Do you have any questions for us?

End time: _____

Appendix VI: Focus group discussion guide with Community stakeholders

Semi-structured interview questions for understanding Citizen Awareness of entitlements and empowerment

Interview date: _____/_____/_____

Start time: _____

Introduction:

The research assistant starts by introducing him/herself to the interviewee. They will then explain the purpose of the study and the topics to be covered during the interview. The participant will be made aware of interview proceedings including the use of an audio recorder as well as their right to now participate at any point prior or during the interview. A written consent will be obtained from those willing to participate and for audio recording the session

(Interviewer note: Begin by giving the participants the show cards)

Section A: We will begin by discussing your responses to the questions we asked you to answer in the questionnaire you completed at the beginning of this interview.

1. Could you tell us the reasons you selected the options you chose in this show cards?

Which of these options do you think best indicates what you think each person should contribute towards the health insurance scheme?'' (Respondents will be asked to choose between four illustrated scenarios (see Figure 1 for an example-. Appendix III Show cards) representing differing degrees of cross-subsidization:

i. Everyone pays the same amount (flat contribution);
ii. The poorest don't have to pay.
iii. All must pay something but pay according to their income.
iv. All must pay something but the poorest pay very little.

- Which method do you suggest NHIF adopts? And why?

2. Please also share with the group the reasons you responded the way you did to this questions

(interviewer note: refer to the show cards given to the FGD participants at the beginning of the discussion)

People have different views as to how health services should be paid for. For the following statements, please will you tell me whether you strongly agree with the statement, agree, disagree or strongly disagree? [SHOW CARD]

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't know	Refuse to answer
.1. I would agree to pay a small amount each month so that if I get sick, health care will be free, even if I am not sick now	1	2	3	4	5	6
.2. I would be willing to pay the same amount of money each month as everyone else, even though others who are sicker than I am will use the services more than me	1	2	3	4	5	6

Probe for:

- Preference for paying in advance for healthcare costs vs paying out of pocket when accessing services
- Preference for risk cross-subsidies

Which of the following statements would you agree with most: [SINGLE MENTION]

Everyone should only be expected to pay for their own health care	1
I would be willing to contribute to health care costs for myself and my family	2
I would be willing to contribute to health care that benefits me, my family and other people I know (like neighbors and friends)	3
I would be willing to contribute to health care that benefits a wider group of people particularly where they are worse-off than me	4

Section B:

3. We are now going to talk about health insurance. What do you think are the benefits of having health insurance? Probe for;
   - Disadvantages of not having health insurance
4. What comes to mind when I mention NHIF? Probe for
   - Negative perceptions
   - Positive perceptions
5. Do you think the services covered by NHIF meet your health needs (and those of majority of this community)? *Probe on;*
   - What are some of your household health needs that are not covered by NHIF?
   - How important are your health needs that are not covered by NHIF, compared to those that are covered?
6. Have you or do you know anyone who has not been able to access the NHIF services despite being insured?

a) Which services were they not able to access? (Inpatient/Outpatient/Radiology/Lab/others)
b) What were the reasons they were not able to access NHIF services?
c) What did they do when they were not able to access healthcare through NHIF cover?

7. Are you aware of any platforms on which NHIF reports/asks to the citizens:
    a. its performance
        i. how they use their money, and
        ii. how many people they have enrolled)? Probe on
    b. What should be covered in the benefit package?
    c. What can be done to improve these channels?
8. Have you participated in any forums in which NHIF tells citizens?
        i. how they use their money, and
        ii. how many people they have enrolled)? Probe on
    b. What should be covered in the benefit package?
9. In your opinion, should NHIF contributors know
    a. how NHIF uses its money?
    b. how many people they have been able to enrol?

Tell us why you think so.

10. Do you think citizens' empowerment (knowledge of NHIF performance, health insurance enrolment process and the benefit package has an impact on enrolment? Give us an example
11. Could you tell us if there was ever a time you had a complaint, a question or any feedback to NHIF?
    a. Were you able to communicate this to NHIF? If so, how? If not, why?

Thank you so much for your time. Again, we would like to assure you that the information you have shared with us today remains confidential.

Do you have any questions for us?

End time: _____

Appendix VII: Key informant interview guide with policy makers and implementers

Semi-structured interview questions for understanding views on social solidarity citizen awareness of entitlements and empowerment

Interview date: _____/_____/_____

Start time: _____

Participant ID: _____

Introduction:

The research assistant starts by introducing him/herself to the interviewee. They will then explain the purpose of the study and the topics to be covered during the interview. The participant will be made aware of interview proceedings including the use of an audio recorder as well as their right to now participate at any point prior or during the interview. A written consent will be obtained from those willing to participate and for audio recording the session

During this interview we would like to get your views about NHIF policies.

1. Tell us about yourself

a) Your name and the name of the organization you work for.
b) How long have you worked with the organization?
c) What is your role in the organization?

2. I would like to get your views about the concept of social solidarity which is the willingness to individuals to pay for health insurance knowing it could benefit someone else who is sicker and/or poorer than them. *Which of the following statements would you say represents the views of majority of the informal sector the most: [SINGLE MENTION]*

Everyone should only be expected to pay for their own health care	1
I would be willing to contribute to health care costs for myself and my family	2
I would be willing to contribute to health care that benefits me, my family and other people I know (like neighbors and friends)	3
I would be willing to contribute to health care that benefits a wider group of people particularly where they are worse-off than me	4

3. Which of these options do you think best indicates what you think each person should contribute towards the health insurance scheme?'' (Respondents will be asked to choose between four illustrated scenarios (see Figure 1 for an example-. Appendix III Show cards) representing differing degrees of cross-subsidization:

i. Everyone pays the same amount (flat contribution);
ii. The poorest don't have to pay.
iii. All must pay something but pay according to their income.
iv. All must pay something but the poorest pay very little

Proportional contributions refer to equal portions or percentage of income, irrespective of the level of income of the respondent; progressive contributions refer to a percentage of income that increases with wealth

a) Give reasons for the chosen option(s)
b) Give reasons why the option(s) not chosen are deemed undesirable.
c) Are there any other options that you think would be more suitable than the ones in the pictures?

4. To the best of your knowledge, how are citizens involved in the NHIF policy development?

a) In developing the benefit package? How are their views/needs obtained/identified? How are the citizens selected? How often is that done?
b) Ensuring citizens stay informed about their entitlements?
c) In ensuring that citizens can access health services that they are entitled to?
d) Where citizens can access information including performance reports/accountability to citizens?
e) Being able to provide feedback on NHIF services?

5. Do you think these mechanisms/strategies we just discussed are sufficient?

a) Why? Why not?
b) What do you think is necessary to strengthen citizen empowerment on NHIF especially strategies targeting informal sector households?
   i. Knowledge of entitlement?
   ii. Contributing their views to what should be in the package?
   iii. Knowing how to request/obtain the services that they are entitled to?
   iv. Being able to provide feedback/complaints?
   v. Understanding the performance of the scheme? (is this latter one really an option?)

Thank you so much for your time. Again, we would like to assure you that the information you have shared with us today remains confidential.

Do you have any questions for us?

End time: _____

Appendix VIII: Household survey questionnaire

PARTICIPANT INFORMATION AND CONSENT
Bunyala Baseline Survey Questionnaire
Introduction and consent Hello, my name is_____and I work with the Academic model providing access to healthcare (AMPATH). We are conducting a survey to better understand the healthcare and economic activities among people in the region of Bunyala sub-County, Busia. We will ask you a few questions, complete the questionnaires with your answers and also observe your household environment for some information on your wellbeing. Everything that you say during the interview will be kept confidential. That is, any information that could be used to identify you will not be shared with anyone outside the research team. The information that you share will be kept securely stored at all times. The risks of participating in this survey are low. If you feel uncomfortable with certain questions you can choose not to answer them. You can stop the interview at any time. This survey is voluntary. We hope you will participate in this survey since your views are very important and could help in providing better health services to your community in the future. You will not be paid or rewarded for participating in the study. This interview will take about 1 hour of your time. If you have any questions or concerns about this survey you can contact _____ at AMPATH on phone number _____. For any questions relating to your rights as a research participant please contact the secretary at the Moi Teaching and referral Hospital Ethics Review Committee on phone number 0787723677. Name of the person consenting: _____ Do you accept to participate in the study? ☐ YES ☐NO As part of our study, we will have a second phase where we would like to ask a few selected households some additional questions related to your response to our interview today. If your household is selected, would you be willing to be contacted to provide us with more information in a second interview? ☐ YES ☐NO In future, we may need to ask you questions again to see if and how much things have changed related to our work in Bunyala. We would therefore like to ask for your permission to contact you in future for another interview (maybe in 3-4 years).

Do you accept to be contacted to participate in a future study? ☐ YES ☐NO
IF THE RESPONDENT DOES NOT ACCEPT TO BE INTERVIEWED ASK: To help better inform our work in the future, could you please tell me the main reason why you do not want to participate in this study? (FW: IF REASON IS RELATED TO TIME BEING INCONVENIENT FOR RESPONDENT, PLEASE MAKE AN APPOINTMENT TO COME BACK AND DO THE INTERVIEW). OTHERWISE THANK RESPONDENT FOR HIS/HER TIME AND END THE INTERVIEW.
IF THE RESPONDENT ACCEPTS TO BE INTERVIEWED: Thank you for agreeing to participate in our study. Could you please sign here to show that you have accepted to participate in the study? Respondent's Signature……. Thumb print: ☐ 0= REFUSES TO SIGN ☐ 1= ACCEPT TO SIGN ☐ 2= WILLING BUT UNABLE TO SIGN
Questionnaire Q1) STUDY ID: _____ Q2)Today's Date: ___/___ /_____ (dd/mm/yyyy)

Particulars of visits	Date	Time started	Time ended	Response
First visit				
Second visit				
Third visit				

Q4- a) Latitude Q4-b) Longitude

SECTION A: RESPONDENT'S INFORMATION		
1	Name	

2	Mobile phone #	
3	Owner of mobile phone	
4	Alternate mobile phone #	
5	Village of residence	(insert drop down list with villages in Bunyala)

6.	Have you ever been to school?	1. Yes 2. No (skip 2)
7.	What is the highest level of formal education you reached?	1. Nursery 2. Primary 3. Post primary/ vocational 4. Secondary 5. College (middle level) 6. University 7. Informal (e.g. Madrassa)
8.	What is your current marital Status?	1. Never married/never lived together 2. Married/ living together 3. Divorced/separated 4. Widowed
9.	What is your main employment activity?	1. Formal employment 2. Working in informal employment 3. Uneployed/Seeking work 4. Homemakers 5. Students 6. Others (Specify)
10.	What is your relationship to the head of this household?	1. Head of Household 2. Wife/Husband/Partner 3. Co-Wife 4. Son or Daughter 5. Sister/Brother 6. Son or Daughter in-law 7. Grandchild

		8. Parent 9. Parent in-law 10. Other Relatives 11. Adopted/Foster/ Stepchild/orphan 12. Not related 13. Other (specify) 98. Don't Know
11.	Are you a member to group/chama?	1. Yes 2. No
12.	What is the name of the group/chama?	[LIST OF GROUPS IN BUNYALA]
13.	**2. How would you describe <u>your</u> current health status?**	1. Excellent 2. Good 3. Average 4. Poor 5. Very poor 6. Don't know/refused

SECTION B: HOUSEHOLD CHARACTERISTICS					
	Usual residents	Relationship to Head	Sex	Age	Health status
	01	02	03	04	05
Household Member Number	Please give me the names of the people who **usually** live in your household, starting with the head of the household	What is the relationship of the <name> to the household head? 1. Head of Household 2. Wife/Husband/Partner 3. Co-Wife 4. Son or Daughter 5. Sister/Brother 6. Son or Daughter in-law 7. Grandchild 8. Parent 9. Parent in-law 10. Other Relatives 11. Adopted/Foster/ Stepchild/orphan 12. Not related 13. Other (specify) 98. Don't Know	What is the sex of? <Name>? 1. Male 2. Female	Date of birth (month and Year (give a best guess if you do not know the exact date)	Has <NAME> ever been diagnosed with any of the following chronic health conditions*? (If yes indicate accordingly) 1. Hypertension 2. Diabetes 3. Cardiac disorders (Rheumatic heart disease, valvular disease, heart failure, ischemic heart disease) 4. Stroke 5. Sickle Cell Disease 6. HIV/AIDS 7. Tuberculosis 8. Hepatitis B or Hepatitis C 9. Anemia 10. Arthritis or Joint pains 11. Peptic ulcer (stomach ulcer) 12. Chronic lung disease such as Asthma, COPD (excluding Tuberculosis) 13. Cancer 14. Skin disease 15. Epilepsy or other seizure disorder 16. Mental health disorder such as depression 17. other chronic health condition (Please specify)

					(Interviewer: * At least 3 months and can recur)
01				……../……	
02				……../……	
03				……../……	
04				……../……	

SECTION C: HEALTHCARE UTILIZATION (ASK FOR ALL HOUSEHOLD MEMBERS)						
	Health seeking behavior					
person ID	1	2	3	4	5	6
	Was [NAME] ill in the last four weeks? 1) Yes (go to 2) 2) No	If Yes, to Q1 did [NAME] visit/consult a health provider? (hospital/ health centre/ clinic/ Dispensary/ Pharmacy/chemist /shop/ Traditional Birth Attendant	If yes to Q2, what were the reasons for [NAME] seeking care ? 1. fever or suspected malaria 2. cough or respiratory infection 3. Diarrhea	If No to Q2, what were [NAME]'s main reasons for not consulting a health provider? 1. Lacked Money 2. Prescribed drugs not available 3. Self-medication 4. Poor quality service 5. High Cost of Care 6. Religion /cultural reasons 7. Fear of discovering	Did [NAME] seek preventive/promotive health care services in the last 4 weeks? 1. Yes 2. No 8. Don't know	How many outpatient visits did <name> make <u>in the last 4 weeks</u>: _____ (number)

		(TBA) &Traditional Healers, Religious/cultural healers?) 1. Yes (go to 3) 2. No (go to 4) 8. Don't Know (go to 5)	4. Rash or skin disease 5. Abdominal pain 6. Arthritis or joint pain 7. Fatigue or anaemia 8. Tuberculosis 9. HIV/AIDS care 10. Follow up Diabetes care 11. Follow up Hypertension care 12. Accident or injury 13. Cancer follow up 14. Other (Specify)				8. serious illness 9. Long distance to provider 10. Illness not considered serious enough 11. Others (____specify) (Multiple responses allowed)		(List of preventive services) • Family Planning • Immunization • Voluntary • Counselling and • Testing (VCT) • Counselling • Ante/post-natal care	
			1st	2nd	3rd	4th				
1										
2										
3										
4										
5										

QUESTIONS 7 TO 13 ARE BASED ON THE MOST RECENT VISIT IN THE PAST MONTH TO A HEALTH FACILITY

SECTION C: HEALTHCARE UTILIZATION (ASK FOR ALL HOUSEHOLD MEMBERS)							
person ID	7 Where did you [he/she] go for treatment the last/most recent visit? 1. public (govt.) facility 2. private facility 3. mission facility 4. NGO facility 5. Home of the provider (i.e., TBA, CHW, etc.). 6. patient's home 7. other (specify	8 If you went to a health facility, which facility did you attend? 1. Port Victoria Hospital 2. Mukhobola Health Center 3. Rukala Heath Center 4. Budalangi Dispensary 5. Osieko Dispensary 6. Sisenye Dispensary 7. Busagwa Dispensary 8. Bulwani Dispensary 9. Khajula Dispensary	9 What was the means of transport to the *facility/provider*? 1. walk (on foot) 2. private vehicle 3. public vehicle 4. motorcycle 5. bicycle 6. train 7. flight 8. other (specify)	10 How much time did it take for you [him/her] to reach the *facility/provider*? (time spent in minutes)	11 How far is it to the facility */ provider*? (distance in KMs) -record 999 if person does not know use one decimal place if needed	12 What kind of illness did they say [NAME] had? 1. Hypertension 2. Diabetes 3. Cardiac disorder (Rheumatic heart disease, valvular disease, heart failure, ischemic heart disease) 4. Stroke 5. Pneumonia or upper respiratory infection 6. Diarrhea 7. Peptic Ulcer/sto 9. Tuberculosis 10. Malaria 11. Anemia 12. Arthritis or Joint pains 13. Chronic lung disease such as Asthma, COPD (excluding Tuberculosis) 14. Cancer 15. Skin disease 16. Epilepsy or other seizure disorder 17. Mental health disorder such as depression 18. other chronic health condition (Please specify)	13 How much did you (or any other person in the household) pay or was paid for you [NAME] to see the PROVIDER? (amount in Ksh) if nothing, write 00

		10. Busia County Referral Hospital 11. Sirimba Dispensary 12. Other				mach ulcer 8. HIV/AIDS		
						96 preventative care; 00 no diagnosis given; 97 spiritual / witchcraft; 88 other; 99 don't know		
1								
2								

QUESTIONS 14 TO 20 ARE BASED ON THE MOST RECENT VISIT IN THE PAST MONTH TO A HEALTH FACILITY/PRACTITIONER

SECTION **C1: HEALTHCARE UTILIZATION**

person ID	14	15		16	17	18	19
	Did they tell you [NAME] to buy any medication? 1. Yes 2. no → 17	How much did you (or any other person in the household) pay for medicine? distinguish between medication purchased from the provider / at the clinic / hospital and that purchased elsewhere if nothing was spent in category, record 00		How did you (or any other person in the household) spend to do tests or other exams (such as x-rays)? if nothing, record 00 amount in Ksh	How much did you pay for other supplies, like needles, bandages, syringes? if nothing, record 00 amount in Ksh	How much did … or the household pay for transport to this facility/provider? if nothing, record 00 amount in Ksh	Did they admit you [NAME] for this illness [injury]? 1.Yes 2.no→ 21
		from provider (amount in Ksh)	from elsewhere (amount in Ksh)				
1							
2							
3							
4							

5							
6							

SECTION C2: QUALITY IMPROVEMENT

QN 20. [IF THE MAIN RESPONDENT (I.E. HOUSEHOLD MEMBER NUMBER 1) USED ANY SERVICE IN THE LAST MONTH – SEE QUESTION 19, ASK] Now I want to ask you about your experience with outpatient services. Please tell me how satisfied you are with the following aspects of your last visit to an outpatient service. Rate your satisfaction using a five-point scale where one is very dissatisfied and five is very satisfied. [SHOW CARD. READ OUT QUESTIONS]

		Very dissatisfied 1	Dissatisfied 2	Neutral 3	Satisfied 4	Very satisfied 5
.1.	How satisfied were you that the facility was clean?	1	2	3	4	5
.2.	How satisfied were you that you were able to consult the health worker in private?	1	2	3	4	5
.3.	How satisfied were you that your health problems were kept confidential by the facility staff?	1	2	3	4	5
.4.	How satisfied were you that you were treated with respect and dignity by the facility staff?	1	2	3	4	5
.5.	If you received drugs, how satisfied were you that these drugs helped to improve your health?	1	2	3	4	5
.6.	How satisfied were you that you received medical attention as soon as possible, i.e. without having to wait unnecessarily?	1	2	3	4	5

.7.	How satisfied were you with the overall quality of care received there?	1	2	3	4	5
		Very unlikely 1	Unlikely 2	Neutral 3	Likely 4	Very Likely 5
.8.	On a scale of 1-5, how likely are you to recommend this facility to a family member, friend or colleague?					

SECTION C3: HOSPITALIZATION					
	21	22	23	24	25
Person ID	Have you [NAME] been admitted at all in the last 12 months? 1.Yes 2.no→ 24	Where did they admit [NAME]? if multiple admittances, ask about the most recent admission	If you were admitted to a health facility, which facility were they admitted? 1. Port Victoria Hospital 2. Mukhobola Health Center	For how many nights did [NAME] sleep at the hospital?	When you [NAME] was admitted, how much did you (or any other person in the household) pay for: • complete EITHER **a** to **e** OR **f** • if completing a to e and nothing was spent in a category, record 00 in that category

		1. public (govt.) facility 2. private facility 3. mission facility 4. NGO facility 5. home of the provider (TBA, CHW, etc). 6. other	3. Rukala Heath Center 4. 5. Busia County Referral Hospital 6. Sirimba 7. Other	# of nights						
					a	b	c	d	e	f
					staying at the facility amount in Ksh	consultation amount in Ksh	medications amount in Ksh	other supplies (needles, bandages etc)	lab tests, X-rays and other	if costs cannot be classified by category, enter total costs here. amount in Ksh

								amount in Ksh	amount in Ksh	
1										

Person ID	SECTION D: REPRODUCTIVE HEALTH (Female household respondent-Qn 26-42)							
	Delivery by skilled birth attendant							
	26	27	28	29	30		31	32
	Have you given birth in the last 12 months? 1.Yes 2.no→ 21	What is (LAST BORNS) date of birth? (give a best guess if you do not know the exact date) …..…./……	Where did you give birth to your (LAST BORN)? 1. public (govt.) facility 2. private facility 3. mission facility 4. NGO facility 5. home of the	If you delivered at a health facility, which facility did you deliver? 1. Port Victoria Hospital 2. Mukhobola Health Center 3. Rukala Heath Center 4. Busia County	Who assisted with the delivery of (NAME OF LAST BORN)? Doctor .. A Nurse/midwife ..B Community health worker … C Traditional birth attendant … D Relative/friend … E		With your last birth, did you see anyone for antenatal care during the pregnancy? YES. . 1 NO. 2 DON'T KNOW. . 8	How many times did you receive antenatal care during this pregnancy? TIMES 1 2 3 4 >4 times

			provider (TBA, CHW, etc). 6. home 7. other	Referral Hospital 5. Other	Other (specify) …. X No one assisted… Y		If no → 13	DON'T KNOW. . 8

SECTION D2: CONTRACEPTIVE DEMAND SATISFIED FOR WOMEN 15-49				SECTION D3: CERVICAL CANCER SCREENING				
Person ID				Breast and Cervical cancer screening among women 30-49				
	35	36	37	38	39	40	41	42
	Now I have some questions about the future.			Now I would like to ask you about women's health				
	Are you currently doing something or using any method to delay or	(METHOD LIST)? Which method are you using? Female Sterilization.	The last time you obtained (HIGHEST METHOD ON LIST IN 304), how much	Have you ever heard of cervical cancer?	Have you ever had a test or exam to see if you had	What type of exam did you have to see if you have cervical cancer? PAP SMEAR . . . . . .A VISUAL INSPECTION(WIT	Have you had a breast examination ? YES . . 1	What type of exam did you have to see if you have breast cancer? Self examination. . .

	avoid getting pregnant? YES . . . . . 1 NO 2	Male Sterilization. IUD. Injectables. Implants. Pill Male Condom. Female Condom. Lactational Amenorrhea Method (LAM). Rhythm Method. Withdrawal. Emergency Contraception.	did you pay in total, including the cost of the method and any consultation you may have had?	YES . . 1 NO . . 2	cervical cancer? YES . . . 1 NO . . . 2	H ACETIC ACID (VIA)/LUGOL'S IODINE (VILI)) . . . . . B DON'T KNOW / NOT SURE X	NO . . 2	. . . . . A Mammogram . . . . . B DON'T KNOW / NOT SURE X

SECTION F: CHILD HEALTH

Person ID	41	42	43	44	45	46
	Use of ORS for child diarrhea					
	Has any of your children under age 5 had diarrhoea in the last 2 weeks?	Did you seek advice or treatment for the diarrhoea from any source?	If you sought treatment at a health facility, which facility were they admitted?	Was he/she given any of the following to drink at any time since he/she started having the diarrhoea		
				A fluid made from a special packet called ORS?	A home-made sugar-salt solution?	Other home-made liquid such as porridge, soup, yoghurt, coconut water, fresh fruit juice, tea, milk, or rice water?

YES 1	
NO 2	
DON'T KNOW 8	

YES 1	
NO 2	
DON'T KNOW 8	

GOVT HOSPITAL A	
GOVT HEALTH CENTER .B	
GOVT DISPENSARY . C	
OTHER PUBLIC SECTOR D (SPECIFY)	
PVT. HOSPITAL/CLINIC . . . . E	
PHARMACY . . . F	
MISSION HOSP./ CLINIC . . . . . G	
OTHER PRIVATE SECTOR -- H (SPECIFY	

YES 1	
NO 2	
DON'T KNOW 8	

YES 1	
NO 2	
DON'T KNOW 8	

YES 1	
NO 2	
DON'T KNOW 8	

			MOBILE CLINIC . I			
			COMMUNITY HLTH WORKER J			
			SHOP . . . . . K			
			TRADITIONAL PRACTITIONER L			
			RELATIVE/FRIEND M			
			OTHER X (SPECIFY)			

SECTION F: CHILD HEALTH-DIARRHEA AND IMMUNIZATION				
Person ID	47	48	49	50
	Use of ORS for child diarrhea		One year old children who have received 3doses of DPT vaccine	
	Was anything (else) given to treat the diarrhoea? YES 1	What (else) was given to treat diarrhea? a. antibiotic or other medication b. vitamin or other supplement	Has (LAST BORN) had A Pentavalent vaccination, that is, an injection in the left outer thigh, sometimes at the same time as the polio drops?	Do you have a card /child health book where (LAST BORN)'s vaccinations are written down? IF YES: May I see it please? YES . . . .

	NO . . . . . 2 DON'T KNOW 8	c. IV fluids d. not sure what the treatment was	YES . . . . . 1 NO . . . . . 2 DON'T KNOW 8	. . . . . 1 NO 2

BCG (at birth)	YES recorded on card YES reported, but not on card /no card NO Don't Know
Polio 0 (at birth)	YES recorded on card YES reported, but not on card /no card NO Don't Know
OPV1	YES recorded on card YES reported, but not on card /no card NO Don't Know
OPV2	YES recorded on card YES reported, but not on card /no card NO Don't Know
OPV3	YES recorded on card YES reported, but not on card /no card NO Don't Know
DPT, Hepatitis, HIB, 1st dose	YES recorded on card YES reported, but not on card /no card

	NO Don’t Know
DPT, Hepatitis, HIB, 2nd dose	YES recorded on card YES reported, but not on card /no card NO Don’t Know
DPT, Hepatitis, HIB 3rd dose	YES recorded on card YES reported, but not on card /no card NO Don’t Know
Pneumococcal vaccine 1	YES recorded on card YES reported, but not on card /no card NO Don’t Know
Pneumococcal vaccine 2	YES recorded on card YES reported, but not on card /no card NO Don’t Know
Pneumococcal vaccine 3	YES recorded on card YES reported, but not on card /no card NO Don’t Know

Measles	YES recorded on card YES reported, but not on card /no card NO Don’t Know

SECTION F: CHILD HEALTH-ARI				
Person ID	51	52	53	54
	Have any children under age 5 in the household had an illness with a cough at any time in the last 4 weeks? YES NO DON'T KNOW	Did that child have a fever with the cough, or breathe faster than usual with rapid short breaths, or have difficulty breathing? YES NO DON"T KNOW	Did You seek treatment or advice from a health facility? YES NO	At any time during the illness, did the child take any drugs for the illness? YES NO Don't Know

SECTION J: HEALTH INSURANCE [GENERAL]						
1	2	3	4	5	6	7
Do you [NAME] have health insurance? 1 Yes 2 No → Go to Q12	What is the main source of health insurance for you [NAME]? Check only one 1. NHIF 2. Community based health insurance 3. Private insurance 4. Others (specify)	How much do you pay for health insurance premiums on a monthly basis? (If paid annually and/or paid for family as a whole, divide by appropriate number. For e.g., if paid $360 for 12 months for a family of 6, it would be $5/person per month) amount in Ksh; if nothing is paid, record 0	How do you or your family pay for your health insurance? 1. Pension 2. Dependent 3. Cash 4. Others	How long have you been part of this health insurance? (Specify the # of months)	Overall, are you satisfied with your health insurance? 1. Yes 2. No	What aspect of your health insurance needs the most improvement? 1. Breadth (i.e., comprehensiveness) of services & care 2. Quality of health services 3. Premiums 4. Access to the insurance scheme (for e.g., due to geographical remoteness) 5. Others - specify

SECTION J: HEALTH INSURANCE [GENERAL]						
9	10	11	12	13	14	15
Have you ever heard of NHIF (National Hospital Insurance Fund)? 1. Yes 2. No	Do you know what NHIF supa+cover benefits are? 1. Yes 2. No If yes, could you list them (*checklist-do not read to respondent) • Outpatient services - Consultation, Laboratory, investigations, day-care	Do you have NHIF supa+cover? 1. Yes [Go to 13] 2. Yes, but not active [Go to 12]	What is the main reason you <u>do not</u> have <u>active</u> NHIF insurance? 1. The premiums are too expensive 2. I am rarely sick	What is the main reason you do <u>have</u> active NHIF insurance? 1. To protect from high costs of healthcare 2. Because I have a chronic condition	If you ever had a complaint about NHIF, how would you get in touch with them? 1. phone (let the respondent give you a number) 2. email	Are you aware of any ways or forums where NHIF reports their financial performance to the citizens?

	procedures, drugs and dispensation, health education, wellness and counselling, physiotherapy services, immunization / vaccines as per the KEPI schedule • Inpatient services • Maternal care - Antenatal and Prenatal care and deliveries (Normal delivery and caesarean section) • Reproductive health services: Family Planning • Overseas treatment for specialized surgeries not available locally • Rehabilitation for drugs and substance abuse • All surgical procedures including transplants • Emergency road evacuation services • Radiology imaging services (X-rays, CT Scan, & MRI) • Renal Dialysis	3. No [Go to 12]	3. I can't get the healthcare I need at the local facility 4. Its calling bad luck and sickness 5. Money is not returned if I don't fall sick 6. The services at my local health facility are poor quality 7. NHIF registration processes are complicated 8. Religious reasons. My religion forbids	3. To cover for costs of hospitalization 4. I can access prevention services 5. The quality of services at the local health facility are good 6. It was provided for free	3. Go to their office (facility office or NHIF branch)	1. Yes 2. No

			enrollment to a health insurance scheme 9. There are no drugs at the public health facilities			

I would like to ask you questions about your household expenditures and consumption (include estimates on direct purchases, consumption from bulk purchases, consumption from own produce and gifts/in-kind)

SECTION L: HOUSEHOLD EXPENDITURE AND CONSUMPTION: RESPONDENT – HOUSEHOLD REPRESENTATIVE				
16		How much did your household spend in last 7 days on the following key		
		foods and beverages?	Ksh	
		1. Oil and fats (include vegetable oil etc.) ……....	…… ……	
		2. Cereals (including maize grains, maize and wheat flour, beans, rice etc.) ……..	…… ……	
		3. Livestock/ Poultry produce e.g. Milk and eggs……	…… ……..	

		4. Fish ……..	…… ……	
		5. Meat including (/liver," matumbo", chicken, pork etc. ……	…… ……	
		6. Sugar and beverage (tea, coffee etc. ……..	…… ……	
		7. Bread ……..	…… ……..	
		8. Spices e.g. "Curry powder" ……..	…… ……	
		9. Vegetables, carrots …….	…… ……..	
		10. Fruits ……	…… ……	
		11. Roots (sweet potatoes, yams, arrow roots etc.) ……..	…… ……..	
		12. Soft drinks (soda, Juice etc.) ……	…… ……	
		13. Beer/ Wines/Miraa (includes wines, beers, spirits, "muratina"/ "karubu"/ "mnazi" etc.)……	…… …….	
		14. Soap and detergents…….	…… ……	

		15. Meals (Kiosk, restaurant, roadside vendors) …….	…… ……	
		[If you can't give a break down, please provide the total amount spent on food and beverages]	……..	

17	MONTHLY HOUSEHOLD EXPENDITURE AND CONSUMPTION		
	How much did your household spend in **last one month** on the following?		Amount (KSh)
	1. Cosmetics		
	2. Soap and detergent		
	3. Hair dressing/barber		
	4. Rent		
	5. Electricity		
	6. Water		
	7. Kerosene/paraffin		
	8. Telephone bills/Airtime		
	9. Transport		
	10. Charcoal		
	11. Fire wood		
	12. Cooking gas		
	13. Salaries including salaries/wages for domestic workers		
	14. Remittances (in cash and kind)		

	15. Sanitary towels		
	16. Others (Specify)		
	Total amount		
	ANNUAL HOUSEHOLD EXPENDITURE AND CONSUMPTION		
18	How much did your household spend in the last **one year** on the following?		Amount (KSh)
	1. Education (registration, uniforms, books, tuition, exam fees)		
	2. Maintenance and repairs including car and buildings etc.		
	3. Clothing and footwear		
	4. Wedding/dowry including contributions/ harambees for the same to other HHs		
	5. Funerals including contributions/ harambees for the same to other HHs		
	6. Capital expenditures including cars, plots etc.		
	7. Others (specify)		
	Total amount	…….	

SECTION F: HOUSEHOLD CONDITION/ASSETS		
1	How many rooms are in your home, not including bathrooms and toilets?	
2	What materials are used for the main household dwelling roof?	1 = Grass/straw, 2 = Iron sheet, 3 = Tiles, 4 = other (specify) _____
3	What materials are used for the main household dwelling walls?	1 = Mud, 2 = Mud and twigs, 3 =Wood, 4 = Iron sheet, 5 = Mud and cement, 6 = Block/ brick, 7 = Raw bricks, 8 = Other (specify) _____
4	What materials are used for the main household dwelling floor?	1 = Mud, 2 =Wood, 3 = Mud and cement, 4= Cement, 5 = Tiles, 6 = Other (specify) _____
6	Where is that water source located?	In own dwelling In own yard/plot

		Elsewhere
7	Do you do anything to the water to make it safer to drink?	Yes No →Q9 Don't know
8	What do you usually do to make the water safer to drink? Anything else? Record all mentioned.	1= Boil 2= Add bleach/chlorine 3= Strain through a cloth 4= Use water filter (ceramic/sand/composite/e.t.c) 5= Solar disinfection 6= Let it stand and settle 7= Cover the water container 8= Other 9= Don't know
9	What kind of toilet facility do members of your household usually use?	1= Flush or pour flush toilet 2= Flush to piped sewer system 3= Flush to septic tank 4= Flush to pit latrine 5= Flush to somewhere else 6= Flush, don't know where 7= Pit latrine 8= Ventilated improved pit latrine

		9= Pit latrine with slab 10= Pit latrine without slab/open pit 11= Composting toilet 12= Bucket toilet 13= Hanging toilet/hanging latrine 14= No facility/bush/field 15= Other
10	Do you share this toilet facility with other households?	Yes No

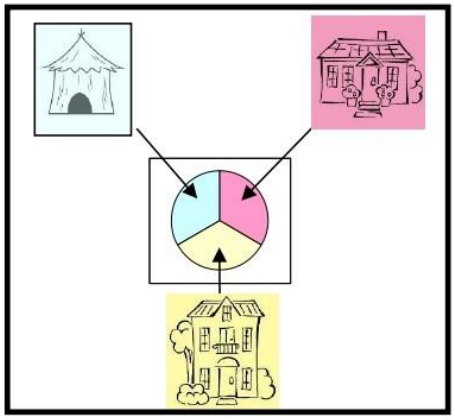
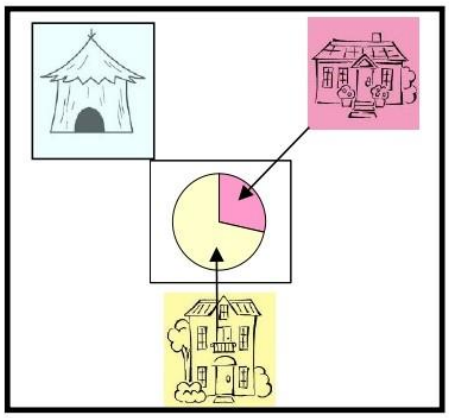
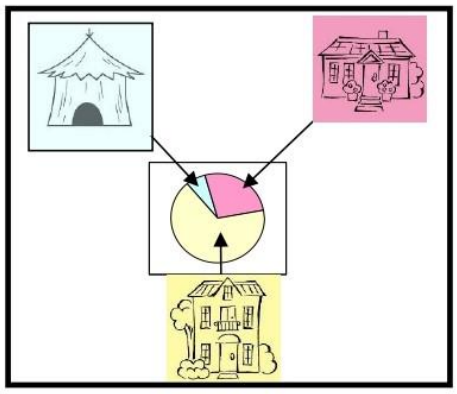
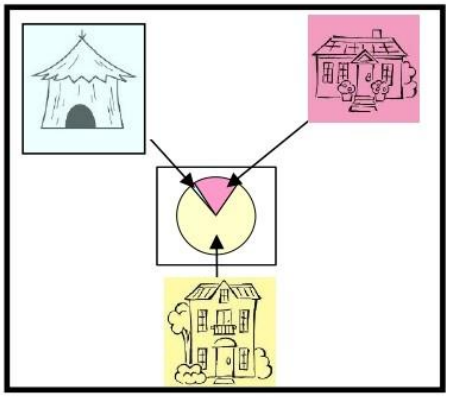
SECTION G: SOCIAL SOLIDARITY (HEALTH AND WEALTH CROSS-SUBSIDIES AND PREPAYING FOR HEALTHCARE)						
People have different views as to how health services should be paid for. For the following statements, please will you tell me whether you strongly agree with the statement, agree, disagree or strongly disagree? [SHOW CARD]						
	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't know	Refuse to answer
.1. I would agree to pay a small amount each month so that if I get sick, health care will be free, even if I am not sick now	1	2	3	4	5	6
.2. I would be willing to pay the same amount of money each month as everyone else, even though others who are more sick than I am will use the services more than me	1	2	3	4	5	6
.3. I would be willing to willingness to pay the same amount of money each month as everyone else, even though others who are more poor than I am will use the services more than me	1	2	3	4	5	6

Which of the following statements would you agree with most: [SINGLE MENTION]

Everyone should only be expected to pay for their own health care	1
I would be willing to contribute to health care costs for myself and my family	2
I would be willing to contribute to health care that benefits me, my family and other people I know (like neighbours and friends)	3
I would be willing to contribute to health care that benefits a wider group of people particularly where they are worse-off than me	4

[SHOW CARD AND EXPLAIN IT]: Imagine that government sets up a scheme to cover the health care costs for all Kenyans. The scheme would cover the full costs for your day-to-day health care (when you need to go to a clinic or a doctor and for medicines) and for when you need to go to hospital. We would like to get your views on who should contribute, and how much they should contribute, to such a scheme. On this card, there are three families and each has a different income. Which of these options do you think best indicates what you think each family should contribute towards the health care costs

Appendix IX: Show cards

Option 1: Everyone pays the same amount 	**Option 2: The poorest don't have to pay** 
Option 3: All must pay something, but pay according to their income 	**Option 4: All must pay something, but the poorest pay very little** 

Appendix X: Plagiarism check report

2371317_Maritim B_Integrative Narrative Final_Turnitin.pdf

by Test student

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