

**FACTORS INFLUENCING UTILIZATION OF THE MAKUENI CARE
INSURANCE PROGRAM TOWARD UNIVERSAL HEALTH COVERAGE IN
MAKUENI COUNTY, KENYA**

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**A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE DEGREE OF
MASTER OF SCIENCE IN HEALTH SYSTEMS MANAGEMENT OF KENYA
METHODIST UNIVERSITY**

OCTOBER 2025

DECLARATION

Declaration by the student

I declare that this thesis is my original work and has not been presented in any other University.

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HSM-3-2818-3/2022

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DEDICATION

This work is dedicated to the Congregation of Our Lady of Charity of the Good Shepherd, my beloved family, and mentors whose unwavering support and encouragement sustained me throughout this journey.

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ABSTRACT

Health financing involves raising adequate funds for health services in ways that ensure people can access needed care without facing financial hardship or impoverishment. It also provides incentives for efficiency among both providers and users. Health insurance schemes play a central role in improving access to healthcare by pooling resources to reduce the financial burden on individuals and families. Such schemes are vital in advancing Universal Health Coverage (UHC) by ensuring equitable, affordable, and accessible health services. The Makueni Care Insurance Program (MCIP), implemented in Makueni County, Kenya, represents a key initiative toward achieving UHC. However, its success has been constrained by challenges related to funding, accessibility, affordability, and equity. This study focused on these factors to provide actionable insights for strengthening MCIP and similar health insurance schemes. Specifically, the study aimed to examine the influence of accessibility, affordability, equity, and funding on the utilization of MCIP in achieving UHC in Makueni County. The study targeted two primary groups: Hospital Administrators and Healthcare Providers, and Beneficiaries and Program Users. The Hospital Administrators and Healthcare Providers group comprised approximately 192 individuals, including 128 Hospital Administrators and 333 Healthcare Providers drawn from 16 public hospitals across Makueni County. The sample size was determined using Yamane's formula at a 5% precision level, resulting in 45 hospital administrators and 99 healthcare providers. In addition, purposive sampling was used to select 40 program beneficiaries from each of the four facilities—Makueni County Referral Hospital, Emali Sub-County Hospital, Makindu Sub-County Hospital, and Kibwezi Sub-County Hospital—yielding a total of 160 beneficiaries. Stratified sampling was applied to ensure proportional representation across the facilities. A descriptive cross-sectional survey design was employed to gather quantitative data from program users, inpatients, and healthcare providers across the selected public health facilities. Data were collected using structured questionnaires tailored for program beneficiaries, administrators, and healthcare providers. The data were analyzed using SPSS (Version 26), applying Spearman rank correlation and multivariate regression analyses to evaluate relationships between the key factors and MCIP utilization. The findings revealed that funding, accessibility, affordability, and equity all played critical roles in improving the utilization of health insurance schemes such as MCIP. Specifically, affordability ($\beta = 0.263$, $p < 0.001$), accessibility ($\beta = 0.167$, $p = 0.001$), equity ($\beta = 0.201$, $p < 0.001$), and funding ($\beta = 0.217$, $p < 0.001$) had statistically significant positive effects on MCIP utilization. Among these, affordability had the strongest influence, underscoring the importance of financial considerations in beneficiary engagement. Based on these results, the study offered evidence-based recommendations for policymakers and stakeholders to enhance MCIP's effectiveness. These included strategies to promote sustainable funding, improve service accessibility, ensure affordability through reduced premiums or subsidies, and strengthen equity in healthcare delivery. Implementing these interventions will foster greater enrollment and continued use of MCIP services, ultimately contributing to improved health outcomes and the realization of UHC in Makueni County and beyond.

TABLE OF CONTENTS

DECLARATION	ii
COPYRIGHT PAGE	iii
DEDICATION	iv
ACKNOWLEDGEMENTS	v
ABSTRACT	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background to the Study	1
1.2 Statement of the Problem	5
1.3 Purpose of the study	7
1.5 Broad objective.....	7
1.6 Specific Objectives	7
1.7 Research Questions.....	8
1.8 Justification of the Study	8
1.9 Limitations of the Study	10
1.10 Delimitations of the Study	11
1.11 Scope of the study.....	12
1.12 Significance of the Study.....	13
CHAPTER TWO	17
LITERATURE REVIEW	17
2.1 Introduction	17
2.2 An Overview of the Insurance Program toward Universal Health Coverage	17

2.2.1 Global Perspective for Insurance Programs toward Universal Health Coverage	17
2.2.2 African perspective for Insurance Program toward Universal Health Coverage	20
2.2.3 Kenyan Perspective for Insurance Program toward Universal Health Coverage	22
2.3 Affordability and Utilization of Insurance Program.....	24
2.4 Accessibility and Utilization of Insurance Program.....	30
2.5 Equity and Utilization of Insurance Program	36
2.6 Funding and Utilization of Insurance Program	41
2.7 Utilization of Insurance Program	45
2.8 Theoretical Framework.....	46
2.9 Conceptual Framework.....	48
CHAPTER THREE	50
RESEARCH METHODOLOGY	50
3.1 Introduction	50
3.2 Research Design	50
3.3 Target Population	51
3.3.1 The Inclusion and Exclusion Criteria	55
3.4 Sampling Procedure and Sample Size	55
3.4.1 Sampling Procedure.....	55
3.4.2 Sample Size	56
3.5 Data Collection Instruments	58
3.6 Pretest Study	58
3.7 Data Analysis and Presentation	63
3.7.1 Analytical Model Diagnostic Tests on Collected Data	64
3.8 Ethical Considerations	65
CHAPTER FOUR.....	68
RESEARCH RESULTS AND DISCUSSION	68
4.1 Introduction	68

4.2 Response Rate.....	68
4.3 Background Characteristics	70
4.3.1 Background Characteristics of Healthcare Administrators and Providers	70
4.3.2 Background Characteristics of the Program user	73
4.4 Descriptive Results of Variables	77
4.4.1 Affordability	77
4.4.1.1 Affordability of Makueni Care Insurance Premiums	81
4.4.1.2 Affordability in Paying Premiums.....	82
4.4.1.3 Perceived Value for Money in Makueni Care Insurance	83
4.4.1.5 Triangulation of Descriptive and Qualitative Results: Influence of Affordability on Utilization of Makueni Care Insurance Program.....	86
4.5.2 Accessibility	89
4.5.2.1 Frequency of Visits to Health Facility.....	96
4.5.2.2 Convenience of Health Facility Operating Hours	97
4.5.2.3 Physical or Logistical Barriers to Healthcare Access.....	98
4.5.2.4 Qualitative Perspectives on Accessibility and Its Impact on Utilization of the Makueni Care Insurance Program	101
4.5.2.5 Triangulation of Descriptive and Qualitative Results: Influence of Accessibility on Utilization of Makueni Care Insurance Program.....	103
4.6.3 Equity.....	106
4.6.3.1 Perceived Equity in Access to Makueni Care Insurance Services	110
4.6.3.2 Observed Differences in Quality of Services Provided to Different Groups	111
4.6.3.3 Access Disparities among Community Groups.....	113
4.6.3.4 Qualitative Insights on the Influence of Equity on Utilization of the Makueni Care Insurance Program	118
4.6.3.4 Triangulation of Descriptive and Qualitative Results: Influence of Equity on Utilization of Makueni Care Insurance Program.....	119
4.7.4 Funding.....	123
4.7.4.1 Qualitative Findings: Influence of Funding on Utilization of the Makueni Care Insurance Program	127
4.7.4.2 Triangulation of Descriptive and Qualitative Results: Influence of Funding on Utilization of Makueni Care Insurance Program.....	128

4.8.1 Utilization of the Makueni Care Insurance Program (UMCIP)	131
4.5 Analytical Model Diagnostic Tests on Collected Data	135
4.5.1 Test for Normality	135
4.5.2 Multi-collinearity Test.....	136
4.5.3 Linearity Tests Results	137
4.5.4 Test for Homoscedasticity	138
4.6 Regression Analysis Results.....	138
CHAPTER FIVE	146
SUMMARY, CONCLUSION AND RECOMMENDATIONS	146
5.1 Introduction	146
5.2 Summary.....	146
5.2.1 Influence of accessibility on utilization of the Makueni care insurance program in achieving UHC in Makueni County	147
5.2.2 Influence of affordability on the utilization of the Makueni care insurance program in achieving UHC in Makueni County.	148
5.2.4 Influence of Funding on utilization of the Makueni care insurance program in achieving UHC in Makueni County.	150
5.3 Conclusions	151
5.3.1 Accessibility and the performance of health workers	151
5.4 Recommendations	154
5.4.1 Managerial Recommendations	155
5.5 Areas of Further Research	159
APPENDICES	170
Appendix 1: Informed Consent Form.....	170
Appendix 2: Questionnaire	173
Appendix 3: Program Users Questionnaire	182
Appendix 4: Ethical Approval	186
Appendix 5: Research Permit	189

LIST OF TABLES

Table 3. 1: Target Population.....	54
Table 3. 2: Sample Distribution	57
Table 3. 1: Reliability Results.....	61
Table 3. 2: Validity Test of Study Variables	63
Table 4. 1: Response Rate by Category and Facility (Administrators and Healthcare Providers).....	69
Table 4. 2: Response Rate among Program Users.....	70
Table 4. 5: Background Characteristics of Healthcare Administrators and Providers	71
Table 4. 6: Background Characteristics of the Program Users	74
Table 4. 7: Descriptive Results for Affordability	78
Table 4. 8: Affordability of Makueni Care Insurance Premiums	81
Table 4. 9: Affordability in Paying Premiums.....	82
Table 4. 10: Perceived Value for Money in Makueni Care Insurance.....	83
Table 4. 11: Respondents' Views on Accessibility of the Makueni Care Insurance Program.....	90
Table 4. 12: Accessibility of Nearest Health Facility	93
Table 4. 13: Transportation Challenges in Accessing Healthcare	95
Table 4. 14: Frequency of Visits to Health Facility.....	96
Table 4. 15: Convenience of Health Facility Operating Hours	97
Table 4. 16: Physical or Logistical Barriers to Healthcare Access.....	98
Table 4. 17: Respondents' Views on Equity in the Makueni Care Insurance Program..	107
Table 4. 18: Perceived Equity in Access to Makueni Care Insurance Services	110
Table 4. 19: Observed Differences in Quality of Services Provided to Different Groups	111
Table 4. 20: Access Disparities among Community Groups.....	114
Table 4. 21: Respondents' Views on Funding of the Makueni Care Insurance Program	124
Table 4. 22: Utilization of the Makueni Care Insurance Program.....	132
Table 4. 24: Kolmogorov-Smirnov Test for Normality.....	135
Table 4. 25: Collinearity Statistics.....	137
Table 4. 26: Test of Linearity Results (N = 126).....	137
Table 4. 27: Breusch-Pagan and Koenker Tests Results	138
Table 4. 28: Summary of all the four independent variables and utilization of the Makueni Care Insurance Program	139
Table 4. 29: Coefficients.....	141

LIST OF FIGURES

Figure 2. 1: Conceptual Framework	49
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ABBREVIATIONS AND ACRONYMS

ACS	: African Collaborative for Health Financing Solutions
LMICs	: Low- and Middle-Income Countries
MDGs	: Millennium Development Goals
NHIF	: National Health Insurance Fund
OECD	: Organization for Economic Cooperation and Development
OOPs	: Out-Of-Pocket payments
SDG	: Sustainable Development Goal
SHI	: Social Health Insurance
UHC	: Universal health coverage
UN	: United Nations
UNECA	: United Nations Economic Commission for Africa
USAID	: US Agency for International Development
WHR	: World Health report

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Universal Health Coverage (UHC) has become a central pillar in global health policy, reflecting a growing commitment to health equity and access to essential medical services. At its core, UHC aims to ensure that every individual, regardless of economic, geographic, or social background, can obtain comprehensive and quality healthcare without facing financial hardship (Plianbangchang, 2018). It encompasses promotive, preventive, curative, rehabilitative, and palliative services, emphasizing both access and financial protection (Okech & Lelegwe, 2016).

According to the World Health Organization (2019), UHC is evaluated through three key dimensions: population coverage, service coverage, and financial protection. Together, these dimensions guarantee inclusivity in access, adequacy in service provision, and shielding of individuals from catastrophic health expenditures. UHC therefore represents not just healthcare access, but a broader framework for equity, quality, and financial sustainability in health systems worldwide (Hogan et al., 2018).

Across Africa, UHC has become a major public policy goal, with countries seeking to strengthen health systems and financing mechanisms to achieve it. In Kenya, the constitutional right to affordable, quality healthcare—as enshrined in the 2010 Constitution—is implemented through the collaboration between national and county governments. Achieving this goal requires robust domestic financing systems that generate sufficient, pooled resources to prevent out-of-pocket payments at the point of care. The

Abuja Declaration recommends that governments allocate at least 15% of their national budgets to health; however, most low-income countries, including Kenya, remain below this threshold, affecting the pace of UHC realization (WHO, 2019).

Globally, health financing remains a pressing concern, with many nations struggling to balance rising healthcare costs and accessibility. For instance, while the United States allocates nearly 18% of its GDP to healthcare, developing countries continue to face funding gaps that impede service delivery and financial protection (Crowley et al., 2020). To address such disparities, the Sustainable Development Goals (SDGs)—particularly SDG 3—emphasize ensuring healthy lives and promoting well-being for all through the attainment of UHC (WHO, 2020).

In Africa, progress toward UHC has been uneven. Although nations like Rwanda, Ghana, and Ethiopia have made notable strides, over half of the continent’s population still lacks access to essential health services, with Sunkutu (2023, estimating an annual funding gap of \$66 billion. The African Health Forum held in 2019 therefore called for increased investment and innovation in health financing to bridge this gap.

Kenya introduced its pilot phase of UHC in 2018 across four counties—Nyeri, Isiolo, Kisumu, and Machakos—focusing on improving healthcare access, infrastructure, and workforce capacity. While Makueni County was not among the pilot counties, it had already launched its own localized UHC initiative—Makueni Care—in October 2016, targeting improved access to affordable healthcare for all residents (Government of Makueni, 2016). Initially piloted for senior citizens above 65 years, the program’s success led to its expansion to all households. Makueni Care offers promotive, preventive, curative,

and rehabilitative services for an annual household fee of KES 500, covering the principal member, spouse, and dependents.

Prior to the launch of Makueni Care, the County faced significant challenges due to high out-of-pocket healthcare expenditures, which accounted for approximately 26.1% of total health expenditure nationally. Households spent on average KES 11,000–15,000 annually on medical care—an amount that pushed nearly 1.5 million Kenyans into poverty each year (World Bank, 2020). In Makueni County specifically, over 42% of households reported resorting to distress financing measures such as selling land, livestock, or household assets to meet hospital bills (Makueni County Government, [MCG], 2020). Although the Government of Kenya abolished user fees at primary healthcare facilities in 2013 to improve access, direct out-of-pocket payments still accounted for a significant proportion of total health expenditure. This persistent financial burden underscored the urgent need for a sustainable health financing mechanism like Makueni Care.

Through this program, Makueni County provided free services at the point of care through its public facilities, including 12 Level 4 hospitals and one Level 5 referral hospital. However, specialized services such as dialysis, CT scans, and referrals outside the county remained excluded (MCG, 2020). The program aligns with Kenya’s Vision 2030 and the Kenya Health Policy 2014–2030, reflecting the County’s commitment to health as a key development priority (Ministry of Health [MoH], 2020).

Although initiated during the NHIF era, Makueni Care remains relevant in the current context of the Social Health Insurance Fund (SHIF) established under the Social Health Authority (SHA) Act of 2023. Its design—emphasizing affordability, accessibility, equity,

and sustainable financing—offers valuable lessons for SHIF’s national rollout. By analysing the determinants of Makueni Care’s success, this study provides policy-relevant insights that can inform SHIF’s implementation and strengthen Kenya’s path toward equitable and comprehensive Universal Health Coverage. Despite its achievements, Makueni Care continues to face challenges related to funding, coverage, and service delivery, making this study’s focus on affordability, accessibility, equity, and resource allocation particularly crucial (MoH, 2020).

The Makueni Care Insurance Program was established to enhance access to quality and affordable healthcare services for residents of Makueni County as part of efforts to achieve Universal Health Coverage (UHC). Despite its progress, many households still experience financial barriers and unequal access to care. **Affordability** remains a key concern, as out-of-pocket expenses and low subsidy uptake affect enrollment rates. **Accessibility** is also challenged by geographical distance, inadequate infrastructure, and uneven distribution of health facilities, limiting service reach among rural populations. Similarly, **equity** issues persist, with disparities in healthcare utilization and outcomes across different social and economic groups. **Funding** plays a central role in sustaining the program, drawing resources from county allocations, member contributions, and partner support, yet sustainability concerns remain due to rising healthcare costs and delayed disbursements. This study was motivated by the need to assess how these constructs—affordability, accessibility, equity, and funding—influence the utilization of the Makueni Care Insurance Program.

1.2 Statement of the Problem

Achieving Universal Health Coverage (UHC) in Makueni County is a critical goal for improving healthcare access and outcomes, yet the Makueni Care Insurance Program, designed to help achieve this goal, faces several challenges. These challenges, particularly in the areas of availability, accessibility, funding, affordability, and equity, have hindered the program's success. The availability of healthcare services under the Makueni Care Insurance Program is severely limited by persistent shortages in essential drugs, medical supplies, and healthcare professionals. These deficiencies compromise the quality of care provided and hinder the program's ability to meet the healthcare needs of the population (MCG, 2020). Furthermore, despite efforts to improve accessibility, significant challenges persist, particularly in remote areas where geographical barriers and insufficient healthcare infrastructure contribute to disparities in healthcare access (Nordling, 2021). In these regions, marginalized populations face even greater challenges, which limits their ability to fully benefit from the program.

Funding constraints represent another major obstacle to the program's effectiveness. Although the Makueni Care Insurance Program receives some financial support from the county government, the allocated funds are often inadequate to meet the increasing healthcare demands of the population. This insufficient funding results in limitations on services, forcing patients to seek care at higher-level facilities, often incurring additional costs that undermine the program's affordability goals (MCG, 2020). Affordability remains a major concern, particularly for low-income households, many of whom perceive the cost of enrolling in the program as too high. This leads to continued reliance on out-of-pocket

payments, which exacerbates financial strain on families and limits their access to needed healthcare.

Equity is another pressing issue, as the program's coverage is uneven, leaving a significant portion of the population uninsured. Approximately 34.6% of Makueni's residents lack any form of insurance, which exposes them to financial hardship in the event of illness. This lack of coverage, coupled with limited benefits and perceived high costs, particularly affects vulnerable groups, contributing to low enrollment rates and further entrenching healthcare inequalities in the county.

However, there is a lack of research specifically exploring the effectiveness of the Makueni Care Insurance Program in addressing these challenges. While the existing literature mentions funding, accessibility, and equity issues, it does not delve into the interplay between these factors and the program's overall impact on UHC in Makueni County. Studies such as those by Barasa et al. (2020) and Muthoni et al. (2021) highlight the need for an in-depth analysis of the effectiveness of similar programs, especially in addressing challenges related to coverage and financial sustainability. Research also suggests that improving healthcare accessibility and affordability requires innovative solutions tailored to local contexts (United Nations Children's Fund [UNICEF] ,2024)

This study aimed to address these gaps by focusing on the factors influencing the utilization of the Makueni Care Insurance Program. Specifically, it will explore how the program can be improved in terms of availability, accessibility, funding, affordability, and equity. By examining these issues in detail, this research seeks to provide actionable recommendations

that will help enhance the program's effectiveness and contribute to achieving UHC in Makueni County.

1.3 Purpose of the study

The aim of this research was to methodically examine the factors that affected the use of universal health coverage in Makueni County, Kenya, in promoting universal health coverage within the county. By investigating aspects such as the accessibility, affordability, fairness, and financing of the program, the study sought to evaluate how these factors influenced the program's utilization in delivering comprehensive and fair healthcare. Understanding these elements was essential for devising specific approaches to improve the program's performance and ensure that it addressed the healthcare needs of the entire population. Ultimately, the research strived to provide practical insights that could contribute to enhancing health insurance models and attaining broader health coverage objectives in similar settings.

1.5 Broad objective

The overall objective of this study was to examine the factors influencing the utilization of the Makueni care insurance program toward Universal Health Coverage in Makueni County, Kenya.

1.6 Specific Objectives

- i. To examine the influence of accessibility to health services on utilization of the Makueni care insurance program in achieving UHC in Makueni County.

- ii. To establish the influence of affordability on utilization of Makueni Care Insurance Program in achieving UHC in Makueni County.
- iii. To determine the influence of equity on utilization of the Makueni care insurance program in achieving UHC in Makueni County.
- iv. To assess the influence of funding on utilization of the Makueni care insurance program in achieving UHC in Makueni County.

1.7 Research Questions

- i. What is the influence of accessibility on utilization of the Makueni care insurance program in achieving UHC in Makueni County?
- ii. What is the influence of affordability on utilization of the Makueni care insurance program in achieving UHC in Makueni County?
- iii. What is the influence of equity on utilization of the Makueni care insurance program in achieving UHC in Makueni County?
- iv. What is the influence of funding on utilization of the Makueni care insurance program in achieving UHC in Makueni County?

1.8 Justification of the Study

The justification for this study on the Makueni Care Insurance Program was grounded in its alignment with Kenya's national agenda of achieving Universal Health Coverage (UHC), a key pillar of the country's social healthcare initiative. This agenda was anchored in the Constitution of Kenya (2010), particularly Article 43, which guaranteed every citizen the right to the highest attainable standard of health. Furthermore, the government's

commitment to the UHC pillar, as articulated in the Kenya Vision 2030 and the Health Act of 2017, emphasized equitable, affordable, and accessible healthcare for all Kenyans, especially those in underserved areas such as Makueni County.

The Makueni Care Insurance Program represented a pioneering county-level approach that sought to address persistent healthcare challenges, notably the high cost of medical care, inequitable access to services, and insufficient financial protection for vulnerable populations. However, despite its potential as a model for expanding UHC across Kenya, there had been limited empirical evidence on how effectively the program enhanced accessibility, affordability, equity, and funding sustainability—the key dimensions underpinning successful universal health coverage. This study therefore sought to fill this knowledge gap by examining these four factors and their influence on the utilization of the Makueni Care Insurance Program.

By analyzing the program's mechanisms that improved access to essential services, affordability of care, equitable distribution of health benefits, and adequacy of funding systems, the study generated insights crucial for strengthening community-based health insurance schemes. The findings provided evidence-based recommendations to policymakers and health administrators on how to enhance service delivery, improve financial risk protection, and ensure equitable access to quality care.

Ultimately, this research contributed to Kenya's ongoing efforts toward realizing UHC as envisioned in the National Health Sector Strategic Plan and the Kenya UHC Roadmap. It also supported the broader Sustainable Development Goal (SDG) of ensuring healthy lives and promoting well-being for all by demonstrating how localized insurance initiatives

could effectively operationalize the principles of accessibility, affordability, equity, and sustainable funding.

1.9 Limitations of the Study

This research had certain limitations. Initially, obtaining data was challenging due to the unavailability of accurate and current information on the performance of the Makueni Care Insurance Program, particularly concerning vulnerable populations. To mitigate this, the study utilized multiple data sources, including government reports, hospital records, and NGO publications, to triangulate data and enhance accuracy. Additionally, efforts were made to engage with community health workers and local leaders to gather more reliable information on vulnerable populations.

Potential inconsistencies in the data collected from healthcare facilities may have impacted the reliability of the results. To address this, the study adopted robust data validation techniques, such as cross-checking reported figures and conducting follow-up interviews with key informants to clarify discrepancies.

The study was confined to Makueni County, so the findings were not broadly applicable to other counties in Kenya or regions with different socioeconomic conditions, healthcare structures, or insurance schemes. While generalizability was limited, the study aimed to provide in-depth insights that could serve as a reference for similar programs in comparable settings. The findings also highlighted contextual factors to guide future comparative studies.

This research relied on self-reported data from participants, which could have been influenced by bias or inaccuracies arising from recall issues, social desirability, or misinterpretation of survey questions. To reduce these biases, the study designed surveys with clear and concise questions, pre-tested them in a pilot study, and ensured anonymity and confidentiality to encourage honest responses.

Due to the complexity of factors such as affordability, funding, accessibility, and equity, it was challenging to fully capture the range of challenges faced by the Makueni Care Insurance Program within the study's time frame. To address this, the study prioritized key issues identified through stakeholder consultations and focus group discussions, ensuring the most critical factors were thoroughly examined.

Lastly, the study encountered limitations related to resource availability for comprehensive field research across all demographic groups, particularly in remote areas. To overcome this, purposive sampling was employed to ensure diverse representation, and data collection methods such as telephone interviews and digital surveys were utilized to reach participants in remote areas. By implementing these mitigation strategies, the study sought to address its limitations and provide reliable, actionable insights into the performance of the Makueni Care Insurance Program.

1.10 Delimitations of the Study

The study's scope was carefully defined to concentrate on the factors that influenced the utilization of the Makueni Care Insurance Program in its effort to achieve Universal Health Coverage (UHC) in Makueni County. The study was limited to the county, excluding other

areas, in order to thoroughly examine the specific challenges faced by the Makueni Care Program, thereby gaining a comprehensive understanding of its operation in that specific context. The study was also restricted to selected factors such as availability, accessibility, funding, affordability, and equity. It explored how these factors affected the program's performance, particularly with regard to vulnerable populations such as the elderly, people with disabilities, and low-income residents. This focus ensured that the study remained manageable while addressing the most crucial aspects that impacted the success of the insurance scheme.

The research methodology was confined to quantitative approaches, such as interview guides and questionnaires, which were most suitable for capturing the perspectives of healthcare providers, policymakers, and residents of Makueni County. Finally, the study period was restricted to recent years, specifically focusing on data from the last five years to provide a current analysis of the program's performance and challenges. This limitation ensured that the study remained relevant to the current healthcare and insurance context in Makueni County.

1.11 Scope of the study

This research focused on factors that influenced the utilization of the Makueni Care Insurance Program in supporting Universal Health Coverage (UHC) in Makueni County, Kenya. The study assessed selected factors—availability, accessibility, funding, affordability, and equity—to understand how they impacted the program's performance and its contribution to UHC. The research specifically targeted adult residents of Makueni County, including vulnerable populations such as the elderly, people with disabilities, and

low-income residents, who utilized inpatient and outpatient services at local healthcare facilities.

The study adopted a quantitative research methodology, using tools such as interview guides and questionnaires to gather data. The perspectives of healthcare providers, policymakers, and residents of Makueni County were captured to ensure a comprehensive understanding of the program's performance. The research focused on data from the last five years to provide a current and relevant analysis of the program. The study was scheduled to take place from November to December 2024.

Makueni County was chosen for this study due to its notable success in implementing UHC, serving as a model within Kenya for other regions. While Makueni was not initially a national pilot for UHC, the county had two years of experience that set it ahead of other areas in the country on the path toward universal healthcare (Owino et al.,2020). This research explored the factors that contributed to the effectiveness of the Makueni Care program in achieving UHC.

1.12 Significance of the Study

For policymakers, the findings offer a detailed analysis of the factors influencing the utilization of the Makueni Care Insurance Program. This information is critical in designing health insurance policies that address the specific needs of various population groups, especially vulnerable populations such as the aged, physically challenged, and those from low-income households. If the study identifies specific barriers faced by these marginalized groups in accessing health insurance, policymakers can develop targeted interventions to

improve equity and inclusivity within the healthcare system. By addressing these gaps, policymakers enhance the program's ability to reach universal health coverage.

Practitioners, including healthcare providers and program administrators, also gain valuable insights from this study. Understanding the operational challenges and limitations of the Makueni Care Insurance Program enables them to optimize service delivery and improve patient engagement. For instance, if the study reveals administrative inefficiencies or inadequate coverage for vulnerable populations like the elderly or physically disabled, healthcare practitioners can adapt their strategies to better serve these groups. This may involve refining outreach programs, improving administrative processes, or ensuring that staff are well-trained to meet the needs of all segments of the population.

For researchers, the study contributes significantly to the growing body of knowledge on community-based health insurance schemes and universal health coverage. The detailed empirical data and analysis provided serve as a foundation for future research, particularly in rural and underserved areas. Researchers may use this study to compare the Makueni Care Insurance Program with similar initiatives elsewhere, uncovering best practices and areas for improvement. Additionally, the findings can inspire further research into how factors such as income levels, geographic location, and health infrastructure impact the success of healthcare coverage programs for vulnerable populations.

Overall, the significance of this study extends beyond its immediate findings. By addressing the challenges faced by the Makueni Care Insurance Program and offering evidence-based recommendations, the study supports the broader goal of universal health

coverage, ensuring that all individuals—including the most vulnerable—have equitable access to quality healthcare without financial hardship.

1.13. Operational Definition of Terms

Accessibility : Healthcare accessibility refers to the ease with which people can obtain and use medical services. This encompasses not only the physical proximity to healthcare facilities but also the availability of healthcare professionals and the ability of the health system to address the needs of varied population groups (Anawade, 2024).

Affordability : Affordability in healthcare denotes the financial ability of individuals to access and utilize health services without suffering undue financial hardship. It involves both the cost of healthcare services and the availability of financial mechanisms like insurance to support individuals in paying for care (Rahman et al., 2022).

Equity : Equity in healthcare means ensuring that healthcare resources, services, and benefits are distributed fairly so that everyone, irrespective of socio-economic status or background, has access to the necessary care (Prentice et al., 2024).

Funding : In healthcare, funding refers to the financial resources allocated for the operation, maintenance, and expansion of health services. It plays a key role in ensuring that healthcare services are available, efficient, and sustainable (WHO, n.d).

- Universal Health Coverage** : Universal Health Coverage (UHC) is a key health system objective aimed at providing all individuals and communities with necessary healthcare services without causing financial strain. It encompasses a comprehensive array of services, from preventive to therapeutic care, and strives to equitably allocate healthcare resources (WHO,2025).
- Utilization** : In healthcare, utilization refers to how frequently individuals access and use medical services. This includes aspects like the rate at which people visit healthcare facilities, adherence to prescribed treatments, and the overall demand for health services within a population (WHO,2025).
- Utilization of Makueni Healthcare** : This variable specifically refers to the extent to which individuals in Makueni County access and make use of healthcare services provided by public health facilities, including those covered under the Makueni Care Insurance Program. Factors such as accessibility, affordability, and program awareness influence the utilization rates (Muia et al., 2022).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter provides a literature review encompassing the theoretical framework, empirical studies, the conceptual framework, and identified research gaps. The theoretical review discusses the foundational theories supporting the study; the empirical review examines previous relevant research, while the conceptual framework illustrates the relationships among the study variables visually.

2.2 An Overview of the Insurance Program toward Universal Health Coverage

2.2.1 Global Perspective for Insurance Programs toward Universal Health Coverage

In North America, Canada's publicly funded healthcare system uses a national insurance program to ensure universal access to essential services without direct charges at the point of care (Canadian Institute for Health Information, 2020). Although Canada has achieved UHC, challenges like long wait times, limited access to specialized care, and regional funding disparities persist. The program reduces out-of-pocket costs but is strained by growing demand, exacerbating wait times. In recent years, local governments and provinces have piloted community-based health cooperatives to enhance primary healthcare delivery and reduce regional disparities.

In Asia, Japan, South Korea, and Thailand offer successful insurance-based models for UHC. Japan's National Health Insurance (NHI) system covers nearly all residents, focusing on cost-effectiveness and accessibility, though the aging population increases long-term

care costs (Ministry of Health, Labour and Welfare of Japan, 2021). South Korea's single-payer insurance ensures universal coverage but faces rising costs and rural access issues (Organisation for Economic Co-operation and Development [OECD], 2020). Thailand's Universal Coverage Scheme (UCS) stands out for integrating community-based health insurance (CBHI) models that empower local health volunteers and community funds to co-manage primary care services, strengthening participation and accountability at the grassroots level (National Health Security Office of Thailand, 2020).

In South America, Brazil and Chile have made significant progress with insurance programs. Brazil's Sistema Único de Saúde (SUS) combines public funding with an insurance scheme offering free services but faces regional disparities and underfunding (Brazil Ministry of Health, 2020). Brazil's Family Health Strategy (FHS), a community-based component of SUS, has expanded access to preventive and primary healthcare by deploying local health teams in low-income areas. Similarly, Chile's municipal health networks and community solidarity funds have improved local-level participation and service accessibility, particularly in rural regions (World Bank, 2020).

In Europe, France, Sweden, and the United Kingdom have strong insurance systems contributing to UHC. France's system combines mandatory insurance and public funding, but rising costs strain resources (French Ministry of Health, 2020). Sweden's tax-financed system offers universal coverage, but challenges like long wait times and regional disparities persist (Swedish Ministry of Health and Social Affairs, 2020). The United Kingdom's NHS delivers free healthcare at the point of care but faces pressure from an aging population and funding shortages, leading to longer wait times (NHS England, 2020).

To complement these national systems, several European countries have adopted community-based health initiatives—such as France’s mutual health associations and the UK’s community trust hospitals—to strengthen local participation and improve service responsiveness.

In Oceania, Australia and New Zealand have implemented successful UHC through national insurance programs. Australia’s Medicare provides subsidized healthcare but faces rising costs and long wait times for non-emergency treatments (Australian Government, 2020). New Zealand’s publicly funded insurance ensures access to healthcare but also faces challenges with rising costs and delays in non-urgent services (New Zealand Ministry of Health, 2020). Both countries have introduced community-led health boards and regional primary health organizations to promote equitable access and local accountability in health service delivery.

Globally, countries such as Japan, Thailand, Brazil, and France demonstrate that community-based health insurance (CBHI) and decentralized healthcare models are effective in extending coverage to underserved populations. These initiatives enhance accessibility, affordability, and equity—particularly for rural and low-income households—while complementing national financing systems. However, challenges such as funding sustainability, limited risk pooling, and management capacity remain. To address these, countries are adopting reforms such as community-managed health funds, public-private partnerships, and digital community health platforms to ensure equitable and sustainable healthcare access. These innovations and continued local investment are vital to achieving sustainable UHC (American Hospital Association, 2021; Ministry of Health,

Labour and Welfare of Japan, 2021; OECD, 2020; French Ministry of Health, 2020; Swedish Ministry of Health and Social Affairs, 2020; NHS England, 2020).

2.2.2 African perspective for Insurance Program toward Universal Health Coverage

Achieving Universal Health Coverage (UHC) in Africa has remained challenging due to limited financial resources, infrastructural gaps, and inequitable access to healthcare services. Nonetheless, several countries have adopted community-based and decentralized insurance models to accelerate progress toward UHC. South Africa's National Health Insurance (NHI) program, a single-payer system, aims to provide comprehensive coverage to all citizens. However, resource constraints, inefficiencies in public service delivery, and regional disparities continue to challenge the model's effectiveness (National Department of Health - South Africa, 2018). In response, South Africa has encouraged local health districts and community health committees to pilot mini-insurance pools and community-driven outreach programs, particularly in underserved provinces, to complement the national NHI scheme.

Mauritius stands as an example of a successful hybrid insurance system that offers free public healthcare of high quality, supported by a mandatory insurance program. However, Mauritius faces sustainability concerns as an aging population increases healthcare costs (World Health Organization, 2019). To address this, the country has expanded community-based wellness programs and local preventive care initiatives, reducing pressure on the national system while promoting health at the household level.

Countries like Tunisia and Morocco have developed blended insurance programs that integrate both public and private systems. Tunisia's focus on maternal and child health and

Morocco's extension of healthcare insurance to rural areas are noteworthy (World Bank Group, 2020). In both countries, community health cooperatives and local solidarity funds have played a crucial role in extending insurance coverage to informal sector workers and rural populations—groups often excluded from traditional financing models.

Rwanda's *Mutuelles de Santé* program remains one of Africa's most successful community-based health insurance (CBHI) models, covering over 90% of the population. It operates through local health cooperatives where households contribute affordable premiums into community risk pools managed at the district level. Despite these impressive gains, funding sustainability and equitable resource allocation for high-cost services remain persistent challenges (Rwandan Ministry of Health, 2020). Nevertheless, Rwanda's CBHI approach has become a continental benchmark, demonstrating how grassroots financial pooling can advance UHC in low-resource settings.

Ghana's National Health Insurance Scheme (NHIS) has expanded access to essential services but still struggles with inefficiencies and limited coverage in rural areas (World Bank Group, 2020). To bridge this gap, Ghana has piloted community-based insurance programs such as district mutual health schemes that allow local management of enrollment and premium collection. Gabon's health insurance model combines national financing with community solidarity funds to support vulnerable populations, although challenges in financing sustainability persist. Similarly, Botswana continues to explore the integration of community-managed health insurance options into its national system to improve access in remote regions (Ministry of Health - Botswana, 2020).

In summary, while national insurance frameworks remain central to UHC in Africa, the growing adoption of community-based health insurance schemes has proven instrumental in increasing affordability, accessibility, and equity. Countries like Rwanda, Ghana, Morocco, and Tunisia illustrate that localized participation, social solidarity, and shared financial responsibility can significantly enhance coverage and reduce vulnerability to catastrophic health expenditures. Strengthening community-based insurance structures, alongside national financing mechanisms, will therefore be vital for achieving sustainable and inclusive UHC across Africa (World Health Organization, 2019; World Bank Group, 2020; National Department of Health - South Africa, 2018).

2.2.3 Kenyan Perspective for Insurance Program toward Universal Health Coverage

In Kenya, the implementation of insurance programs has been central to the country's progress toward achieving Universal Health Coverage (UHC). The government made notable efforts through the National Hospital Insurance Fund (NHIF) and the newly launched Social Health Insurance Fund (SHIF) under the Social Health Authority (SHA) to expand access to healthcare for all citizens (MoH, 2024). While these programs have been instrumental in increasing coverage, challenges related to affordability, enrollment, and equitable access continued to pose major barriers to achieving UHC (Council of Governors [CoG], 2024).

One of the main challenges remained the affordability of premiums and inclusivity of informal sector workers, who form a majority of Kenya's population. Although NHIF broadened its benefit packages over time, many Kenyans—particularly those in rural and low-income households—struggled to make regular contributions (Kenya National Bureau

of Statistics [KNBS], 2023). The introduction of SHIF in 2024 sought to address this gap by restructuring benefits and enhancing subsidies for vulnerable populations under a unified national framework. However, the top-down financing approach alone proved insufficient; hence, county governments and communities began to play an increasingly vital role in implementing localized, community-based insurance schemes that complemented national programs.

Access to healthcare services remained unequal between urban and rural areas, with remote regions facing shortages of health personnel, limited infrastructure, and logistical barriers. To bridge this gap, the Kenyan government and several counties initiated community-driven enrollment strategies, mobile health units, and digital insurance platforms to enhance outreach and affordability in underserved regions (MoH, 2024). These decentralized approaches reflected a growing recognition that sustainable UHC requires community ownership and participation in both service delivery and financial pooling.

The Makueni Care Insurance Program, launched in 2018, stood out as a flagship example of a community-based health insurance (CBHI) model that effectively complemented national initiatives like NHIF. The program targeted low-income and informal sector residents by offering subsidized coverage for outpatient and inpatient care, maternal health, and surgical services, significantly reducing out-of-pocket expenditure (MCG, 2020). Its design emphasized community registration drives, household-level enrollment, and integration with public health facilities—ensuring that the population played an active role in financing and managing their own healthcare coverage.

The lessons learned from Makueni Care—particularly in community engagement, equity-based subsidy mechanisms, and local accountability structures—have informed aspects of SHIF’s rollout under the SHA framework (MoH, 2024). For instance, SHIF now incorporates vulnerability mapping and community-based identification systems to reach marginalized households, alongside stronger collaboration with county health departments. This demonstrates how localized models such as Makueni Care have transitioned from isolated county initiatives to integral components of Kenya’s broader UHC strategy, reflecting a shift from purely national insurance financing toward hybrid, community-anchored solutions.

However, both Makueni Care and SHIF continue to face challenges such as low enrollment in remote counties, limited awareness at community level, and questions of long-term financial sustainability (KNBS, 2023). Addressing these challenges requires continuous policy reforms, sustainable funding mechanisms, and increased investment in county health infrastructure to ensure that community-based insurance schemes remain equitable, affordable, and resilient, ultimately contributing to the national goal of Universal Health Coverage (MoH, 2024).

2.3 Affordability and Utilization of Insurance Program

Affordability referred to how financially accessible the Makueni Care Insurance Program was for the people of Makueni County. It was influenced by three main factors: out-of-pocket payments, which represented the costs individuals incurred when seeking care; subsidy utilization rate, which denoted the extent to which financial assistance was accessed to help people afford the program; and the number of people registered for the

schemes, which reflected the proportion of households able to pay premiums and enroll in the program. According to the WHO (2021), reducing out-of-pocket spending is a key indicator of financial protection and affordability under Universal Health Coverage. Similarly, Mutiso and Mwangi (2023) emphasized that effective subsidy mechanisms significantly enhance affordability and promote enrollment in local health insurance schemes in Kenya. Furthermore, the Ministry of Health (2024) noted that low registration rates in county insurance programs often indicate affordability challenges, particularly among informal sector workers and low-income households.

Mutiso and Mwangi (2021) conducted a study on the impact of out-of-pocket payments on the uptake of insurance programs aimed at advancing Universal Health Coverage (UHC) in Kenya. Using a survey of 250 individuals across various counties and applying regression analysis, the study revealed that high out-of-pocket costs significantly discouraged enrollment in insurance programs. This finding highlighted that financial barriers limited access to comprehensive healthcare services, ultimately undermining UHC efforts. However, the study presents a contextual gap as it focused on multiple counties in Kenya and did not specifically address Makueni County. Additionally, it did not examine affordability within the scope of a single program like the Makueni Care Insurance Program (MCIP). The current study seeks to bridge this gap by focusing on the influence of affordability on the utilization of MCIP to achieve UHC in Makueni County.

Ikegami (2022a) examined the impact of out-of-pocket payments on the uptake of health insurance programs supporting UHC in Japan. The study surveyed 350 individuals from urban and rural areas and found that high out-of-pocket costs discouraged enrollment,

particularly among low-income individuals in rural areas. The study recommended reducing out-of-pocket expenses and redesigning insurance programs to increase accessibility and participation. While these findings are relevant, the study presents a contextual gap as it focuses on Japan, which has a different healthcare system and socio-economic dynamics from Kenya. The current study will address this gap by examining how affordability influences the utilization of MCIP in Makueni County within Kenya's decentralized healthcare system.

Barer (2022) explored the impact of out-of-pocket payments on the uptake of health insurance programs in Canada. The study surveyed 350 individuals from diverse socio-economic groups, with a specific focus on the financial burden associated with non-insured services like prescription drugs and dental care. The findings indicated that high out-of-pocket costs, particularly for lower-income groups, discouraged enrollment in supplementary insurance programs. This study presents a conceptual gap as it emphasizes non-insured services rather than affordability's role in the utilization of insured programs. The current study seeks to address this gap by focusing on how affordability affects the utilization of MCIP, an insured program, in Makueni County.

Schmidt (2023) analyzed subsidy utilization in Germany's statutory health insurance system to support UHC. The study surveyed 2,000 participants across various income groups and found that low-income individuals were more likely to utilize subsidies, particularly when eligible for reduced premiums. However, bureaucratic barriers and limited awareness prevented many from fully benefiting from available subsidies. Although this study provides valuable insights, it presents a contextual gap since it focuses

on Germany's statutory health insurance system, which differs from Kenya's healthcare system. The current study will investigate how affordability, including the role of subsidies, influences MCIP utilization in Makueni County, Kenya.

Silva (2023) investigated subsidy utilization under Brazil's Unified Health System (SUS) with a focus on advancing UHC. Surveying 500 households, the study found that subsidies improved access to basic health services, particularly for rural populations. However, the utilization of specialized services remained low due to long wait times and inadequate infrastructure in certain regions. While this study highlights barriers to healthcare access, it presents a conceptual gap as it does not examine how affordability impacts the uptake of insurance programs. The current study seeks to address this gap by focusing on the role of affordability in MCIP utilization in Makueni County.

Williams (2023) investigated the impact of health insurance subsidies on service utilization in Australia as part of efforts to advance UHC. The study surveyed 600 participants and found that higher subsidies increased access to services such as dental care and elective surgeries. However, high out-of-pocket costs for certain medical procedures persisted as a barrier, particularly for low-income groups. This study presents a contextual gap as it focuses on Australia's health system, which operates under different economic and structural conditions than Kenya. The current study aims to address affordability's role in the utilization of MCIP in Makueni County within Kenya's healthcare context.

Nkusi (2022) explored factors influencing enrollment in Rwanda's health insurance schemes for UHC. The study surveyed 1,000 individuals across rural and urban areas and identified financial barriers and lack of awareness as key obstacles to enrollment,

particularly in rural areas. Although the study provides relevant insights into health insurance in an African context, it presents a contextual gap as it does not specifically address the Kenyan healthcare system or the MCIP. The current study will focus on affordability's influence on MCIP utilization in Makueni County, Kenya, thus filling this gap.

Alharbi (2023) examined registration trends for health insurance schemes in Saudi Arabia under the Vision 2030 reforms for UHC. Surveying 1,500 participants across various demographics, the study revealed significant barriers to enrollment, including limited access to registration facilities, unfamiliarity with digital platforms, and language challenges. While the study offers valuable findings, it presents a contextual gap as it focuses on Saudi Arabia's healthcare reforms. The current study seeks to examine affordability's influence on MCIP utilization in Kenya, with a specific focus on Makueni County.

Sharma (2023) investigated barriers to health insurance registration in rural India under the National Health Insurance Scheme. The study surveyed 1,000 individuals and found that poor healthcare infrastructure, lack of trust in formal insurance systems, and low awareness of the scheme were significant obstacles. While these findings are relevant to rural healthcare contexts, the study presents a contextual gap as it does not address the Kenyan setting or affordability's role in program utilization. The current study will focus on how affordability influences the utilization of MCIP in Makueni County, contributing to efforts to achieve UHC in Kenya.

Across these studies, affordability consistently emerged as a crucial determinant of health insurance enrollment and utilization. Mutiso and Mwangi (2021), Ikegami (2022b), and Barer (2022) all emphasized the discouraging effect of high out-of-pocket payments, though differences in geographic and program scope limit generalizability to Kenya's decentralized MCIP context. Similarly, subsidy utilization studies (Schmidt, 2023; Silva, 2023; Williams, 2023) highlighted subsidies' potential to improve access but noted systemic barriers and persistent out-of-pocket costs, underscoring the complex financial dynamics affecting insurance programs.

Nkusi (2022), Alharbi (2023), and Sharma (2023) expanded the perspective by identifying non-financial barriers—such as awareness, infrastructure, and trust—that compound affordability issues, especially in rural or decentralized settings. However, these studies did not specifically assess how affordability influences program utilization within localized insurance schemes like MCIP.

This body of research reveals both contextual gaps, particularly the limited focus on Kenya's devolved health system and Makueni County—and conceptual gaps regarding affordability's role in insured program utilization as opposed to enrollment or access to non-insured services. The current study bridges these gaps by investigating how affordability, including out-of-pocket payments, subsidy use, and registration levels, impacts MCIP utilization, providing localized evidence critical for advancing Universal Health Coverage in Kenya.

2.4 Accessibility and Utilization of Insurance Program

Accessibility referred to the ease with which individuals could obtain healthcare services through the Makueni Care Insurance Program. It was shaped by three key factors: geographical accessibility, which examined how easily people could reach healthcare facilities; coverage rates, which reflected how widely the insurance program covered the population and the range of services available; and waiting times, which measured the duration individuals had to wait before receiving care. According to WHO (2022), accessibility is a core dimension of Universal Health Coverage, emphasizing proximity, service availability, and timeliness. Mutiso and Mwangi (2023) noted that county-based insurance programs in Kenya often face challenges related to distance and inadequate facility distribution, which limit effective healthcare access. Similarly, the Makueni County Government (2023) reported that despite expanded enrollment under the Makueni Care Program, long waiting times and uneven facility coverage continued to hinder equitable service utilization.

Mutiso (2022) investigated the geographical accessibility of health insurance programs in Kenya, focusing on both urban and rural populations. The study surveyed 1,200 individuals across five counties and used regression analysis to examine how location impacted access to insurance. The findings revealed that rural populations faced significant barriers, including long distances to healthcare facilities, leading to lower insurance enrollment rates. The study recommended improving healthcare infrastructure, expanding mobile insurance services, and enhancing telemedicine to better serve underserved rural areas. While this research addresses geographical barriers to health insurance, it does not examine the specific influence of these barriers on the utilization of the Makueni Care Insurance

Program (MCIP) in Makueni County. This represents a research gap, as the current study will focus specifically on the geographical challenges in Makueni and how they affect the actual use of MCIP.

Gonzalez (2023) explored the role of geographical accessibility in Argentina's healthcare insurance programs. Surveying 1,500 participants from both urban and rural regions, the study found that individuals in rural provinces, particularly in the northeast and southern regions, faced significant barriers due to distances of over 100 kilometers to healthcare facilities. This limited their ability to enroll in and utilize health insurance programs. The study recommended increasing mobile healthcare units and improving digital infrastructure to extend coverage to remote areas, thereby promoting more inclusive access to health insurance and supporting Universal Health Coverage (UHC) goals in Argentina. However, Gonzalez's research does not address the specific geographical challenges of Makueni County, which could differ due to factors such as terrain and infrastructure. This represents a geographical gap, and the current study aims to explore how these unique geographical barriers impact the utilization of MCIP in Makueni.

Lopez (2023) examined geographical factors influencing access to the Philippine Health Insurance Corporation (PhilHealth). The study surveyed 2,000 individuals across various provinces, using ANOVA to compare access levels. The research revealed that individuals in remote areas, particularly in the southern Philippines, experienced low registration rates due to the distances involved in traveling to public health facilities. The study recommended investing in telemedicine services, establishing more local registration points, and enhancing mobile platforms to improve geographical accessibility to health

insurance. While Lopez's research highlights ways to improve geographical accessibility, it does not capture the actual usage patterns of health insurance after enrollment. This represents a methodological gap, as the current study will not only focus on improving accessibility but also examine how these improvements affect MCIP utilization in Makueni County, using both qualitative and quantitative methods.

Johansson (2022) investigated the impact of coverage rates on the effectiveness of Sweden's health insurance schemes under Universal Health Coverage (UHC). The study surveyed 1,000 individuals and used logistic regression to identify factors affecting enrollment. The findings indicated that while Sweden's coverage rate was generally high, disparities existed among immigrants and low-income individuals. Johansson suggested targeted outreach programs for marginalized groups to ensure equitable access to healthcare. While Johansson's study addresses disparities in coverage, it does not explore the combined impact of geographical accessibility and coverage, which is a theoretical gap. The current study will contribute to the theoretical understanding by integrating both geographical accessibility and coverage to examine how these factors affect the utilization of MCIP in Makueni County.

Ramirez (2023) focused on the coverage rates of Mexico's Seguro Popular program. The study surveyed 1,200 individuals from both rural and urban areas, applying chi-square analysis to examine enrollment patterns. Although the coverage rate had improved, rural populations continued to face significant barriers in accessing insurance programs due to a lack of information and infrastructure. Ramirez recommended improving public education efforts and creating mobile registration platforms to increase enrollment in remote areas.

However, Ramirez's study focuses on enrollment patterns and does not investigate the actual utilization of health insurance programs, particularly in rural areas. This represents a research gap that the current study will address by exploring how accessibility, especially through mobile platforms and local infrastructure, influences the utilization of the Makueni Care Insurance Program in Makueni County.

Aydin (2022a) analyzed coverage rates in Turkey's health insurance schemes under the General Health Insurance (GHI) system. Surveying 2,000 participants, the study used regression analysis to explore the impact of socioeconomic factors on insurance enrollment. The findings showed that while Turkey had made significant strides in increasing coverage, low-income groups in the eastern regions still had lower enrollment rates. Aydin suggested enhancing public awareness campaigns and offering financial incentives to boost enrollment in these underserved areas. While Aydin's study addresses socioeconomic factors, it does not explore how geographical accessibility influences the actual use of health insurance benefits. This represents a methodological gap, as the current study will investigate how geographical accessibility, alongside socioeconomic factors, affects the utilization of MCIP in Makueni County.

Rodriguez (2023) explored the issue of waiting times in Colombia's health insurance programs. The study surveyed 1,000 individuals across various regions and used descriptive statistics to measure waiting times for appointments and procedures. The findings revealed that waiting times for specialized treatments were a significant issue, particularly for insured individuals in rural areas. The study recommended streamlining appointment systems, increasing healthcare workforce availability, and improving

infrastructure to reduce waiting times and improve service delivery. While Rodriguez's study focuses on waiting times, it does not examine how geographical accessibility impacts waiting times and insurance utilization. This represents a theoretical gap, as the current study will explore both geographical accessibility and waiting times, specifically in relation to the utilization of MCIP in Makueni County.

Owusu (2022a) studied the impact of waiting times on healthcare services under Ghana's National Health Insurance Scheme (NHIS). The study surveyed 1,500 individuals and used ANOVA to assess waiting times between insured and uninsured individuals. The findings showed that while insured individuals faced shorter waiting times for general services, delays in accessing specialized treatments persisted. The study suggested improving referral systems, increasing the number of healthcare professionals, and reducing bottlenecks in treatment schedules to reduce waiting times. While Owusu's study explores waiting times, it does not investigate how geographical barriers exacerbate these delays, especially in rural areas. This represents a research gap, and the current study will fill this gap by examining the combined effects of geographical accessibility and waiting times on the utilization of MCIP in Makueni County.

Tan (2023) analyzed the effect of waiting times on the utilization of health insurance benefits in Singapore. The study surveyed 800 individuals and used logistic regression to examine factors affecting waiting times for consultations and elective surgeries. The findings indicated that while waiting times were generally short in Singapore's efficient healthcare system, insured individuals still experienced delays for specialized treatments. Tan's study provides insights into waiting times, but it does not examine how geographical

barriers may affect waiting times and overall utilization of health insurance programs. This represents a theoretical gap, and the current study will explore how geographical accessibility, in combination with waiting times, influences the utilization of MCIP in Makueni County.

These studies collectively confirmed that geographical accessibility, coverage rates, and waiting times significantly affected health insurance enrollment and utilization. Studies like Mutiso (2022), Gonzalez (2023), and Lopez (2023) highlighted rural geographical barriers that reduced access and enrollment, but few extended their analysis to actual utilization post-enrollment, which was crucial for MCIP evaluation. Johansson (2022) and Aydin (2022b) emphasized coverage disparities but often overlooked how geographical factors interplayed with socioeconomic variables to influence service use. Meanwhile, research on waiting times by Rodriguez (2023), Owusu (2022), and Tan (2023) demonstrated persistent delays, especially for specialized care, yet did not integrate geographical challenges affecting these delays.

Importantly, contextual gaps emerged because most studies focused on national or multi-region settings that differed from Makueni County's unique terrain, infrastructure, and decentralized health system. There were also methodological gaps as many studies assessed enrollment without linking it to utilization—and theoretical gaps in integrating multiple accessibility factors. The current study filled these gaps by focusing specifically on Makueni County and exploring how geographical accessibility, coverage, and waiting times collectively influenced MCIP utilization, thereby providing comprehensive insights critical to advancing Universal Health Coverage locally.

2.5 Equity and Utilization of Insurance Program

Equity referred to the fairness and equal distribution of healthcare services under the Makueni Care Insurance Program. It was influenced by three key factors: access to care, which measured how equally healthcare services were distributed across different populations; health outcome disparities, which assessed whether all groups experienced similar health outcomes; and provider distribution, which examined how healthcare professionals were spread across regions and whether all communities had access to qualified providers. According WHO (2021), achieving equity in health coverage requires ensuring that access and quality of care do not vary due to geographic, economic, or social differences. Mutiso and Mwangi (2023) highlighted that in Kenya, equity gaps persist between rural and urban populations, often driven by unequal allocation of healthcare resources. Similarly, the Makueni County Government (2023) emphasized that equitable deployment of health personnel and infrastructure under the Makueni Care Program was essential to ensure fair access and improve health outcomes across all sub-counties.

Mwangi (2022) examined access to healthcare services in rural Kenya under the National Health Insurance Fund (NHIF) program. The study surveyed 1,200 individuals across different regions and employed regression analysis to assess access differences based on geographical location. The findings highlighted that rural populations faced significant barriers, including long distances to health facilities and limited availability of services, which negatively impacted their ability to utilize insurance benefits. The study recommended expanding mobile health services and enhancing local infrastructure to improve access to care. However, the study presents a contextual gap as it did not

specifically focus on Makueni County or the Makueni Care Insurance Program (MCIP). The current study seeks to fill this contextual gap by examining how geographical accessibility affects the utilization of MCIP in Makueni County.

Khumalo (2023) focused on access to care for low-income populations in South Africa, particularly within the context of the National Health Insurance (NHI) Bill. The study surveyed 1,000 individuals in urban and rural areas and used chi-square analysis to measure access disparities. The results indicated that while urban areas saw more consistent healthcare access, rural areas faced challenges due to the scarcity of healthcare professionals and facilities. The study called for the redistribution of healthcare resources to ensure equitable access, especially for rural communities. However, the study presents a contextual gap as it did not focus on Kenya or examine the effects of local health insurance programs like MCIP. The current study seeks to address this contextual gap by investigating how resource allocation affects MCIP utilization in Makueni County.

Lee (2022) investigated access to care under South Korea's National Health Insurance (NHI) system. Using a survey of 1,500 participants across urban and rural areas, the study employed logistic regression to determine factors influencing access. The findings revealed that urban areas had better access to specialized healthcare services, while rural populations faced delays due to fewer healthcare facilities and professionals. The study suggested telemedicine and mobile clinics as key strategies to bridge the gap in healthcare access. However, it presents a conceptual gap as it did not examine how telemedicine and mobile services could impact localized health insurance programs, such as MCIP. The current

study aims to bridge this conceptual gap by exploring how these strategies influence MCIP utilization in Makueni County.

Ng (2023) analyzed health outcome disparities among ethnic groups in New Zealand, specifically focusing on indigenous Maori and Pacific Island communities. The study surveyed 1,200 individuals and applied ANOVA to compare health outcomes across different ethnicities. The findings revealed significant health disparities, particularly in chronic diseases and access to specialized care, with indigenous groups experiencing worse health outcomes. The study recommended targeted health interventions and policies to reduce these disparities and ensure better health outcomes for marginalized groups. However, it presents a conceptual gap as it did not focus on the role of health insurance programs in addressing these disparities. The current study will fill this conceptual gap by exploring how MCIP can help address health disparities among marginalized groups in Makueni County.

Gomez (2022a) examined the impact of health outcome disparities in Argentina's public health system. The study surveyed 2,000 individuals from diverse socioeconomic backgrounds and employed regression analysis to explore the factors influencing health outcomes. The research found that lower-income individuals and those in rural areas had poorer health outcomes, especially regarding access to preventative care and specialized treatments. The study suggested increasing public health funding and improving access to early-stage healthcare for at-risk groups. However, the study presents a contextual gap as it did not focus on Kenya or a specific insurance program like MCIP. The current study

will address this contextual gap by exploring how MCIP addresses health disparities in Makueni County.

Wang (2022) studied health outcome disparities under China's basic health insurance system, focusing on urban-rural inequalities. The research surveyed 1,800 individuals across different provinces and used logistic regression to identify key disparities. The study found that urban residents had better access to healthcare, resulting in better health outcomes, while rural populations faced significant barriers in receiving timely and quality care. The study proposed increasing investment in rural healthcare infrastructure and enhancing insurance coverage to address these disparities. However, the study presents a conceptual gap as it did not investigate how local health insurance programs, like MCIP, can help reduce these disparities. The current study will fill this conceptual gap by examining how MCIP addresses urban-rural disparities in healthcare access and outcomes in Makueni County.

Van der Meer (2023) explored provider distribution within the Netherlands' healthcare system. The study surveyed 1,500 healthcare providers and used cluster analysis to examine the concentration of providers in urban versus rural areas. The findings indicated that healthcare providers were disproportionately concentrated in urban centers, leaving rural areas underserved. The study recommended incentives for healthcare professionals to practice in rural areas, as well as expanding telehealth services to bridge the gap. However, the study presents a contextual gap as it did not focus on Kenya or a specific insurance program like MCIP. The current study will address this contextual gap by exploring how healthcare provider distribution influences the utilization of MCIP in Makueni County.

Cohen (2022) focused on provider distribution in Israel's health insurance system under its universal coverage model. The study surveyed 1,000 healthcare professionals and used regression analysis to assess how provider distribution affected service delivery in underserved areas. The study found that while urban areas were well-served, remote regions had limited access to specialized care. The study proposed policy changes to increase the number of healthcare workers in rural regions and improve mobile healthcare services. However, it presents a conceptual gap as it did not examine the role of local insurance programs like MCIP in improving service delivery in underserved regions. The current study will fill this conceptual gap by exploring how provider distribution affects the utilization of MCIP in Makueni County.

Novak (2023) analyzed healthcare provider distribution in the Czech Republic, particularly in relation to rural healthcare access. The study surveyed 1,200 individuals and healthcare providers and employed chi-square analysis to assess disparities in provider availability. The findings revealed that rural areas had fewer healthcare professionals, leading to longer waiting times and reduced access to care. The study suggested policies to attract healthcare workers to underserved areas and improve healthcare infrastructure in rural regions. However, it presents a conceptual gap as it did not explore how healthcare provider distribution interacts with insurance program utilization. The current study seeks to address this conceptual gap by examining how provider distribution influences the effectiveness of MCIP in Makueni County. By identifying and addressing these contextual and conceptual gaps, the current study will contribute to a more focused understanding of how healthcare access, provider distribution, and health disparities can be mitigated through local health insurance programs, particularly in Makueni County.

Across these studies, equity in healthcare under insurance programs consistently depended on equal access to care, health outcome disparities, and healthcare provider distribution. Mwangi (2022), Khumalo (2023), and Lee (2022) highlighted access barriers for rural and marginalized populations, stressing infrastructure and resource distribution, but did not address MCIP or its specific local dynamics in Makueni. Ng (2023), Gomez (2022b), and Wang (2022) emphasized disparities in health outcomes tied to ethnicity, income, and geography, but omitted the role of local insurance programs in mitigating these. Provider distribution studies by Van der Meer (2023), Cohen (2022), and Novak (2023) revealed urban concentration of healthcare professionals leaving rural areas underserved, yet they did not assess how this distribution affected insurance program utilization.

The current study addressed multiple gaps by focusing on the local context of Makueni County, integrating analyses of access, health outcomes, and provider distribution, and linking these with MCIP's utilization and equity outcomes. This comprehensive approach filled both contextual and conceptual gaps, contributing to an improved understanding of how local insurance programs could promote equity in healthcare access and outcomes.

2.6 Funding and Utilization of Insurance Program

Funding referred to the financial resources required to support the Makueni Care Insurance Program (MCIP) and ensure its sustainability (WHO, 2021). The program's financing model was defined by three key factors: budget allocations, cash flow management, and sources of funding. Each of these factors directly influenced the utilization of the program by affecting the availability, accessibility, and reliability of healthcare services. Adequate and well-managed funding ensured that beneficiaries accessed services without

interruption, while financial constraints or inefficiencies discouraged participation and reduced program uptake (Mutiso & Mwangi, 2023).

The Makueni Care Insurance Program was financed through a hybrid model combining county government allocations, household contributions, and partnerships with external stakeholders. The county government provided the bulk of funding through its annual health budget under the Department of Health Services, covering administrative costs, capitation for public facilities, and partial subsidies for vulnerable households. Enrolled members paid an annual premium of approximately KES 500 per household, which supplemented the county's health fund. Additional financing was derived from partnerships with donor agencies and development partners supporting Universal Health Coverage (UHC) initiatives. This mixed funding model was designed to enhance financial sustainability while reducing residents' out-of-pocket health expenditures.

Mwangi (2023) analyzed the impact of government budget allocations on health insurance programs toward Universal Health Coverage (UHC) in Kenya. The study surveyed 1,200 individuals and used regression analysis to assess how budgetary allocations affected enrollment in public insurance programs. Findings revealed that while increased government budgets expanded enrollment, disparities persisted in poorly funded regions. This indicated that inadequate budget allocations could lead to limited service coverage and lower utilization, as beneficiaries in underfunded areas often faced service delays and stockouts. The current study therefore examined how equitable budget allocations within MCIP influenced utilization by ensuring that sufficient funds were available for healthcare provision in all sub-counties of Makueni County.

Nielsen (2022) studied budget allocation in Denmark's health insurance system under UHC and found that uneven budget distribution resulted in service gaps in rural areas. This suggested that budget imbalances reduced utilization when beneficiaries perceived services as unreliable or inaccessible. Similarly, Sanchez (2023a) reported that insufficient budgetary allocations in some Chilean regions led to longer wait times and reduced access to specialized treatments, lowering program use. These findings aligned with the current study's interest in understanding how adequacy budget and equity influenced MCIP utilization, particularly in underserved rural zones.

Petrov (2023) examined cash flow management in Russia's health insurance programs and found that delays in reimbursements caused interruptions in treatment and discouraged continued utilization of insurance benefits. Similarly, Ahmed (2022) identified cash flow delays in Jordan that hindered service delivery, while Mwila (2023) reported that poor financial management in Zambia caused medicine shortages and reduced access to healthcare. These studies collectively demonstrated that inefficient cash flow management negatively affected utilization because beneficiaries lost confidence in the system when services were delayed or unavailable. In contrast, effective cash flow management promoted timely service delivery, provider motivation, and program credibility, leading to higher utilization. The current study therefore assessed how the management of MCIP's cash flows affected the consistency of service delivery and the willingness of residents to use the program.

In terms of funding sources, Hidayat (2023) showed that Indonesia's heavy reliance on government funds limited program expansion, while Gomez (2022b) found that diverse

funding sources in Uruguay improved program resilience and service continuity. Tan (2023) further emphasized that combining government subsidies with employer and community contributions promoted sustainability and increased healthcare access. These studies suggested that diversified funding sources enhanced utilization by ensuring financial stability and reducing the risk of service interruptions. Conversely, overreliance on a single funding source exposed programs to budget shocks that discouraged use. The current study thus investigated how a mix of public, private, and community funding sources influenced MCIP utilization, particularly by ensuring program continuity and trust among beneficiaries.

Collectively, the reviewed studies highlighted that financing models directly affected the utilization of health insurance programs. Budget allocations determined the extent and quality of services available; cash flow management influenced the reliability and timeliness of service delivery; and funding sources affected the sustainability and accessibility of healthcare coverage. However, previous studies largely examined these factors independently and in different national contexts. This study addressed these conceptual and contextual gaps by focusing on how the combination of these funding dimensions—budget adequacy, financial management, and funding diversity—influenced the actual utilization of the Makueni Care Insurance Program. By doing so, it provided localized insights essential for improving program efficiency and ensuring equitable access to healthcare services in line with Kenya’s Universal Health Coverage goals.

2.7 Utilization of Insurance Program

The utilization of the Makueni Care Health Scheme (MCHS) is a critical element in achieving Universal Health Coverage (UHC) in Makueni County, Kenya. The program was launched with the aim of improving access to healthcare services for residents, particularly in underserved rural areas. MCHS's primary goal is to reduce out-of-pocket healthcare expenses for households, which has been a significant barrier to access in Kenya (Mutiso & Mwangi, 2023). Research indicates that health insurance schemes in low-income settings often face challenges in terms of affordability and awareness, which can significantly affect utilization rates (Nielsen, 2022). MCHS aims to address these challenges by providing affordable, comprehensive healthcare to its members, ensuring that even the most vulnerable populations can access essential services.

Despite the promising objectives of MCHS, utilization remains influenced by several factors. Studies have shown that financial constraints, limited healthcare infrastructure, and inadequate information about the benefits of such schemes can hinder enrollment and active usage (Mwangi, 2023). In particular, the gap between enrollment and actual service utilization suggests that the perceived quality of care, availability of services, and public awareness of the scheme's coverage play substantial roles in whether members fully benefit from it (Sanchez, 2023b). Moreover, while MCHS has made strides in expanding coverage, its utilization is also shaped by regional disparities, with rural areas facing greater barriers compared to urban centers (Ahmed, 2022). These factors emphasize the need for targeted interventions to increase not just membership but also the practical use of the healthcare benefits available.

To improve utilization, policy recommendations focus on enhancing community outreach and sensitization programs, increasing the number of healthcare providers within the MCHS network, and addressing gaps in service delivery. Recent studies suggest that such strategies can enhance the efficiency of health insurance schemes in rural settings (Petrov, 2023). For MCHS to succeed in its mission, more efforts must be directed toward educating the public about the scope and benefits of the program, alongside improving healthcare infrastructure to meet the rising demand for services (Tan, 2023). By addressing these challenges, Makueni County can move closer to achieving UHC and ensuring that all residents benefit from the health insurance scheme.

2.8 Theoretical Framework

This study employs two key theoretical frameworks: the African Collaborative for Health Financing Solutions (ACS) Logic Model and the Financial Risk Protection Theory. Each framework offers a unique perspective on understanding the factors influencing the Makueni Care Insurance Program (MCIP) and its contribution to Universal Health Coverage (UHC).

The African Collaborative for Health Financing Solutions (ACS) logic model, as outlined by Kiendrébéogo et al. (2021), provides a structured framework for achieving sustainable health financing solutions in Africa. It emphasizes a strategic, integrated approach that incorporates diverse resources and partnerships to strengthen health systems (Kiendrébéogo et al., 2021). The model highlights the importance of collaboration between international donors, governments, NGOs, and private sector entities to pool expertise and

resources for designing and implementing effective health financing strategies (WHO, 2023).

The ACS logic model is organized around inputs, activities, outputs, outcomes, and impact. Inputs such as funding, human resources, infrastructure, and research are vital for initiating and sustaining activities like capacity building, policy development, advocacy, and program implementation (United Nations Development Programme [UNDP], 2022). Outputs include deliverables like training materials and policy documents that provide measurable progress indicators (Kiendrébéogo et al., 2021). Outcomes are categorized into short-term (e.g., improved knowledge among stakeholders), intermediate (e.g., strengthened partnerships and policy implementation), and long-term results (e.g., enhanced access to quality healthcare services).

This model is relevant to the study as it offers a systematic approach to evaluate the MCIP's inputs, activities, and outcomes. Its emphasis on capacity building, policy development, and stakeholder engagement aligns with the study's objectives, particularly in assessing how the program improves financial management, expands coverage, and enhances healthcare delivery in Makueni County (UNDP, 2022; WHO, 2023).

The Financial Risk Protection Theory, as explored by Saksena et al. (2019), focuses on managing financial risks within healthcare systems. This theory highlights the use of tools such as diversification, insurance, liquidity management, and financial risk assessments to safeguard individuals and organizations against financial uncertainties (Saksena et al., 2019; Pena et al., 2021). It underscores the importance of strategic financial approaches,

particularly in low-income settings, where health insurance programs can significantly reduce financial burdens associated with medical expenses (Moser et al., 2021).

While valuable, the theory has been critiqued for its limited exploration of behavioral factors influencing financial decision-making. For instance, cognitive biases like loss aversion and overconfidence are only briefly addressed, and it assumes equal access to financial instruments, which is not always the case in economically disadvantaged regions (Hsu et al., 2023).

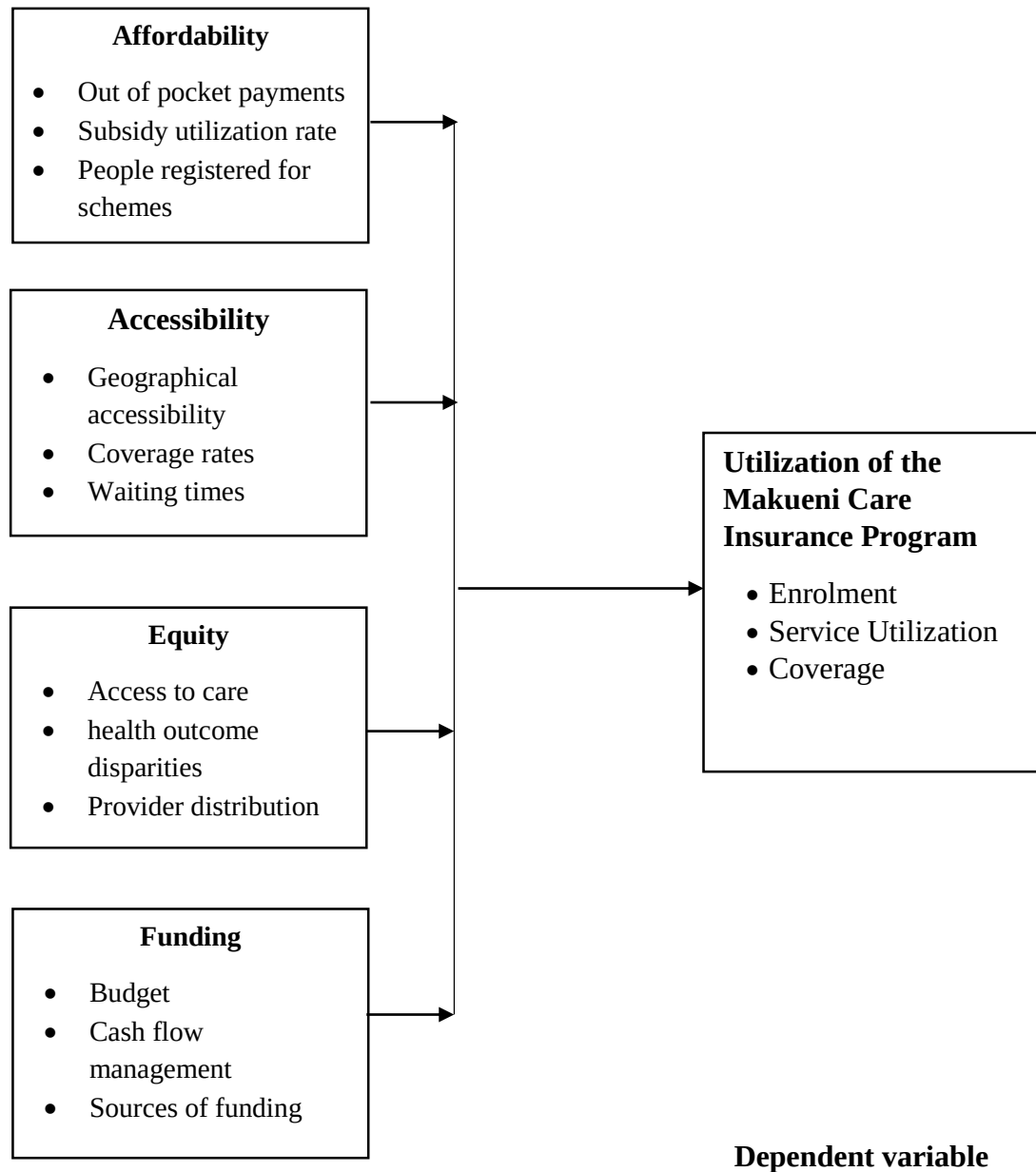
Despite these limitations, the Financial Risk Protection Theory applies directly to the MCIP. The program pools community contributions and government funding to reduce out-of-pocket healthcare costs for beneficiaries, effectively spreading financial risks and enhancing access to healthcare services. This supports the study's objective to evaluate how the MCIP mitigates financial risks and contributes to achieving UHC by improving household financial stability and reducing healthcare-related financial vulnerability (Moser et al., 2021). By integrating these two theoretical frameworks, this study provides a robust basis for analyzing how the MCIP improves health equity and financial stability while advancing UHC goals in Makueni County (UNDP, 2022; WHO, 2023).

2.9 Conceptual Framework

This section outlines the relationship between the independent and dependent variables. The independent variables of the study include Affordability, Accessibility, Equity, and Funding of the Makueni Care Insurance Program. The dependent variable is Utilization of the Makueni Care Insurance Program, which will be determined based on the changes in the independent variables.

Figure 2. 1:

Conceptual Framework



Source: Researcher's Conceptualization (2025)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlined the research design, target population, sampling procedures, data collection instruments, pre-testing, reliability and validity of instruments, ethical considerations, and data analysis methods, providing a structured framework for conducting the study and presenting its findings.

3.2 Research Design

Research design referred to the structured framework developed to address specific research questions and objectives (Blumberg et al., 2014). It served as a comprehensive plan, outlining the methods and procedures for collecting and analyzing relevant data (Kothari & Gaurav, 2014). This study adopted a descriptive cross-sectional mixed-methods approach, integrating both quantitative and qualitative research designs to achieve a comprehensive understanding of the factors influencing the utilization of the Makueni Care Insurance Program toward achieving Universal Health Coverage (UHC) in Makueni County, Kenya.

The quantitative aspect of the study employed a descriptive cross-sectional survey design. Structured questionnaires were administered to program users to collect data at a single point in time. The survey focused on exploring the relationships between key variables, including accessibility to health services, affordability, equity, and funding in the context

of the program's implementation. Statistical tools were used to analyze quantitative data, ensuring objective and reliable findings.

The qualitative aspect involved open-ended questions within the questionnaires to collect detailed feedback from program users. These responses provided rich, descriptive insights into the experiences, challenges, and suggestions for improvement, particularly concerning accessibility, affordability, equity, and funding as perceived by the beneficiaries. This qualitative component was essential to complement the numerical data and capture nuanced perspectives. By integrating these approaches, the study systematically addressed its objectives and produced robust findings. The mixed-methods design enabled a thorough examination of the factors influencing the program's utilization and provided actionable recommendations for enhancing its performance in advancing UHC in Makueni County, Kenya.

3.3 Target Population

The study population referred to the total group of individuals or elements that possessed characteristics relevant to the research (Kothari & Gaurav, 2014). For this study, the unit of analysis was the Makueni Care Insurance Program, specifically within the context of public healthcare facilities in Makueni County. The unit of observation included individuals who were involved in or impacted by the program, offering direct insights into its implementation and utilization.

It is important to distinguish between the target population and the study population. The target population refers to all individuals or institutions to whom the study findings are

intended to generalize, encompassing everyone involved in or benefiting from the Makueni Care Insurance Program across the 16 public hospitals in Makueni County. This included approximately 128 Hospital Administrators, 333 Healthcare Providers, and about 113,500 Beneficiaries and Program Users (Health Policy Plus, 2023). Conversely, the study population refers to the specific subset of the target population from which actual data were collected. This focused group was drawn from four selected hospitals, representing diverse healthcare settings across the county.

The study targeted two primary groups: Hospital Administrators and Healthcare Providers, and Beneficiaries and Program Users. Hospital Administrators and Healthcare Providers comprised approximately 192 individuals, including 128 Hospital Administrators and 333 Healthcare Providers across 16 public hospitals. These individuals were instrumental in capturing data on program management, operational efficiency, and the challenges faced within the facilities. They provided valuable perspectives on enrollment, service delivery, and resource allocation across all 12 public hospitals in the county, ensuring a comprehensive understanding of the program's functionality across varying institutional settings.

The second group, Beneficiaries and Program Users, consisted of insured members of the Makueni Care Insurance Program. With an estimated size of 113,500 members (Health Policy Plus, 2023), this group offered firsthand insights into accessibility, affordability, and any barriers to utilizing the program. Their experiences were crucial for assessing the program's impact on healthcare access and utilization.

To ensure a diverse and representative sample, four hospitals were selected from the 16 public health facilities in Makueni County. The selected hospitals included Makueni County Referral Hospital, Emali Sub-County Hospital, Makindu Sub-County Hospital, and Kibwezi Sub-County Hospital. Each facility was chosen based on its unique characteristics, ensuring the study covered a wide range of healthcare settings.

Makueni County Referral Hospital, the largest facility in the county, was included to provide insights into specialized care and complex cases. It was estimated to have 20 Hospital Administrators, 51 Healthcare Providers, and Beneficiaries and Program Users. This facility's data helped examine the program's functionality in a larger, more complex healthcare setting. Emali Sub-County Hospital was selected to explore the challenges in healthcare access and insurance utilization in rural settings. It was estimated to have 10 Hospital Administrators, 20 Healthcare Providers, and Beneficiaries and Program Users. The data from Emali Sub County hospital assessed how the program performed in rural areas with fewer resources and limited healthcare infrastructure.

Makindu Sub-County Hospital, located in a densely populated area, provided perspectives on the program's efficiency in semi-urban settings. This facility was expected to have 15 Hospital Administrators, 35 Healthcare Providers, and Beneficiaries and Program Users. The selection of Makindu allowed for an analysis of how the program operated in semi-urban environments, where access to healthcare was better than in rural areas but still faced unique challenges. Finally, Kibwezi Sub-County Hospital was chosen to capture data from both urban and rural contexts. It provided valuable insights into the program's effectiveness across different population densities and geographic locations. The estimated population

at this facility included 12 Hospital Administrators, 28 Healthcare Providers, and Beneficiaries and Program Users.

These four hospitals were selected because they represented a diverse range of healthcare settings: urban, semi-urban, and rural. Their inclusion ensured that the study provided a comprehensive evaluation of the Makueni Care Insurance Program across varying population densities and geographic locations, capturing key insights into program utilization and effectiveness.

Table 3. 1:

Target Population

Health Facility	Group	Category	Population size
Makueni County Referral Hospital	Hospital Administrators	Administrators	20
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	51
	Beneficiaries and Program Users	Program Users	---
Emali Sub-County Hospital	Hospital Administrators	Administrators	10
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	31
	Beneficiaries and Program Users	Program Users	500
Makindu Sub-County Hospital	Hospital Administrators	Administrators	11
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	28
	Beneficiaries and Program Users	Program Users	---
Kibwezi Sub-County Hospital	Hospital Administrators	Administrators	10
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	21
	Beneficiaries and Program Users	Program Users	---

Source: Respective Health facilities Report (2024)

3.3.1 The Inclusion and Exclusion Criteria

The inclusion criteria for the study encompassed Hospital Administrators and Healthcare Providers who had served in the selected facilities for at least six months and were directly involved in implementing or managing the Makueni Care Insurance Program. Beneficiaries and Program Users included individuals who were registered under the program and had accessed healthcare services through it within the previous 12 months.

The exclusion criteria involved healthcare workers on probation, interns, and administrative staff not directly engaged in program implementation. Beneficiaries who had not yet utilized the program's services or whose registration status could not be verified were also excluded from the study.

3.4 Sampling Procedure and Sample Size

3.4.1 Sampling Procedure

A sample referred to a subset of individuals selected to accurately represent the broader population, based on specific characteristics (Kombo & Tromp, 2009). Samples were gathered, and statistical analysis was performed to draw conclusions about the larger population based on the sample data (Zikmund et al., 2013). This study used stratified sampling methods, which involved dividing the population into smaller groups to ensure that all individuals within the defined population were equally represented (Kothari & Gaurav, 2014).

3.4.2 Sample Size

A sample was a segment of the target population from which data was gathered, organized, and analyzed, allowing for conclusions to be drawn about the entire population from which the sample was taken (Blumberg et al., 2014). For this study, the sample consisted of beneficiaries and program users, healthcare providers, and hospital administrators at the healthcare facilities. The study employed stratified sampling in selecting the senior personnel within the health institutions to participate in the study.

The sample size for the study was determined using the Yamane formula as shown below:
 n =sample size, N = population size and α =level of precision.

$$n = \frac{N}{1 + N\alpha^2}$$

The study used Yamane formula to calculate the administrators sample size

$$\frac{51}{1+51(0.05)^2} \approx 45$$

The study used Yamane formula to calculate the Healthcare providers sample size

$$\frac{131}{1+131(0.05)^2} \approx 99$$

Therefore, rounding to the nearest whole number, the sample size n calculated using the Yamane formula for population sizes of 51 and 131, with a precision level of 5%, was approximately 45 for administrators and 99 for healthcare providers. The study then used stratified sampling to ensure each subgroup within the facilities was proportionally represented in the sample. The ratio of $45/51 = 0.882$ for administrators and $99/131 = 0.7556$ for healthcare providers was applied to each stratum to determine the sample size

for each category within every hospital. Additionally, the study purposively selected 40 program users from each facility, ensuring focused insights from those enrolled in the Makueni Care Insurance Program. This approach enhanced the accuracy and relevance of data across the different facility settings (Creswell, 2014).

Table 3. 2:
Sample Distribution

Health Facility	Group	Category	size (F)	Ratio (R)	Sample size (F×R)
Makueni County Referral Hospital	Hospital Administrators	Administrators	20	45/51 = 0.882	18
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	51	99/131 = 0.7556	39
	Beneficiaries and Program Users	Program Users	20000	Purposively selected	30
Emali Sub-County Hospital	Hospital Administrators	Administrators	10	45/51= 0.882	9
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	31	99/131 = 0.7556	23
	Beneficiaries and Program Users	Program Users	500	Purposively selected	30
Makindu Sub-County Hospital	Hospital Administrators	Administrators	11	45/51= 0.882	10
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	28	99/131= 0.7556	21
	Beneficiaries and Program Users	Program Users	2000	Purposively selected	30
Kibwezi Sub-County Hospital	Hospital Administrators	Administrators	10	45/51= 0.882	9
	Healthcare Providers (Nurses, doctors and clinical officers)	Healthcare Providers	21	99/131= 0.7556	16
	Beneficiaries and Program Users	Program Users	2000	Purposively selected	30

3.5 Data Collection Instruments

Kennedy et al. (2011) acknowledged that various methods could be employed to collect data. The selection of a tool and instrument for research largely depended on the nature of the study and the type of data and outcomes expected. This study primarily relied on primary data, which was obtained directly from the research sample through questionnaires. A structured questionnaire with closed-ended questions was used in this research. The questionnaire featured a 5-point Likert scale, where 5 represented "strongly agree," 4 represented "agree," 3 indicated "neither agree nor disagree," 2 signified "disagree," and 1 meant "strongly disagree."

In the study, there was a questionnaire for the program users (Appendix 3), which focused on factors such as accessibility, equity, and affordability. Additionally, the main questionnaire for administrators and healthcare providers was found in Appendix 2, exploring their insights on program management and performance. These two appendices provided comprehensive data for evaluating the Makueni Care Insurance Program.

The questionnaire was divided into five main parts. The first part collected demographic information; Section B, part A contained Likert-scale statements on affordability; part B contained statements on accessibility; part C contained statements on equity; and part D contained statements on funding. Section C focused on the utilization of the Makueni Care Insurance Program.

3.6 Pretest Study

The study ensured that all necessary approvals were obtained from both the university and the National Commission for Science, Technology, and Innovation. According to Saunders et al (2012), a sample size of 5% to 10% of the total sample was considered an appropriate

number of participants for a pilot study. The research pretested the study instrument with 10% (n = 5 administrators and 10 healthcare providers) of the respondents in Mukuyuni Sub county hospital in Makueni County. This pilot testing helped assess the reliability and validity of the research instrument.

3.6.1 Reliability of the Research Instrument

The study utilized reliability tests to assess the internal consistency of the research instruments. An informed consent form was prepared for participants, which each respondent was required to sign before participating in the study. The questionnaires were distributed using the drop-and-pick-later method to all selected respondents. In cases where respondents were unavailable, Google Forms were used for completion by the participants. Each respondent was contacted individually according to the study's sample, and a tracking register was maintained to monitor the distribution and return of the administered questionnaires.

Cronbach's alpha was used to test the internal consistency reliability of the instrument, as it effectively measures how well a set of items captures a single latent construct (Braithwaite et al., 2020). The instrument included several constructs measured on a five-point Likert scale, and Cronbach's alpha was therefore the most suitable measure for assessing consistency across the items.

Reliability Testing Process

A pilot study was conducted prior to the main data collection to pre-test the research instruments and evaluate their effectiveness. The aim of the pilot was to assess the

feasibility of the tools, identify any challenges in the data collection process, and refine the instruments to improve their reliability and validity. The pilot study involved 15 respondents, representing approximately 10% of the total sample size of 145, drawn from Mukuyuni Sub-County Hospital in Makueni County, which shared similar characteristics with the main study sites. Respondents included both senior and mid-level healthcare personnel, providing diverse feedback on clarity and flow.

Feedback from the pilot highlighted minor wording issues and occasional non-responses. These were corrected to enhance clarity and engagement. Data from the pilot respondents were coded and analyzed using the Statistical Package for the Social Sciences (SPSS) version 26. Each construct—Affordability, Accessibility, Equity, and Funding—was subjected to Cronbach’s alpha analysis to determine internal consistency. A coefficient value (α) of 0.70 or higher was considered acceptable for reliability (Nunnally & Bernstein, 1994). Constructs yielding alpha values below 0.70 were reviewed, and the items that reduced overall consistency were refined or reworded before the main data collection.

The results of the reliability analysis are presented in Table 4.3. All variables reported Cronbach’s Alpha values above the 0.70 threshold, indicating satisfactory internal consistency. The highest reliability was observed in the utilization of the Makueni Care Insurance Program ($\alpha = 0.825$), while the lowest was in affordability ($\alpha = 0.732$). These findings confirmed that the questionnaire exhibited strong internal consistency across all variables and was therefore reliable and suitable for the main study.

Table 3. 3:
Reliability Results

Variable	Alpha Statistic	No. of Items	Interpretation
Accessibility	0.744	10	Acceptable
Affordability	0.732	9	Acceptable
Equity	0.743	8	Acceptable
Funding	0.787	9	Acceptable
Utilization of Makueni Care Program	0.825	12	Excellent

This process ensured that the final questionnaire was dependable and capable of producing consistent results across similar study conditions.

3.6.2 Validity of the Research Instrument

According to Gaber and Gaber (2010), validity refers to how well an instrument measures what it is intended to measure and the extent to which the results accurately reflect the phenomenon being studied (Mugenda & Mugenda, 2003). This study assessed three types of validity: content validity, construct validity, and face validity.

Validity Testing Process

Content validity was established through a systematic review by experts in public health policy, healthcare financing, and research methodology. The experts evaluated each questionnaire item for clarity, relevance, and alignment with the study objectives. Their feedback guided revisions to ensure the instrument captured all relevant dimensions of the study variables. The revised questionnaire was further reviewed by the researcher's supervisors for refinement and accuracy.

Face validity was assessed by pre-testing the questionnaire with healthcare providers and program beneficiaries from Mukuyuni Sub-County Hospital during the pilot phase. Participants were asked to comment on the clarity, length, and comprehensibility of the questions. Their feedback confirmed that the questions were understandable, relevant, and reflective of real-life experiences with the Makueni Care Insurance Program, which improved the instrument's clarity, appropriateness, and acceptability.

Construct validity was verified through factor analysis using the pilot data. The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity were conducted to confirm the suitability of the data for factor analysis. The KMO values for the variables ranged from 0.768 to 0.891, all above the recommended threshold of 0.70, indicating that the data were appropriate for factor analysis. Bartlett's Test of Sphericity yielded statistically significant results ($p < 0.001$) for all constructs, confirming that the data were factorable. These results validated that the items grouped well under the constructs of accessibility, affordability, equity, funding, and utilization, thus confirming the instrument's construct validity.

Table 3. 4:
Validity Test of Study Variables

Variable	KMO	Bartlett's Test of Sphericity			Conclusion Validity
		Approx. Chi-Square	df	Sig.	
Accessibility	0.891	756.283	36	0.000	Excellent – Valid
Affordability	0.823	664.512	28	0.000	Middling – Valid
Equity	0.768	598.147	21	0.000	Middling – Valid
Funding	0.781	623.870	28	0.000	Middling – Valid
Utilization of Makueni Care Insurance Program	0.876	702.419	36	0.000	Excellent – Valid

The findings confirmed that the questionnaire items strongly represented their respective constructs, ensuring that the instrument was both valid and reliable for data collection and analysis in the current study.

3.7 Data Analysis and Presentation

Data analysis involved processing data to extract meaningful insights (Blumberg et al., 2014). The collected questionnaires were reviewed, cleaned, and organized to ensure that relevant data was appropriately coded, categorized, and stored for analysis using the Statistical Package for Social Sciences (SPSS) version 26. The quantitative data gathered from closed-ended questions was analyzed using descriptive statistics, including percentages, means, standard deviations, and frequencies. Inferential analysis was employed to examine the relationships between the research variables. Specifically, the Spearman rank correlation was used to determine the direction of the impact of the independent variables on the dependent variable. Additionally, regression analysis was

conducted to assess the strength of the relationship between factors influencing the utilization of the Makueni care insurance program and utilization.

The regression model took the form below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Whereby; Y = utilization of Makueni Care Insurance program, β_0 = Constant, β_1 to β_4 = Regression coefficients, X_1 = Funding; X_2 = Equity; X_3 = Accessibility; X_4 = Affordability and ε = Error term

3.7.1 Analytical Model Diagnostic Tests on Collected Data

Prior to fitting the regression model, it was essential to verify that all key assumptions underlying the model were satisfied to ensure the validity of the subsequent inferences. Any violations of these assumptions could have compromised the integrity of the statistical conclusions. Therefore, proper diagnostic checks were conducted before performing any inferential analyses. In this study, the researcher conducted diagnostic tests for normality, homoscedasticity, multicollinearity, and linearity.

Normality Test: The normality of the data was assessed to determine whether the residuals of the regression model followed a normal distribution. This was examined using the Kolmogorov–Smirnov test supported by graphical analysis, including histograms and normal probability plots. The results indicated that the residuals were approximately normally distributed, confirming that the normality assumption was met.

Homoscedasticity Test: The assumption of homoscedasticity, referring to the equality of residual variance across all levels of the independent variables, was tested using the

Breusch–Pagan and Koenker tests. Scatter plots of standardized residuals against predicted values were also examined. The absence of a visible pattern suggested that the variance of the residuals was constant, confirming that the assumption of homoscedasticity was satisfied.

Multicollinearity Test: Multicollinearity among the independent variables was assessed using the Variance Inflation Factor (VIF) and tolerance levels. A VIF value below 10 and a tolerance value above 0.1 indicated no significant multicollinearity. The findings showed that all variables met these thresholds, confirming that the independent variables were not highly correlated and could be included in the model without distortion.

Linearity Test: The assumption of linearity between the independent and dependent variables was assessed to determine whether changes in the predictors had a proportional relationship with changes in the dependent variable, utilization of the Makueni Care Insurance Program (MCIP). The test of linearity was conducted by establishing Pearson correlation coefficients between each independent variable—Affordability, Accessibility, Equity, and Funding—and the dependent variable.

The satisfactory outcomes of these diagnostic tests confirmed that the data met all the required assumptions for regression analysis. Therefore, the researcher proceeded to fit the regression model with confidence in the validity and robustness of the model results.

3.8 Ethical Considerations

Ethics in research pertained to the adherence to ethical standards throughout the study process, including planning, data collection and analysis, dissemination, and use of results

(Mugenda, 2008). It involved virtues such as honesty, compassion, and empathy, particularly when engaging with research participants. Sheikhi et al. (2020) emphasized that research involving human participants must uphold ethical principles to safeguard both the respondents and the researcher. Consequently, the researcher ensured that no issues compromised the study, and formal approvals were obtained from the Science and Ethics Review Committee (SERC), the National Council for Science, Technology, and Innovation (NACOSTI), and the management of the public hospital in Makueni County. Information outlining the study's objectives was provided to participants, and ethical considerations were thoroughly discussed.

Respondents were reassured that their data would remain confidential, and all necessary approvals had been obtained. Anonymity and confidentiality were paramount in this study, as the interviews were conducted one-on-one. The researcher took steps to ensure confidentiality was upheld throughout data collection. Participants were informed of the potential benefits of the research. Careful attention to ethical considerations was prioritized to ensure the study complied with ethical guidelines. Strict measures were taken to ensure that the data and information gathered from participants were securely stored and not shared improperly.

In managing ethical issues related to risks and benefits, the researcher ensured that participants faced minimal or no physical, psychological, or social harm as a result of their involvement in the study. Participation was entirely voluntary, and respondents had the right to withdraw at any point without penalty. The benefits of the study—such as

contributing to improved healthcare policy and insurance program design—were clearly explained to participants to ensure informed decision-making.

Regarding conflict of interest, the researcher maintained complete objectivity throughout the study process. No personal, financial, or professional interests influenced data collection, analysis, or interpretation. To uphold transparency and integrity, the researcher disclosed affiliations, adhered strictly to institutional research ethics guidelines, and avoided any actions that could compromise the credibility or neutrality of the findings.

CHAPTER FOUR

RESEARCH RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents a comprehensive analysis of the collected data, beginning with the response rate of the study. It then outlines the results of the pilot study conducted to assess the reliability and validity of the research instruments, ensuring the accuracy and consistency of the measurement tools. This is followed by detailed descriptive and inferential statistical findings. Additionally, the chapter presents results from diagnostic tests conducted to verify assumptions of the regression model, including assessments for multicollinearity, normality, heteroscedasticity, autocorrelation, and linearity. Inferential statistics are applied to address each research objective, with the findings discussed in alignment with the study's aims and supported by relevant literature, offering meaningful insights into the research problem.

4.2 Response Rate

The study engaged various respondent groups across the selected public health facilities in Makueni County, namely hospital administrators, healthcare providers, and program users enrolled in the Makueni Care Insurance Program. The response rates for these groups are presented separately in Tables 4.1 and 4.2.

Table 4. 1:*Response Rate by Category and Facility (Administrators and Healthcare Providers)*

Facility			Category	Sample Size	Responses	Response Rate (%)
Makueni County Referral Hospital			Administrators	18	16	88.9
			Healthcare Providers	39	34	87.2
Emali Sub-County Hospital			Administrators	9	8	88.9
			Healthcare Providers	23	20	87.0
Makindu Sub-County Hospital			Administrators	10	9	90.0
			Healthcare Providers	21	18	85.7
Kibwezi Sub-County Hospital			Administrators	9	7	77.8
			Healthcare Providers	16	14	87.5
Total / Average				145	126	86.9

The overall response rate for administrators and healthcare providers across the four health facilities was 86.9%, indicating strong participation. The highest response rates were observed among administrators at Makindu Sub-County Hospital (90.0%) and healthcare providers at Kibwezi Sub-County Hospital (87.5%). The lowest response rate was recorded among administrators at Kibwezi Sub-County Hospital (77.8%), which may reflect availability challenges within this group.

Table 4. 2:
Response Rate among Program Users

Facility	Sample Size (Program Users)	Responses	Response Rate (%)
Makueni County Referral Hospital	30	27	90.0
Emali Sub-County Hospital	30	26	86.7
Makindu Sub-County Hospital	30	26	86.7
Kibwezi Sub-County Hospital	30	25	83.3
Total / Average	120	104	86.7

Program users showed a similarly high level of engagement, with an average response rate of 86.7% across all facilities. The highest participation was at Makueni County Referral Hospital (90.0%), while Kibwezi Sub-County Hospital had the lowest response rate among program users (83.3%).

The combined high response rates from both healthcare staff (administrators and providers) and program users reflect the study's effectiveness in reaching key stakeholders involved in the Makueni Care Insurance Program. An overall response rate above 85% across all categories surpasses the 70% benchmark recommended by Kothari (2014) for health-related research, thus supporting the validity and reliability of the collected data.

4.3 Background Characteristics

4.3.1 Background Characteristics of Healthcare Administrators and Providers

This section presents the demographic and professional characteristics of the 126 hospital administrators and healthcare providers who participated in the study. It focuses on

variables such as age, gender, education level, managerial role, and years of experience. Understanding these characteristics is essential in contextualizing their perspectives on the utilization of the Makueni Care Insurance Program. The results are summarized in Table 4.5.

Table 4. 3:

Background Characteristics of Healthcare Administrators and Providers

Age Group	Frequency	Percent
25 – 34 years	34	27.0%
35 – 44 years	45	35.7%
45 – 54 years	30	23.8%
55 years and above	17	13.5%
Gender	Frequency	Percent
Male	60	47.6%
Female	66	52.4%
Education Level	Frequency	Percent
Diploma/Higher Diploma	76	60.3%
Bachelor’s Degree	35	27.8%
Master’s Degree	12	9.5%
Doctorate	3	2.4%
Primary Managerial Role	Frequency	Percent
Insurance Program Management	20	15.9%
Financial and Revenue Management	15	11.9%
Clinical Operations Management	30	23.8%
Health Program Coordination	26	20.6%
Hospital Admin & Operations	30	23.8%
Other	5	4.0%
Years of Experience	Frequency	Percent
Less than 5 years	22	17.5%
5 – 10 years	40	31.7%
11 – 20 years	45	35.7%
Over 20 years	19	15.1%

N = 126

The demographic profile of the 126 healthcare administrators and providers surveyed reveals a predominantly mid-career workforce. As shown in Table 4.5, the largest age group comprised individuals aged 35–44 years (45 respondents, 35.7%), followed closely

by those aged 25–34 (27.0%) and 45–54 years (23.8%). No respondents were under the age of 25, indicating that healthcare management roles are typically held by more experienced personnel. These findings align with observations by Kamau et al. (2020), who reported that administrative roles in Kenyan health systems are often staffed by professionals in their mid-30s to late-40s.

In terms of gender, the sample had a relatively balanced distribution: 66 female respondents (52.4%) and 60 male respondents (47.6%). This is consistent with prior research by Muia et al. (2022) which found near gender parity in mid- and senior-level healthcare positions in Kenya, although nursing remains predominantly female-dominated.

With respect to education, a significant majority of respondents (76 individuals, 60.3%) had attained either a diploma or higher diploma qualification. Another 27.8% held a bachelor's degree, while only a minority had postgraduate qualifications (master's degree 9.5%, doctorate 2.4%). This mirrors findings by Barasa et al. (2021), which noted that diploma-level training is the minimum educational standard for most healthcare roles, and further professional development is often hindered by limited institutional support and funding.

Respondents reported a variety of managerial roles within healthcare facilities. The most common roles were Clinical Operations Management and Hospital Administration (each 23.8%), followed by Health Program Coordination (20.6%) and Insurance Program Management (15.9%). These findings reflect the complexity of hospital operations and the diversification of management functions in line with Kenya's health sector reforms, as described by Mutiso and Mwangi (2022).

In terms of experience, most respondents (35.7%) had between 11–20 years of service, followed by those with 5–10 years (31.7%). Only 17.5% had less than 5 years of experience, and 15.1% had worked in the sector for over two decades. This experience distribution underscores the presence of a seasoned workforce with a deep understanding of healthcare system dynamics—an essential factor for the successful implementation of health reforms and insurance programs such as the Makueni Care Initiative.

These findings collectively highlight the maturity, competence, and diversity of health administrators and providers in Makueni County. The presence of well-educated and experienced personnel in key leadership roles is critical to sustaining healthcare programs and improving service delivery toward Universal Health Coverage (UHC).

4.3.2 Background Characteristics of the Program user

This section presents the demographic and socio-economic characteristics of the general respondents who participated in the study. Understanding these background variables is essential for contextualizing the findings, as they may influence perceptions, experiences, and utilization patterns related to the Makueni Care Insurance Program (MCIP). The characteristics captured include gender, age, occupation, household size, and highest level of education attained. These factors provide insights into the diversity and representativeness of the study population. The summarized findings are presented in Table 4.6.

Table 4. 4:
Background Characteristics of the Program Users

<i>Characteristic</i>	<i>Category</i>	<i>Frequency</i>	<i>Percent</i>
Gender	Male	46	38.3%
	Female	74	61.7%
Age	Below 25	16	13.3%
	25–30	21	17.5%
	31–36	29	24.2%
	37–42	18	15.0%
	43–48	12	10.0%
	49–54	9	7.5%
	55+	7	5.8%
Occupation	Farmer	14	11.7%
	Trader	20	16.7%
	Teacher	19	15.8%
	Student	13	10.8%
	Driver	11	9.2%
	Artisan	43	35.8%
Household Size	1–2	17	14.2%
	3–4	36	30.0%
	5–6	33	27.5%
	7+	34	28.3%
Highest Level of Education	None	3	2.5%
	Primary	24	20.0%
	Secondary	41	34.2%
	Tertiary	52	43.3%

(N = 120)

The results presented in Table 4.6 provide a detailed overview of the demographic characteristics of the 120 respondents who participated in the survey. These data highlight important trends related to gender, age, occupation, household size, and educational attainment within the surveyed population.

In terms of gender distribution, female respondents constituted the majority with 74 participants (61.7%), while males accounted for 46 respondents (38.3%). This predominance of female participants corresponds with findings from Ochieng and Njiru (2021), who observed that women frequently demonstrate higher engagement in community-based surveys and social development programs. Such gender dynamics may reflect broader societal roles and participation patterns.

Regarding age, the most represented group comprised individuals aged between 31 and 36 years, totaling 29 respondents (24.2%). This group was followed by those aged 25 to 30 years, with 21 respondents (17.5%), and the 37 to 42 years category, including 18 respondents (15.0%). Respondents younger than 25 years made up 16 participants (13.3%), while the oldest cohort, aged 55 years and above, represented a smaller segment with 7 respondents (5.8%). These figures indicate a predominantly youthful population, a trend similarly identified by Kamau et al. (2020), who linked such age structures to active economic participation and evolving social needs. The relatively limited number of older respondents may be attributed to demographic shifts or lower survey participation rates among senior populations, as discussed by Obiero et al. (2023).

The occupational distribution reveals that artisans constituted the largest group at 43 respondents (35.8%), emphasizing the significance of skilled manual labor in the

community. Traders followed with 20 respondents (16.7%), closely succeeded by teachers, who numbered 19 participants (15.8%). Farmers accounted for 14 respondents (11.7%), while students and drivers represented smaller groups of 13 (10.8%) and 11 (9.2%) respondents respectively. This pattern reflects a workforce dominated by informal and semi-formal occupations, a scenario consistent with findings by Mutiso and Mwangi (2021), who highlighted the prevalence of such employment structures in similar demographic contexts.

Analysis of household size reveals that 36 respondents (30.0%) lived in households with three to four members, making this the most common family structure. Households comprising seven or more members were reported by 34 participants (28.3%), whereas families with five to six members included 33 respondents (27.5%). Smaller households with one or two members accounted for 17 respondents (14.2%). This variation illustrates a range of family compositions, potentially influencing resource allocation and social support mechanisms, as noted by Muthoni et al. (2021).

Education levels among respondents show a majority with tertiary qualifications, accounting for 52 individuals (43.3%). Secondary education holders formed the next largest group with 41 respondents (34.2%), while primary education was reported by 24 participants (20.0%). Only 3 respondents (2.5%) indicated no formal education. This educational profile suggests moderate to high educational attainment within the sample, echoing trends identified by Mwaura (2021), who underscored improvements in access to higher education alongside persistent challenges affecting educational progression in some populations.

4.4 Descriptive Results of Variables

Descriptive analysis plays a fundamental role in interpreting data collected during research. According to Kaushik and Mathur (2014), Talib et al. (2011), and Thompson (2009), it involves the systematic organization, summarization, and interpretation of data to uncover key patterns and trends. In this study, descriptive statistics were utilized to present findings from the survey questionnaires in a clear and accessible manner.

This section outlines the descriptive results for each study variable, emphasizing the demographic and professional profiles of the respondents. Summary tables present the mean and standard deviation for each variable to offer a concise snapshot of the data. Responses from healthcare personnel were captured using a five-point Likert scale: 5 (Strongly Agree), 4 (Agree), 3 (Not Sure), 2 (Disagree), and 1 (Strongly Disagree). For ease of interpretation, the responses were later reclassified into a three-point scale by merging 'Strongly Agree' and 'Agree' into one category, and 'Disagree' and 'Strongly Disagree' into another, while retaining 'Not Sure' as a distinct category.

4.4.1 Affordability

The first independent variable under investigation was affordability. Respondents were asked to rate their level of agreement with various statements on out-of-pocket payments, subsidy utilization, and insurance registration. The results are summarized in Table 4.7.

Table 4. 5:
Descriptive Results for Affordability

	Disagree n(%)	Neutral n(%)	Agree n(%)	Mea n	Std. Dev
Out-of-pocket payments					
Out-of-pocket payments for healthcare services remain a significant financial burden for many patients in Makueni County.	15 (11.9%)	20 (15.9%)	91 (72.2%)	3.6	1.02
The cost of out-of-pocket payments discourages many patients from utilizing the Makueni Care Insurance Program.	18 (14.3%)	16 (12.7%)	92 (73.0%)	3.5	1.11
Hospital management faces challenges in making medical services more affordable for patients, despite insurance coverage.	24 (19.0%)	28 (22.2%)	74 (58.7%)	3.3	1.20
Subsidy utilization					
The availability of subsidies significantly improves the affordability of healthcare services under the Makueni Care Insurance Program.	12 (9.5%)	18 (14.3%)	96 (76.2%)	3.7	0.98
Subsidy utilization is low due to insufficient awareness and understanding of the available subsidies.	20 (15.9%)	33 (26.2%)	73 (57.9%)	3.3	1.15
The existing subsidies are sufficient to make healthcare services affordable for the majority of low-income patients in Makueni County.	28 (22.2%)	32 (25.4%)	66 (52.4%)	3.2	1.21
People registered for schemes					
The affordability of insurance premiums under the Makueni Care Insurance Program influences the number of people who register for the program.	11 (8.7%)	15 (11.9%)	100 (79.4%)	3.8	0.87
High premiums and additional costs prevent many people from registering for the Makueni Care Insurance Program, even if they are eligible.	25 (19.8%)	30 (23.8%)	71 (56.3%)	3.3	1.16
Increased awareness of affordable premium options has led to higher enrollment in the Makueni Care Insurance Program.	17 (13.5%)	19 (15.1%)	90 (71.4%)	3.6	0.95

(N = 126)

Results in Table 4.7 indicate the extent of agreement among respondents on various aspects of Affordability, categorized into Out-of-Pocket Payments, Subsidy Utilization, and People Registered for Schemes.

Regarding Out-of-Pocket Payments, respondents generally agreed that out-of-pocket payments for healthcare services remain a significant financial burden in Makueni County, with 72.2% agreeing (Mean = 3.6, Standard Deviation = 1.02). A similar trend was observed regarding the impact of these costs on program utilization, with 73.0% agreeing that such payments discourage many patients from utilizing the Makueni Care Insurance Program (Mean = 3.5, SD = 1.11). However, there was neutrality on whether hospital management faces challenges in making services more affordable despite insurance coverage, with only 58.7% agreeing and a mean of 3.3 (SD = 1.20), indicating more mixed perceptions.

These findings underscore the financial strain that out-of-pocket costs still pose, even in the presence of an insurance program. This aligns with literature highlighting cost as a major deterrent to accessing care, particularly in low-income contexts (WHO, 2020; Mutiso & Mwangi, 2019). Strengthening cost-sharing mechanisms and increasing transparency on pricing can help reduce financial barriers.

Concerning subsidy utilization, agreement was strongest regarding the role of subsidies in improving affordability under the Makueni Care Insurance Program, with 76.2% of respondents agreeing (Mean = 3.7, SD = 0.98). However, perceptions were more neutral on the level of subsidy awareness and adequacy, with only 57.9% agreeing that subsidy utilization is low due to poor awareness (Mean = 3.3, SD = 1.15), and 52.4% agreeing that

existing subsidies are sufficient for low-income patients (Mean = 3.2, SD = 1.21). These results indicate that while subsidies are seen as beneficial, there are gaps in their visibility and perceived impact.

This is consistent with studies by Mwirigi et al. (2018) which emphasize the importance of targeted communication and community engagement to maximize subsidy uptake and health equity. Improving subsidy awareness could enhance program efficiency and increase coverage among vulnerable populations.

Regarding people registered for schemes, there was broad agreement that premium affordability influences registration for the Makueni Care Insurance Program, with 79.4% agreeing (Mean = 3.8, SD = 0.87). Respondents also agreed that increased awareness of affordable premium options has led to higher enrollment, with 71.4% in agreement (Mean = 3.6, SD = 0.95). However, agreement was neutral regarding the notion that high premiums and hidden costs prevent people from registering, with only 56.3% agreeing (Mean = 3.3, SD = 1.16), suggesting some level of uncertainty or variability in experiences.

These findings confirm the crucial role of pricing strategies and information campaigns in boosting insurance coverage. Prior research by Mutiso and Mwangi (2019) supports the need for differentiated premium models and targeted outreach to improve program accessibility and reduce enrollment disparities.

Overall, the findings reveal moderate to strong agreement on most affordability indicators, especially regarding the burden of out-of-pocket costs and the influence of subsidies and premium affordability on service utilization and registration. However, neutral responses

on subsidy sufficiency and hidden costs point to ongoing gaps in communication, subsidy design, and financial planning. These results align with existing literature that calls for policy adjustments in pricing and subsidy structures to promote equitable access to healthcare services (WHO, 2020; Mwirigi et al., 2018).

4.4.1.1 Affordability of Makueni Care Insurance Premiums

Table 4.8 presents the respondents' perceptions regarding the affordability of the Makueni Care Insurance premiums. Understanding affordability is a key component in evaluating the accessibility and sustainability of health insurance schemes, particularly among vulnerable populations.

Table 4. 6:
Affordability of Makueni Care Insurance Premiums

Affordability of Makueni Care Insurance Premiums	Frequency	Percent
Yes	49	40.8
No	71	59.2
Total	120	100

The results in Table 4.8 indicate respondents' views on the affordability of Makueni Care Insurance premiums. Of the 120 respondents, 49 individuals (40.8%) reported that they find the premiums affordable, while a slightly larger group of 71 respondents (59.2%) indicated that the premiums are not affordable. This suggests that a significant proportion of the community faces financial barriers to accessing Makueni Care services. The challenge of affordability is consistent with findings from Njiru and Ochieng (2022), who emphasized that cost constraints remain a major obstacle in the uptake of community health insurance programs in Kenya. These results highlight the need for policy interventions that

could improve premium affordability, such as subsidy schemes or flexible payment plans, to enhance broader access and equity within the insurance program.

4.4.1.2 Affordability in Paying Premiums

Table 4.9 highlights the challenges faced by respondents in paying premiums for the Makueni Care Insurance Program. Affordability challenges can significantly affect the uptake and continuity of health insurance coverage.

Table 4. 7:

Affordability in Paying Premiums

Response	Frequency	Percent
Yes	89	74.20%
No	31	25.80%
Total	120	100.00%

The results in Table 4.9 show that a significant portion of the respondents, 89 participants (74.2%), reported having been unable to pay the Makueni Care Insurance premiums at some point due to financial constraints. In contrast, only 31 respondents (25.8%) indicated they had never experienced such a challenge. This distribution points to an important equity concern in the accessibility of health insurance services, as financial affordability directly influences sustained enrolment and utilization.

These findings mirror trends noted in a study by Owino (2020), which found that low-income households in Kenya are more likely to default on health insurance payments due to competing financial obligations, such as food, school fees, and rent. Similarly, the high proportion of those facing difficulty with payments in the current study may reflect broader

socio economic challenges in the region, including irregular income sources and informal employment.

The data suggest that while the Makueni Care Insurance program is well-intentioned and broadly accessible, there is a clear need to consider more flexible or subsidized payment structures to support consistent participation among financially vulnerable households. Addressing these affordability issues could enhance the scheme's sustainability and improve health equity across the community.

4.4.1.3 Perceived Value for Money in Makueni Care Insurance

Table 4.10 presents respondents' views on whether the Makueni Care Insurance Program offers value for money. Assessing perceived value is essential in understanding beneficiary satisfaction and the likelihood of continued enrollment.

Table 4. 8:
Perceived Value for Money in Makueni Care Insurance

	Frequency	Percent
Yes	94	78.3
No	26	21.7
Total	120	100

The results in Table 4.10 indicate that the majority of respondents, 94 participants (78.3%), believe that the Makueni Care Insurance program provides value for money in terms of healthcare services received. Conversely, 26 respondents (21.7%) expressed dissatisfaction with the perceived return on their financial contributions. This overwhelming endorsement suggests that most community members recognize the program as a beneficial investment in their health.

These findings align with previous evaluations by Kilonzo and Wambua (2022), who highlighted that community-based health insurance schemes in Kenya are generally well-received when they effectively reduce out-of-pocket health expenditures and improve access to services. The relatively low proportion of dissatisfied individuals may reflect isolated cases of service delivery gaps or unmet expectations rather than systemic issues.

The triangulated findings from both healthcare providers/administrators and program users reveal consistent concerns about affordability as a key factor influencing the utilization of the Makueni Care Insurance Program. Health administrators and providers widely agreed that out-of-pocket payments remain a financial burden and discourage service uptake, a sentiment echoed by 74.2% of users who reported being unable to pay premiums due to financial constraints. While providers recognized that subsidies improve affordability, they expressed concerns about low awareness and the adequacy of these subsidies issues indirectly confirmed by users, with 59.2% finding premiums unaffordable.

Despite these financial barriers, most users (78.3%) believed the program offers value for money, suggesting strong perceived benefits if access is sustained. Overall, both groups highlighted the need for improved communication, targeted subsidies, and flexible payment models to enhance affordability and increase enrollment. Addressing these issues is vital for expanding equitable access and achieving the program's universal health coverage objectives in Makueni County.

4.4.1.4 Qualitative Insights on Affordability and Its Influence on Utilization of the Makueni Care Insurance Program

Affordability was a major determinant affecting enrollment and sustained use of services under the Makueni Care Insurance Program (MCIP). While the annual premium of KES 500 was considered affordable by many beneficiaries, the irregular and often low income of those working in the informal sector made it difficult for them to consistently renew their membership. One beneficiary explained:

"The fee itself is not very high, but when you live day-to-day and struggle to put food on the table, paying for insurance, even 500 shillings become hard. Sometimes we delay paying because we have to choose between feeding our family or renewing the insurance. This means that sometimes we lose coverage and miss out on health services when we really need them." (Beneficiary 5)

Health providers corroborated these financial barriers through their observations of patient behaviors. One health officer noted:

"Many patients we see start the year insured, but by mid-year, a significant number have stopped renewing their membership. They tell us it's because they simply don't have the money. Even when they have insurance, some are afraid to come for treatment if they think there might be additional costs for medicines or tests not covered under the program. This fear often results in delayed visits and worsened health outcomes." (Health Provider 2)

Providers further highlighted that some essential diagnostic services fall outside the MCIP coverage, creating additional out-of-pocket expenses. A medical officer remarked:

"We have many insured patients who avoid getting recommended tests such as X-rays or scans because they would have to pay out of pocket. This creates a barrier where insurance only partially protects them, so they sometimes opt to delay or skip important procedures. This reduces the

effectiveness of the program and discourages full utilization of healthcare services." (Health Provider 4)

Suggestions from both beneficiaries and health providers pointed to the need for flexible payment options. A beneficiary recommended:

"If the insurance payment could be broken down into smaller, more manageable installments rather than one lump sum, it would be easier for people like us to stay insured. Many cannot afford to pay everything at once, but can manage smaller amounts weekly or monthly." (Beneficiary 7)

Similarly, a health provider added:

"Introducing payment plans or subsidies for the poorest members could greatly improve retention and consistent utilization of the program. Flexibility in payments means patients are more likely to renew on time and attend appointments regularly without fear of sudden costs." (Health Provider 3)

In summary, while the MCIP premium is modest, financial challenges linked to income variability and partial coverage limit full program utilization. Addressing these affordability issues through revised premium models and expanded benefits is vital for enhancing access and advancing Universal Health Coverage in Makueni County.

4.4.1.5 Triangulation of Descriptive and Qualitative Results: Influence of Affordability on Utilization of Makueni Care Insurance Program

The descriptive results in Table 4.7 indicate that affordability is a major barrier affecting the utilization of the Makueni Care Insurance Program (MCIP). A significant majority of respondents (72.2%) agreed that out-of-pocket payments continue to impose a heavy financial burden on many residents of Makueni County. Similarly, 73.0% concurred that these costs discourage many beneficiaries from fully utilizing the insurance program. This

quantitative evidence is strongly supported by the qualitative insights shared by both beneficiaries and health providers, providing a deeper understanding of the underlying financial challenges.

Beneficiaries described how irregular and often low income—especially among informal sector workers—makes it difficult to consistently renew their insurance membership. One beneficiary shared:

“The fee itself is not very high, but when you live day-to-day and struggle to put food on the table, paying for insurance, even 500 shillings, becomes hard. Sometimes we delay paying because we have to choose between feeding our family or renewing the insurance. This means that sometimes we lose coverage and miss out on health services when we really need them.” (Beneficiary 5)

This narrative helps explain why agreement was more moderate (mean = 3.3) regarding hospital management’s challenges in making services affordable despite insurance coverage, as shown in the quantitative data. It underscores that although the premium appears affordable in nominal terms, income instability leads to inconsistent payment and reduced program utilization.

Health providers further corroborated these financial barriers from their perspective. One health officer observed:

“Many patients start the year insured, but by mid-year, a significant number have stopped renewing their membership. They say it’s because they don’t have the money. Even those insured sometimes avoid treatment if they fear extra costs for medicines or tests not covered by the program. This fear causes delayed visits and worsened health outcomes.” (Health Provider 2)

This explains the moderate agreement (58.7%) on affordability challenges at the institutional level, reflecting the more neutral stance in the quantitative findings. The qualitative insights reveal that partial coverage and additional out-of-pocket costs lead to underutilization of services.

Supporting this, a medical officer noted:

“Many insured patients avoid recommended tests like X-rays or scans because they must pay out-of-pocket. This partial protection discourages full utilization of healthcare services and reduces the program’s effectiveness.” (Health Provider 4)

Regarding subsidies, 76.2% of respondents agreed they improve affordability; however, awareness and perceptions of subsidy adequacy were less positive (mean scores of 3.3 and 3.2 respectively). This highlights the need for improved communication and community engagement to increase subsidy uptake, as echoed in both literature and qualitative responses.

Both beneficiaries and providers suggested flexible payment options to overcome affordability barriers. For instance, a beneficiary recommended:

“If insurance payments could be split into smaller, manageable installments instead of one lump sum, it would be easier for people like us to stay insured. Many cannot pay everything at once but can manage weekly or monthly payments.” (Beneficiary 7)

Similarly, a health provider added:

“Introducing payment plans or subsidies for the poorest members could greatly improve retention and consistent utilization. Flexibility in payments encourages timely renewals and regular attendance without fear of unexpected costs.” (Health Provider 3)

These suggestions complement the quantitative findings where 79.4% agreed that premium affordability influences registration and 71.4% linked awareness of affordable premiums to increased enrollment.

In conclusion, the descriptive data provide a broad overview of affordability's impact on utilization, highlighting the financial burdens and benefits of subsidies. The qualitative findings deepen this understanding by illustrating real-world challenges related to income variability, partial insurance coverage, and financial decision-making. Together, these insights emphasize that while the MCIP premium is relatively modest, enhancing affordability through flexible payment schemes and improved subsidy programs is crucial to increasing enrollment, retention, and advancing Universal Health Coverage in Makueni County.

4.5.2 Accessibility

The second independent variable under investigation was accessibility of Makueni health insurance scheme. Respondents were asked to rate their level of agreement with various statements on Insurance Program, categorized into access to care, health outcome disparities, and provider distribution. The results are summarized in Table 4.11.

Table 4. 9:*Respondents' Views on Accessibility of the Makueni Care Insurance Program*

Accessibility Dimensions	Disagree n(%)	Neutral n(%)	Agree n(%)	Mea n	STD
Geographical Accessibility					
The geographic distribution of healthcare facilities in Makueni County makes it difficult for people in rural areas to access services covered by the program.	42 (12.4)	73 (21.7)	222 (65.9)	3.7	0.88
The location of health facilities does not present a significant barrier to utilization in most areas.	74 (22.1)	99 (29.6)	161 (48.3)	3.3	0.95
The availability of transportation is a major challenge for individuals seeking services.	66 (19.5)	69 (20.5)	203 (60.0)	3.6	1.02
Coverage Rates					
The program provides comprehensive coverage for a wide range of health needs.	33 (9.9)	74 (22.2)	226 (67.9)	3.8	0.79
Coverage is sufficient to offset most healthcare costs for patients.	67 (20.1)	63 (18.8)	204 (61.1)	3.5	1.08
The program covers all necessary medical treatments including specialized care.	51 (15.1)	102 (30.1)	186 (54.8)	3.4	0.87
Waiting Times					
Long waiting times discourage patients from utilizing program services.	39 (11.5)	53 (15.6)	247 (72.9)	3.9	0.75
Facilities manage patient flow effectively to minimize waiting times.	41 (12.2)	92 (27.5)	202 (60.3)	3.5	0.89
Reducing waiting times would increase utilization among insured individuals.	40 (12.0)	45 (13.4)	248 (74.6)	3.9	0.80

Results in Table 4.11 present the extent of agreement among respondents on key elements of Accessibility under the Makueni Care Insurance Program, categorized into Geographical Accessibility, Coverage Rates, and Waiting Times.

In exploring Geographical Accessibility, the findings indicate that 65.9% of respondents agree that the spatial distribution of healthcare facilities in Makueni County presents challenges for rural populations in accessing program-covered services (Mean = 3.7, SD = 0.88). Similarly, 60.0% of respondents identify limited transportation options as a key barrier to access (Mean = 3.6, SD = 1.02). However, opinions were more divided regarding whether the location of health facilities overall constitutes a significant barrier, with only 48.3% in agreement and a lower mean score of 3.3 (SD = 0.95), highlighting potential geographic disparities in accessibility within the county.

These findings emphasize that while facility distribution may be adequate in some parts of the county, residents in more remote or underserved areas still face physical access challenges. This aligns with prior research by Mutiso and Mwangi (2019), who found that rural populations in Kenya often experience structural barriers due to poor infrastructure and sparse facility placement. Addressing transport-related constraints and redistributing healthcare investments could improve spatial equity in service delivery.

Regarding Coverage Rates, most respondents showed confidence in the program's comprehensiveness, with 67.9% agreeing that it addresses a wide range of health needs (Mean = 3.8, SD = 0.79). Additionally, 61.1% agreed that the coverage sufficiently offsets the majority of healthcare costs (Mean = 3.5, SD = 1.08). However, perceptions were more cautious about the program's ability to cover specialized care, with only 54.8% in

agreement (Mean = 3.4, SD = 0.87), suggesting some perceived limitations in the scope of services included.

This suggests that while general coverage is viewed positively, there may be limitations in access to advanced or specialist services. This echoes findings from Maina and Kirigia (2022), who argue that insurance programs in devolved units often lack the financial depth or infrastructure to support specialized care. Strengthening referral systems and integrating specialized providers could enhance the program's perceived and actual comprehensiveness.

Concerning Waiting Times, a strong majority of respondents (72.9%) agreed that long waiting times discourage utilization of services under the program (Mean = 3.9, SD = 0.75). Similarly, 74.6% believed that reducing waiting times would increase utilization (Mean = 3.9, SD = 0.80). However, only 60.3% agreed that facilities are currently managing patient flow effectively to minimize delays (Mean = 3.5, SD = 0.89), indicating ongoing concerns about operational efficiency.

These results underscore the operational inefficiencies that can undermine otherwise well-designed health insurance programs. According to WHO (2025), excessive wait times can disproportionately affect vulnerable populations such as the elderly and those in informal employment who may not afford extended absences from work. Investing in staff capacity, digital queue systems, and improved triaging could be practical steps toward improving the patient experience and program effectiveness.

Overall, the findings reveal strong agreement that while the Makueni Care Insurance Program offers relatively good coverage and has attempted to make services accessible, significant barriers persist in terms of geographical access, transportation, and waiting times. The moderate agreement levels on specialized care and facility location suggest variability in service experience across different regions. These findings are consistent with existing literature (Mutiso and Mwangi, 2019; Mwirigi et al. (2018; WHO, 2020), which highlights the importance of strengthening health systems not just in financial protection but also in physical and operational accessibility.

To improve the program’s effectiveness, policymakers should prioritize investments in rural infrastructure, transport subsidies, facility expansion, and administrative efficiencies. Doing so will enhance not only access but also the overall trust and satisfaction among beneficiaries—key components for achieving Universal Health Coverage (UHC).

4.5.2.1 Accessibility of Nearest Health Facility

Table 4.7 illustrates the distance respondents must travel to access the nearest health facility under the Makueni Care Insurance Program. Physical accessibility is a crucial determinant of healthcare utilization, particularly in rural settings. Understanding how far beneficiaries must travel provides insight into potential barriers to timely and consistent healthcare access.

Table 4. 10:
Accessibility of Nearest Health Facility

Distance to Nearest Health Facility	Frequency	Percent (%)
Less than 5 km	48	40
5 to 10 km	38	31.7
Over 10 km	34	28.3

Table 4.12 outlines the accessibility of healthcare services among the respondents, specifically focusing on the distance to the nearest health facility where Makueni Care Insurance services are available. The majority of respondents, 48 individuals (40.0%), reported that the nearest health facility was located less than 5 kilometers from their residence. This close proximity suggests relatively good access to healthcare services for a significant portion of the population. A considerable number of participants, 38 respondents (31.7%), indicated that the facility was between 5 and 10 kilometers away, reflecting moderate accessibility that may still pose challenges for some, especially those without reliable transportation. Finally, 34 respondents (28.3%) stated that the nearest health facility was over 10 kilometers away, highlighting a notable segment facing considerable distance barriers that could impede timely access to care.

These findings align with studies such as that by Okech and Lelegwe (2016) which emphasize that proximity to health facilities is a critical determinant of healthcare utilization in rural and peri-urban settings. The distribution also reflects infrastructural disparities, where urban and peri-urban residents generally enjoy closer facilities compared to those in more remote areas. Addressing these distance-related challenges is essential for improving service delivery and expanding the reach of Makueni Care Insurance programs, particularly for populations residing farther from health centers.

4.5.2.2 Transportation Challenges in Accessing Healthcare

Table 4.13 shows respondents' experiences regarding transportation challenges when accessing healthcare services under the Makueni Care Insurance Program. Transportation is a key factor influencing healthcare access, especially in remote or rural areas. Identifying

the extent of transportation difficulties helps in assessing the program's overall accessibility and potential areas for infrastructural or logistical improvement.

Table 4. 11:

Transportation Challenges in Accessing Healthcare

Response	Frequency	Percent (%)
Yes	57	47.5
No	63	52.5
Total	120	100.0

Table 4.13 summarizes respondents' experiences with transportation challenges when accessing healthcare services. Transportation is a key factor affecting healthcare access, particularly in areas where distances to facilities are significant or infrastructure is poor.

Out of the 120 respondents, 57 individuals (47.5%) reported experiencing transportation challenges, indicating nearly half of the population faces obstacles in reaching healthcare services. Conversely, 63 respondents (52.5%) indicated no transportation difficulties, suggesting that just over half of the respondents have relatively smooth access to transport when seeking care.

These findings highlight the critical role that transportation infrastructure and services play in healthcare accessibility. They also align with research by Mwangi and Wanjiku (2022), which identified transportation as a significant barrier to healthcare in many communities, especially in peri-urban and rural settings. Addressing transportation challenges is essential to improve health outcomes and ensure equitable access to healthcare services for all population segments.

4.5.2.1 Frequency of Visits to Health Facility

Table 4.14 outlines how often respondents visit health facilities under the Makueni Care Insurance Program. The frequency of healthcare visits is an important indicator of service utilization and can reflect both the health needs of beneficiaries and the accessibility of healthcare services. Understanding these patterns helps evaluate the program's effectiveness in promoting regular and preventive healthcare.

Table 4. 12:

Frequency of Visits to Health Facility

Frequency of Visit	Frequency	Percent (%)
Once a month	41	34.1
Once every three months	53	43.9
Rarely	26	22.0
Total	120	100.0

Table 4.14 displays how often respondents visit health facilities for services under Makueni Care Insurance. Understanding these patterns helps assess healthcare usage and plan resource allocation. The largest groups, 53 respondents (43.9%), visit the health facility once every three months. This likely reflects routine care schedules or ongoing management of health conditions. Next, 41 respondents (34.1%) reported visiting once a month, indicating a segment requiring more frequent healthcare access. Lastly, 26 respondents (22.0%) reported visiting rarely, suggesting some barriers or less immediate need for healthcare services.

These patterns are consistent with findings by Barasa et al. (2021), which show healthcare utilization varies by individual health needs and accessibility. Promoting consistent

healthcare engagement remains vital to improving outcomes under Makueni Care Insurance.

4.5.2.2 Convenience of Health Facility Operating Hours

Table 4.15 presents respondents' views on whether the operating hours of health facilities under the Makueni Care Insurance Program are convenient. Convenient operating hours are essential for ensuring that beneficiaries can access care without disruption to their daily routines, especially for those with work or family responsibilities.

Table 4. 13:
Convenience of Health Facility Operating Hours

Response	Frequency	Percent (%)
Yes	79	65.8
No	41	34.2
Total	120	100.0

Table 4.15 shows respondents' perceptions of whether health facilities operate during convenient hours for accessing care. Facility hours significantly influence patients' ability to obtain timely health services, especially for working individuals and caregivers. A majority of respondents, 79 individuals (65.8%), indicated that health facilities are open at convenient hours, facilitating easier access to care. However, 41 respondents (34.2%) reported that the operating hours were not convenient, suggesting that limited or restrictive hours may pose a barrier for over one-third of the population.

These results align with studies such as Barasa et al. (2021), which highlight the importance of flexible and extended hours in improving healthcare accessibility and patient satisfaction. Addressing operational hour concerns could enhance service utilization and patient outcomes under Makueni Care Insurance.

4.5.2.3 Physical or Logistical Barriers to Healthcare Access

Table 4.16 summarizes respondents' experiences with physical or logistical barriers when accessing healthcare services through the Makueni Care Insurance Program. Such barriers, ranging from poor infrastructure to long travel times, can significantly hinder timely and consistent access to care. Identifying these challenges is vital for informing strategies to improve service delivery and accessibility.

Table 4. 14:
Physical or Logistical Barriers to Healthcare Access

Response	Frequency	Percent (%)
Yes	47	39.2
No	73	60.8
Total	120	100.0

Table 4.16 presents respondents' experiences with physical or logistical barriers when accessing healthcare services. Such barriers can include distance, transport availability, infrastructure, and other practical challenges that hinder timely care. Among the 120 respondents, 47 individuals (39.2%) reported facing physical or logistical barriers, highlighting that a significant portion of the population encounters difficulties in reaching healthcare services. Conversely, 73 respondents (60.8%) indicated no such barriers, suggesting that most respondents have relatively unobstructed access. These findings are consistent with research by Mwangi and Wanjiku (2022), which emphasized that physical and logistical challenges remain major obstacles to healthcare in many regions. Identifying and addressing these barriers is essential for improving equitable healthcare access under Makueni Care Insurance.

Respondents who reported experiencing physical or logistical barriers in accessing healthcare services were asked to elaborate on the specific challenges they faced. The

responses revealed several recurring obstacles that significantly hinder timely and convenient access to care. Many participants identified the long distances to the nearest health facilities as a primary barrier, often aggravated by poor road conditions that made travel arduous and time-consuming. Additionally, the scarcity of reliable and affordable transportation options, including limited public transit availability and high transportation costs, further restricted their ability to reach healthcare centers promptly and consistently.

Moreover, some respondents pointed to inconvenient or limited operating hours of health facilities, which often conflicted with their work schedules or daily commitments, reducing their opportunities to seek necessary care. These physical and logistical challenges highlight systemic issues within the healthcare infrastructure that disproportionately affect accessibility. Addressing these barriers by improving transportation networks, extending health facility hours, and increasing the availability of local healthcare services could substantially enhance access to care and ultimately improve health outcomes across the community.

The analysis of both administrators' and program users' perspectives reveals a largely shared understanding of the accessibility of services under the Makueni Care Insurance Program, though with nuanced differences in emphasis.

From the service providers' view, geographical accessibility remains a concern, particularly for rural residents. They highlight that while the distribution of facilities may serve urban or central areas well, populations in remote parts of the county still face challenges in reaching care due to distance and poor transport infrastructure. This points to structural inequities in physical access across different regions. Program users echoed this, with a

notable portion acknowledging that they encounter physical or logistical barriers when seeking care—confirming that geographic and infrastructural factors remain a challenge for some.

Service coverage was positively rated by providers, who agreed that the program generally meets a broad range of health needs. However, there was cautiousness regarding the program’s ability to support specialized care, suggesting that while primary and routine services are well integrated, more advanced care remains a limitation. This aligns with usage patterns reported by program beneficiaries, where most reported regular visits for care, suggesting effective access to general health services. However, their responses did not explicitly address specialized services, leaving room for further exploration.

Operational access also emerged as a critical concern. Providers observed that long waiting times discouraged service utilization and noted that improvements in patient flow could enhance overall access. On the other hand, a majority of users found the operating hours of health facilities convenient, although a substantial minority indicated otherwise, pointing to scheduling constraints that could hinder access for working individuals or caregivers.

In summary, both groups affirm that the Makueni Care Insurance Program has strengthened accessibility to a significant extent, especially for routine care. However, persistent gaps remain, particularly in geographical reach, operational efficiency, and access to specialized services. Addressing these challenges will be vital for achieving more equitable and effective healthcare access across all regions of the county.

4.5.2.4 Qualitative Perspectives on Accessibility and Its Impact on Utilization of the Makueni Care Insurance Program

Accessibility emerged as a crucial factor influencing how beneficiaries used the Makueni Care Insurance Program (MCIP). Despite the program's intent to increase healthcare access, physical distance to health facilities, poor road infrastructure, and limited transportation options posed significant barriers, especially for residents in remote and rural areas. One beneficiary explained the challenge of reaching healthcare centers:

"Many of us live far from the nearest health facility. The roads are rough and sometimes become impassable during the rainy season. It is very difficult and expensive to travel long distances just to use the insurance services. Because of this, some people prefer to stay at home or seek traditional remedies instead of going to the clinic." (Beneficiary 9)

Health providers confirmed these access-related barriers from their interactions with patients. A clinic nurse observed:

"We often see patients who delay coming for care because they cannot easily reach the facility. Transport costs and travel time discourage especially the elderly and mothers with young children. Some come only when their conditions worsen, which makes treatment more complicated and costly." (Health Provider 6)

The distribution of healthcare facilities was also raised as a limitation to accessibility. A health officer commented:

"Even though the program covers several hospitals and health centers in the county, many are clustered in urban areas. Rural communities have fewer options, forcing patients to travel further and incur extra expenses. This uneven distribution affects utilization because convenience is a big factor in health-seeking behavior." (Health Provider 8)

Moreover, inadequate staffing in remote facilities contributed to accessibility issues. A medical officer explained:

"Some health centers, especially those far from town, are understaffed and have limited services. Patients sometimes travel long distances only to find that key services or medicines are unavailable. This discourages people from making repeated visits and lowers trust in the insurance program."
(Health Provider 7)

Suggestions from beneficiaries and providers emphasized the need for infrastructural improvements and innovative outreach services. A beneficiary recommended:

"If there were mobile clinics or outreach programs bringing services closer to our villages, it would be much easier to access care. This would reduce the burden of travel and encourage more people to use the insurance."
(Beneficiary 12)

Similarly, a health provider stated:

"Investing in road maintenance and transportation support could greatly improve access. We also suggest increasing the number of health workers in remote facilities and exploring telemedicine options to reach underserved populations." (Health Provider 9)

In conclusion, accessibility challenges significantly limit the utilization of MCIP by making physical access to covered services difficult for many residents. Addressing infrastructure deficits, improving health facility distribution, and enhancing service delivery in rural areas are critical for maximizing the program's impact on achieving Universal Health Coverage in Makueni County.

4.5.2.5 Triangulation of Descriptive and Qualitative Results: Influence of Accessibility on Utilization of Makueni Care Insurance Program

The descriptive results presented in Table 4.11 highlight accessibility as a key factor influencing utilization of the Makueni Care Insurance Program (MCIP). Specifically, 65.9% of respondents agreed that the spatial distribution of healthcare facilities poses challenges for rural populations accessing insured services (Mean = 3.7, SD = 0.88). Limited transportation options were also identified as a barrier by 60.0% of respondents (Mean = 3.6, SD = 1.02). However, only 48.3% agreed that the overall location of facilities is a major barrier, suggesting some geographic variability in access within the county.

These findings indicate that while healthcare infrastructure may be sufficient in urban and peri-urban areas, residents in remote or rural parts face significant physical barriers. This aligns with prior research (Mutiso & Mwangi, 2019) emphasizing the structural challenges rural populations encounter, including poor road networks and sparsely distributed health facilities.

Qualitative insights provide richer context to these spatial barriers. One beneficiary described:

"Many of us live far from the nearest health facility. The roads are rough and sometimes become impassable during the rainy season. It is very difficult and expensive to travel long distances just to use the insurance services. Because of this, some people prefer to stay at home or seek traditional remedies instead of going to the clinic." (Beneficiary 9)

This firsthand account captures the lived reality behind the 65.9% quantitative agreement, adding nuance by highlighting seasonal and cost-related factors that may not be fully reflected in survey data.

Health providers confirmed these access challenges from a service delivery perspective. A clinic nurse noted:

"We often see patients who delay coming for care because they cannot easily reach the facility. Transport costs and travel time discourage especially the elderly and mothers with young children. Some come only when their conditions worsen, which makes treatment more complicated and costly." (Health Provider 6)

This corroborates the 60.0% agreement on transportation barriers and helps explain why less than half of respondents saw facility location as a major barrier—access issues vary by community and population.

The uneven distribution of facilities, mostly concentrated in urban centers, was further emphasized by a health officer:

"Even though the program covers several hospitals and health centers in the county, many are clustered in urban areas. Rural communities have fewer options, forcing patients to travel further and incur extra expenses. This uneven distribution affects utilization because convenience is a big factor in health-seeking behavior." (Health Provider 8)

This insight explains the moderate agreement levels on coverage and location, reflecting how urban-rural disparities influence utilization patterns quantitatively.

Staffing shortages at remote facilities also emerged as a barrier. A medical officer explained:

"Some health centers, especially those far from town, are understaffed and have limited services. Patients sometimes travel long distances only to find that key services or medicines are unavailable. This discourages people from making repeated visits and lowers trust in the insurance program."
(Health Provider 7)

This operational challenge helps explain the relatively neutral quantitative response regarding patient flow and effective management, revealing that physical access alone is insufficient without reliable services.

Regarding service scope, 67.9% of respondents agreed that the MCIP provides comprehensive coverage for most health needs (Mean = 3.8), but only 54.8% agreed that specialized care is adequately included. The qualitative data on understaffing and limited remote services supports the perception of constrained advanced care availability.

Operational factors such as long waiting times were also significant, with 72.9% agreeing wait times discourage utilization and 74.6% agreeing reducing wait times would improve usage. Although less highlighted qualitatively, providers recommended staffing increases and digital queue management to address these issues, aligning with quantitative calls for enhanced efficiency.

Beneficiaries and providers proposed practical solutions to improve accessibility. One beneficiary suggested:

"If there were mobile clinics or outreach programs bringing services closer to our villages, it would be much easier to access care. This would reduce the burden of travel and encourage more people to use the insurance."
(Beneficiary 12)

Similarly, a health provider recommended:

"Investing in road maintenance and transportation support could greatly improve access. We also suggest increasing the number of health workers in remote facilities and exploring telemedicine options to reach underserved populations." (Health Provider 9)

These recommendations complement the quantitative evidence pointing to the need for targeted investments in rural infrastructure and service delivery enhancements.

In summary, while the quantitative data show that MCIP coverage is generally viewed as adequate, significant barriers in physical access, transportation, and operational capacity persist. The qualitative narratives vividly illustrate how these challenges affect daily healthcare decisions and utilization. Together, these findings emphasize the importance of improving both infrastructure and service quality to boost utilization and advance Universal Health Coverage in Makueni County.

4.6.3 Equity

The third independent variable under investigation was equity. Respondents were asked to rate their level of agreement with various statements on Insurance Program, categorized into access to care, health outcome disparities, and provider distribution. The results are summarized in Table 4.17.

Table 4. 15:*Respondents' Views on Equity in the Makueni Care Insurance Program*

Equity Dimension	Disagree n(%)	Neutral n(%)	Agree n(%)	Mean	STD
Access to Care					
People in low-income or rural areas of Makueni County face greater challenges in accessing healthcare services.	30 (8.9)	43 (12.7)	263 (78.4)	4.0	0.82
The program provides equitable access to healthcare for all residents regardless of income or location.	61 (18.2)	69 (20.5)	206 (61.3)	3.6	0.96
Affordability of insurance premiums and out-of-pocket costs limits access for low-income populations.	40 (11.9)	55 (16.4)	241 (71.7)	3.8	0.88
Health Outcome Disparities					
There are significant disparities in health outcomes across demographic groups in the county.	27 (8.0)	48 (14.3)	261 (77.7)	4.0	0.79
The program has helped reduce health outcome disparities among groups.	65 (19.3)	83 (24.6)	189 (56.1)	3.5	1.01
Health disparities are mostly due to unequal distribution of resources, not the program itself.	52 (15.5)	67 (20.0)	218 (64.5)	3.6	0.94
Provider Distribution					
Distribution of healthcare providers is uneven, leading to unequal access.	38 (11.3)	51 (15.2)	248 (73.5)	3.9	0.85
The program has encouraged more providers to participate, improving distribution.	74 (21.9)	79 (23.3)	186 (54.8)	3.4	0.97
More efforts are needed to ensure equitable provider distribution across regions.	21 (6.3)	36 (10.6)	282 (83.1)	4.1	0.71

Results in Table 4.17 reflect the level of agreement among respondents on various aspects of Equity within the Makueni Care Insurance Program, categorized into Access to Care, Health Outcome Disparities, and Provider Distribution.

With regard to Access to Care, there is strong agreement that people in low-income or rural areas of Makueni County face greater challenges in accessing healthcare services, with 78.4% of respondents affirming this view (Mean = 4.0, SD = 0.82). Additionally, 71.7% agree that the affordability of insurance premiums and out-of-pocket costs limits access for low-income populations (Mean = 3.8, SD = 0.88). However, perceptions are somewhat less favorable concerning the program's ability to provide equitable access to healthcare for all residents regardless of income or location, with 61.3% expressing agreement and a mean score of 3.6 (SD = 0.96).

These findings indicate that while the program is perceived to be working towards equity, significant barriers related to income and geography remains. This aligns with prior studies (Mutiso & Mwangi, 2019), which highlight persistent inequities in health access for marginalized populations in Kenya. Addressing these barriers is critical for achieving universal health coverage and requires targeted subsidies and community outreach.

In examining Health Outcome Disparities, the findings indicate that a substantial majority of respondents (77.7%) perceive significant disparities in health outcomes across demographic groups in the county (Mean = 4.0, SD = 0.79). Additionally, 56.1% agree that the Makueni Care Insurance Program has contributed to reducing these disparities (Mean = 3.5, SD = 1.01). However, 64.5% of respondents attribute the persistence of health

disparities primarily to the unequal distribution of resources rather than the inadequacies of the program itself (Mean = 3.6, SD = 0.94).

This suggests that while the program contributes to reducing health inequities, structural issues in resource allocation continue to drive disparities. The findings resonate with WHO (2020) and Maina (2023), who argue that health insurance alone cannot overcome systemic inequities without concurrent improvements in health infrastructure and social determinants of health.

When assessing provider distribution, the data reveal that a significant majority of respondents (73.5%) acknowledge the uneven distribution of healthcare providers as a contributor to unequal access (Mean = 3.9, SD = 0.85). In contrast, only 54.8% believe the program has effectively encouraged more provider participation to address this issue (Mean = 3.4, SD = 0.97). Notably, an overwhelming 83.1% of respondents agree that further efforts are necessary to achieve equitable provider distribution across all regions (Mean = 4.1, SD = 0.71).

These results highlight a critical gap in provider availability and participation that hampers equity. Similar conclusions are drawn by Maina (2023), who emphasize the need for strategic incentives and regulatory frameworks to improve equitable healthcare provider distribution, particularly in underserved rural areas.

Overall, the findings reveal a strong consensus that equity remains a significant challenge within the Makueni Care Insurance Program, particularly regarding access disparities for low-income and rural populations, health outcome inequalities, and uneven provider

distribution. While the program contributes positively toward mitigating some disparities, its impact is constrained by broader structural inequities and resource distribution imbalances.

4.6.3.1 Perceived Equity in Access to Makueni Care Insurance Services

Table 4.18 captures respondents' perceptions of equity in accessing services under the Makueni Care Insurance Program, particularly in relation to income and social status. Perceived equity is a key measure of fairness and inclusivity within a healthcare system, indicating whether all beneficiaries feel they receive equal treatment regardless of their socioeconomic background.

Table 4. 16:

Perceived Equity in Access to Makueni Care Insurance Services

Perception of Equal Access by Income/Social Status	Frequency	Percent
Yes	69	57.50%
No	51	42.50%
Total	120	100.00%

The results in Table 4.18 present the respondents' perceptions of whether Makueni Care Insurance services are equally available to all members of the community regardless of income level or social standing. A majority of the participants, 69 respondents (57.5%), indicated that they believe services are equitably accessible, suggesting that the Makueni Care initiative has made commendable strides in reducing socioeconomic disparities in healthcare access. This aligns with broader policy goals aimed at promoting universal health coverage through inclusive insurance models.

However, a notable 42.5% of the respondents (51 individuals) disagreed, expressing concerns that social and economic disparities may still influence access to care. This

group's perception reflects persistent structural or systemic inequalities that could limit the program's overall effectiveness. Factors potentially contributing to this perception include indirect costs, such as transportation and opportunity costs, as well as variations in facility distribution and staff responsiveness in different regions. These findings are consistent with previous evaluations of public health insurance schemes, which highlight the challenge of achieving perceived equity across diverse population groups.

The mixed views expressed underscore the need for continued monitoring and targeted interventions to address any emerging gaps. Ensuring equitable distribution of resources and enhancing community engagement may be vital strategies in building broader confidence and inclusivity in public health insurance programs like Makueni Care.

4.6.3.2 Observed Differences in Quality of Services Provided to Different Groups

Table 4.19 presents respondents' observations regarding potential differences in the quality of healthcare services offered to various groups under the Makueni Care Insurance Program. Perceptions of unequal service quality can impact trust and satisfaction with the program and may indicate underlying issues in service delivery or provider behavior that warrant further attention.

Table 4. 17:

Observed Differences in Quality of Services Provided to Different Groups

Observed Quality Differences	Frequency	Percent
Yes	54	45.00%
No	66	55.00%
Total	120	100.00%

Table 4.19 presents data on respondents' perceptions of differences in the quality of healthcare services offered to various groups within their communities. A slight majority

of 66 respondents (55.0%) indicated that they had not observed disparities in service quality, suggesting a relatively consistent level of care across social and economic segments. This finding aligns with the Ministry of Health's commitment to equitable healthcare provision as outlined in the Kenya Health Policy 2014–2030, which emphasizes fairness and non-discrimination in access to health services.

However, 54 respondents (45.0%) reported observing differences in the quality of services provided. These disparities were often reported in forms such as longer wait times, more attentive care, or quicker responsiveness extended to groups perceived as more influential or economically stable. Such perceptions raise concerns about potential biases in service delivery and the possibility that institutional practices may unintentionally reinforce social inequalities. This is consistent with findings from (WHO, 2025), which highlights that perceived or real inequities in care can undermine public trust and utilization of health services.

These findings underscore the critical need for equity-focused training and clear service guidelines among healthcare providers to minimize disparities. Strengthening accountability mechanisms and conducting periodic evaluations of service quality are recommended to ensure that the Makueni Care Insurance Program upholds its equitable service mandate, as advocated in the Kenya Universal Health Coverage (UHC) framework.

Among respondents who acknowledged differences in service quality, several recurring themes emerged. Many noted that individuals with higher social standing—such as local leaders, well-known business owners, or those with personal connections to facility staff—often received quicker and more attentive care. These individuals were reportedly

prioritized in queues, given more thorough consultations, or granted easier access to medications and which calls for addressing social determinants and systemic biases that affect equitable service delivery.

Conversely, residents from lower-income backgrounds or those without visible social influence sometimes faced longer wait times or less urgent attention. Elderly persons without caretakers and those living in remote areas were specifically mentioned as disadvantaged groups, often experiencing delays or limited follow-up care. Additionally, patients perceived as more educated or assertive appeared more likely to receive respectful and comprehensive explanations from healthcare staff.

These perceived disparities highlight the need for targeted interventions, including patient-centered care training, equitable treatment protocols, and enhanced community outreach. Such measures will help ensure that principles of fairness, respect, and non-discrimination are consistently upheld at all levels of service delivery within the Makueni Care Insurance Program. This is in line with WHO recommendations on strengthening equity in healthcare systems to achieve sustainable UHC outcomes (WHO, 2022).

4.6.3.3 Access Disparities among Community Groups

Table 4.20 highlights respondents' perceptions of disparities in access to healthcare services among different community groups under the Makueni Care Insurance Program. Understanding such disparities is crucial for identifying inequities that may limit the program's effectiveness in providing universal and fair access to healthcare.

Table 4. 18:
Access Disparities among Community Groups

Response	Frequency	Percentage
Yes	68	56.70%
No	52	43.30%
Total	120	100.00%

The results in Table 4.20 show that 68 respondents (56.7%) reported that some specific groups in their community have better access to Makueni Care services than others, while 52 respondents (43.3%) indicated that access is generally equal. This indicates a perceived inequity in healthcare accessibility, which aligns with findings from the 2022 study by Njeru et al., where community-based insurance schemes were found to vary in coverage and reach depending on socioeconomic status and geographical location.

Respondents who reported access disparities commonly cited that individuals residing closer to urban centers or main roads tend to benefit more from Makueni Care services compared to those in remote or rural settings. This was attributed to the location of facilities, which are often concentrated in more accessible areas. Additionally, individuals with higher social influence or political connections were believed to receive faster or preferential service, a trend consistent with observations from a 2021 equity audit by the County Health Monitoring Committee.

These findings suggest that while Makueni Care Insurance aims to offer inclusive coverage, real-world implementation may be hindered by logistical, infrastructural, or systemic biases. Addressing these disparities will be crucial to ensuring that the program fulfills its mission of equitable healthcare for all community members.

Several respondents who indicated that they have observed differences in the quality of services provided to various groups within their community highlighted that these disparities often relate to income level, social standing, or geographic location. For example, wealthier or more influential individuals were reported to receive quicker attention, clearer communication from healthcare personnel, and access to a wider range of medical services. Conversely, residents in more remote or underserved areas often face longer waiting times, inconsistent availability of essential medicines, and reduced contact with skilled staff.

These observations suggest that although the Makueni Care Insurance program is designed to ensure equal access to healthcare services, practical challenges in implementation may result in unequal treatment. Such disparities can undermine the program's goal of equity, potentially eroding trust in the healthcare system and discouraging disadvantaged groups from seeking care promptly. This dynamic underscores the need for targeted interventions to ensure that all community members receive high-quality services irrespective of their socio-economic status or location.

The analysis of both administrators' and program users' responses provides a comprehensive perspective on equity under the Makueni Care Insurance Program, with common themes emerging around income-based and geographic disparities, but with some divergence in perceptions of fairness in service delivery.

From the administrators' and healthcare providers' standpoint, equity challenges remain pronounced. A significant majority agreed that low-income and rural populations experience greater difficulty accessing care. This highlights the dual burden of affordability

and geographic isolation, suggesting that, despite the program's intentions, structural barriers continue to disproportionately affect the most vulnerable. Additionally, while respondents acknowledged that the program contributes to reducing health disparities, many attributed ongoing inequities to broader systemic issues, such as unequal distribution of health resources and providers.

The issue of provider distribution emerged as a particularly critical concern. While most administrators acknowledged its unevenness, fewer believed that the program had effectively addressed the imbalance. This suggests a need for policy-level interventions to attract and retain providers in underserved areas, consistent with recommendations from prior studies.

In contrast, program users offered a more mixed yet revealing picture. Slightly more than half of respondents did not perceive differences in service quality across groups, suggesting a generally fair experience for many users. However, a notable 45% reported perceived differences in care, potentially linked to social or economic status—raising concerns about implicit biases or localized inequities in service delivery. Similarly, while a majority felt that access to services was not entirely equitable, a sizable minority believed it was—pointing to varying experiences based on location, facility, or staff behavior.

The findings that geographic location and proximity to urban centers influence access to Makueni Care services confirm similar patterns observed in earlier studies. Mwangi (2022) and Khumalo (2023) also identified rural populations as disproportionately disadvantaged due to poor infrastructure and facility distribution. This reflects the broader issue of uneven

healthcare access highlighted by Van der Meer (2023) and Cohen (2022), who reported that urban concentration of healthcare providers leaves rural areas underserved.

The perception that individuals with greater social influence or political connections receive preferential treatment aligns with findings by Ng (2023) and Gomez (2022a), who documented how socio-economic status affects healthcare access and service quality. This reinforces the reality that insurance coverage alone cannot fully mitigate social biases or inequities embedded in healthcare systems.

Administrators' recognition of affordability and geographic isolation as key barriers corresponds with findings from Mwangi (2022) and Novak (2023), which highlighted that vulnerable groups continue to face multiple challenges despite insurance programs. Their view that systemic issues such as provider distribution remain unresolved echoes concerns raised by Petrov (2023) and Mwila (2023), indicating that insurance mechanisms need to be complemented by structural reforms to ensure equity.

The mixed perceptions among program users regarding service quality and equity resemble findings by Wang (2022) and Sanchez (2023b), who found significant variability in user experiences within health insurance schemes. This suggests that equity is influenced not only by policy but also by local management and provider attitudes, underscoring the importance of addressing implicit biases and ensuring consistent standards of care.

Overall, this study's findings are consistent with the literature (Tan, 2023; Hidayat, 2023) that underscores the importance of addressing broader systemic factors—such as infrastructure, provider distribution, and socio-economic disparities—alongside insurance

coverage. These complementary efforts are essential to closing equity gaps and realizing the full potential of the Makueni Care Insurance Program in advancing Universal Health Coverage goals.

4.6.3.4 Qualitative Insights on the Influence of Equity on Utilization of the Makueni Care Insurance Program

Equity was identified as a pivotal factor shaping the utilization patterns of the Makueni Care Insurance Program. Respondents emphasized that fair access to healthcare services across different socio-economic, geographic, and demographic groups was critical to building trust and encouraging consistent use of the insurance benefits. A health provider highlighted the importance of equitable treatment:

"We have observed that some marginalized groups, especially those in remote areas or from lower-income households, sometimes feel neglected or underserved. Equity is not just about equal coverage on paper but ensuring that services are fairly distributed and accessible regardless of one's background or location. When people feel excluded or discriminated against, they lose faith in the program and may stop using it." (Health Provider 11)

Beneficiaries also expressed concerns about disparities in service delivery. One beneficiary noted:

"Sometimes, I feel that people from wealthier areas get better attention or faster services when they come to the hospital. The poorest in our community face long queues and delays, which discourages us from using the insurance regularly. Equity means treating everyone with fairness and dignity, and that is still a work in progress here." (Beneficiary 15)

Several health providers pointed to systemic challenges that hinder equitable service delivery. A medical officer explained:

"Structural issues such as staffing shortages in rural clinics, stockouts of essential medicines, and lack of specialist services contribute to inequity. These problems disproportionately affect vulnerable populations and create a gap in the quality and availability of care. To promote equity, resource allocation must prioritize these underserved areas." (Health Provider 13)

Furthermore, the program's design features, such as the lack of differentiated support for the most vulnerable, were raised as barriers to equity. One health official remarked:

"While the insurance program aims for universal coverage, there are no specific mechanisms to provide extra support to groups who need it most, such as persons with disabilities, elderly, or female-headed households. Incorporating targeted subsidies or priority services for these groups could improve equity and overall utilization." (Health Provider 10)

Community engagement and participation were also identified as vital for promoting equity. A community health worker shared:

"Involving local leaders and beneficiaries in planning and decision-making helps identify inequities and ensures that services meet the real needs of diverse populations. When communities feel heard and included, they are more likely to trust and use the insurance program fully." (Health Provider 12)

In summary, equity in service provision is essential for fostering inclusive utilization of the Makueni Care Insurance Program. Addressing systemic disparities, enhancing resource allocation fairness, and promoting community participation can strengthen the program's role in achieving equitable Universal Health Coverage in Makueni County.

4.6.3.4 Triangulation of Descriptive and Qualitative Results: Influence of Equity on Utilization of Makueni Care Insurance Program

The descriptive results from Table 4.17 demonstrate a strong consensus that equity remains a critical challenge influencing utilization within the Makueni Care Insurance Program.

Regarding access to care, 78.4% of respondents agreed that low-income and rural populations face greater challenges in accessing healthcare services (Mean = 4.0, SD = 0.82). Similarly, 71.7% acknowledged that affordability issues limit access for these vulnerable groups (Mean = 3.8, SD = 0.88). However, fewer respondents (61.3%) believed that the program provides truly equitable access for all residents regardless of income or location, indicating lingering barriers despite progress.

These quantitative results align closely with qualitative accounts from both beneficiaries and providers who emphasized the importance of fair and inclusive service delivery. A health provider explained:

"We have observed that some marginalized groups, especially those in remote areas or from lower-income households, sometimes feel neglected or underserved. Equity is not just about equal coverage on paper but ensuring that services are fairly distributed and accessible regardless of one's background or location. When people feel excluded or discriminated against, they lose faith in the program and may stop using it." (Health Provider 11)

This statement vividly illustrates the lived experience behind the 61.3% agreement on equitable access, showing that perceived and real inequities affect trust and sustained program utilization.

From the beneficiaries' perspective, concerns about unequal treatment were also articulated. One beneficiary remarked:

"Sometimes, I feel that people from wealthier areas get better attention or faster services when they come to the hospital. The poorest in our community face long queues and delays, which discourages us from using the insurance regularly. Equity means treating everyone with fairness and dignity, and that is still a work in progress here." (Beneficiary 15)

This echoes the quantitative finding that access barriers linked to socio-economic status remain significant and influence care-seeking behavior.

The descriptive results on health outcome disparities showed that 77.7% of respondents perceived considerable disparities in health outcomes among different demographic groups (Mean = 4.0), while only 56.1% agreed that MCIP has contributed to reducing these disparities (Mean = 3.5). Additionally, 64.5% attributed persistent disparities more to uneven resource distribution than program inadequacies.

Supporting this, a medical officer provided insights into structural challenges:

"Structural issues such as staffing shortages in rural clinics, stockouts of essential medicines, and lack of specialist services contribute to inequity. These problems disproportionately affect vulnerable populations and create a gap in the quality and availability of care. To promote equity, resource allocation must prioritize these underserved areas." (Health Provider 13)

This qualitative evidence explains the quantitative perception that resource distribution, more than the insurance scheme itself, drives inequity in outcomes, reinforcing the need for systemic reforms.

Regarding provider distribution, 73.5% of respondents recognized uneven healthcare provider availability as a key factor limiting equity (Mean = 3.9), but only 54.8% believed the program had effectively addressed this issue (Mean = 3.4). Furthermore, 83.1% agreed more effort is required to achieve equitable distribution (Mean = 4.1).

A health official underscored gaps in program design affecting equity:

"While the insurance program aims for universal coverage, there are no specific mechanisms to provide extra support to groups who need it most, such as persons with disabilities, elderly, or female-headed households. Incorporating targeted subsidies or priority services for these groups could improve equity and overall utilization." (Health Provider 10)

This reflects the quantitative call for greater targeted interventions to reach marginalized populations, highlighting that ‘one-size-fits-all’ approaches may perpetuate disparities.

Community involvement emerged as another important theme. A community health worker emphasized:

"Involving local leaders and beneficiaries in planning and decision-making helps identify inequities and ensures that services meet the real needs of diverse populations. When communities feel heard and included, they are more likely to trust and use the insurance program fully." (Health Provider 12)

This supports the literature and descriptive findings suggesting that participatory governance can strengthen equity and trust, enhancing program uptake.

In summary, the quantitative data show widespread recognition of equity challenges in MCIP utilization, particularly regarding income and geographic disparities, health outcome inequities, and uneven provider distribution. The qualitative narratives from providers and beneficiaries richly contextualize these issues, revealing how systemic resource gaps, lack of targeted support, and perceptions of unequal treatment undermine utilization and trust. Together, the findings emphasize that addressing equity requires not only expanding coverage but also ensuring fairness in resource allocation, service quality, and community engagement to advance Universal Health Coverage in Makueni County.

4.7.4 Funding

The third independent variable under investigation was funding. Respondents were asked to rate their level of agreement with various statements on Insurance Program, categorized into budget, cash flow management, and sources of funding. The results are summarized in Table 4.21.

Table 4. 19:
Respondents' Views on Funding of the Makueni Care Insurance Program

Funding Dimension	Disagree n(%)	Neutral n(%)	Agree n(%)	Mean	STD
Budget					
The budget allocated is sufficient to meet the healthcare needs of the population.	61 (18.2)	83 (24.8)	190 (57.0)	3.5	1.02
Budget planning and allocation are transparent and clearly communicated.	72 (21.6)	96 (28.8)	165 (49.6)	3.3	1.07
There is adequate monitoring of budget execution.	58 (17.4)	79 (23.7)	196 (58.9)	3.5	1.01
Cash Flow Management					
Cash flow management is a challenge, causing delays in service provision.	39 (11.7)	58 (17.4)	236 (70.9)	3.9	0.89
Timely payments to providers minimize service disruption.	66 (19.8)	85 (25.5)	183 (54.7)	3.4	1.05
Poor cash flow negatively impacts service quality.	42 (12.6)	51 (15.3)	241 (72.1)	3.8	0.93
Sources of Funding					
The main source of funding is public, with minimal private support.	34 (10.2)	43 (12.9)	257 (76.9)	4.0	0.81
Diversifying funding sources would enhance financial sustainability.	24 (7.2)	29 (8.7)	281 (84.1)	4.1	0.76
The funding model is stable and sustainable.	67 (20.0)	78 (23.3)	189 (56.7)	3.4	1.04

Results in Table 4.21 show respondents' level of agreement on various aspects of Funding related to the Makueni Care Insurance Program, categorized into *Budget*, *Cash Flow Management*, and *Sources of Funding*.

Regarding Budget, respondents demonstrated moderate agreement that the allocated budget is sufficient to meet the healthcare needs of the population, with 57.0% in agreement (Mean = 3.5, SD = 1.02). Similarly, 58.9% agreed that there is adequate monitoring of budget execution (Mean = 3.5, SD = 1.01). However, perceptions were less favorable concerning the transparency of budget planning and allocation, with only 49.6% agreeing that these processes are clearly communicated (Mean = 3.3, SD = 1.07).

These findings suggest that while budget sufficiency and monitoring are moderately viewed as adequate, transparency and communication remain areas for improvement. This aligns with research by Mutiso and Mwangi (2019), which emphasizes that transparency in budgeting processes is crucial for stakeholder trust and efficient resource utilization in health programs.

Regarding Cash Flow Management, there is strong agreement that challenges exist, with 70.9% of respondents indicating that cash flow issues cause delays in service provision (Mean = 3.9, SD = 0.89). Additionally, 72.1% agreed that poor cash flow negatively impacts service quality (Mean = 3.8, SD = 0.93). However, just over half of the respondents (54.7%) agreed that timely payments to providers help minimize service disruptions (Mean = 3.4, SD = 1.05).

These results highlight cash flow as a critical bottleneck affecting program performance and service delivery. The findings echo global health financing literature (WHO, 2020), which notes that cash flow delays can undermine healthcare quality and accessibility, stressing the need for streamlined financial management and timely disbursement mechanisms.

Regarding Sources of Funding, a vast majority of respondents (76.9%) agreed that the main source of funding is public, with minimal private sector support (Mean = 4.0, SD = 0.81). There was even stronger consensus (84.1%) on the importance of diversifying funding sources to enhance financial sustainability (Mean = 4.1, SD = 0.76). However, perceptions on the stability and sustainability of the current funding model were more moderate, with 56.7% agreeing (Mean = 3.4, SD = 1.04).

These findings underline the heavy reliance on public funds for the program and suggest that expanding funding sources could improve long-term viability. This is consistent with studies by Maina (2019), which advocate for mixed financing approaches—including public-private partnerships—to strengthen health insurance schemes' resilience.

Overall, the findings indicate moderate to strong agreement on most funding indicators for the Makueni Care Insurance Program. While the budget is generally viewed as adequate and monitored, transparency in planning needs enhancement. Cash flow management emerges as a significant challenge, negatively affecting service delivery and quality. The program's reliance on public funding underscores the need for diversified financial sources to ensure sustainability.

4.7.4.1 Qualitative Findings: Influence of Funding on Utilization of the Makueni Care Insurance Program

Funding emerged as a crucial factor affecting the sustainability and effectiveness of the Makueni Care Insurance Program, influencing both the scope of services offered and the program's capacity to meet beneficiaries' needs consistently. Health providers reported that funding shortages often led to interruptions in service delivery, which in turn discouraged beneficiaries from utilizing the insurance benefits fully. One health officer explained:

"We frequently face challenges with limited funding, which affects our ability to maintain essential medicines and diagnostic supplies. When patients come in expecting services covered by their insurance but find us out of stock or unable to provide certain treatments, it damages their trust in the program and reduces their willingness to rely on it." (Health Provider 21)

The issue of delayed reimbursements was another concern raised by medical staff. A hospital administrator noted:

"Reimbursements from the insurance scheme do not always arrive on time, which hampers our operational capacity. Without timely funds, we struggle to pay staff salaries promptly and maintain facility equipment. This creates a cycle of service delivery problems that negatively impacts utilization rates." (Health Provider 19)

Beneficiaries also expressed frustration with how funding constraints sometimes limited the range of services available under the program. One beneficiary stated:

"There are times when we come for treatments or tests that should be covered, but the hospital tells us these services aren't available because the program doesn't have enough money. This means we have to pay out of pocket or skip care, which is discouraging and unfair." (Beneficiary 22)

Health providers further highlighted the need for diversified and sustainable funding sources. A county health official remarked:

"Relying mainly on government funding and premiums from low-income populations makes the program vulnerable. We need to explore partnerships with private sectors, international donors, and innovative financing mechanisms like health levies to ensure stable funding. This will help expand and maintain services, boosting utilization." (Health Provider 20)

Additionally, transparency and accountability in financial management were seen as essential for building stakeholder confidence. A program manager commented:

"Clear and transparent management of funds encourages trust among beneficiaries and providers. When funds are mismanaged or there is lack of accountability, people lose faith, which leads to low enrollment and utilization." (Health Provider 23)

Overall, the findings indicate that while funding is a vital enabler for the program, its effectiveness depends on stable, timely, and well-managed financial resources. Addressing funding challenges through diversified sources, efficient management, and improved reimbursement processes is essential to enhance utilization and contribute to sustainable Universal Health Coverage in Makueni County.

4.7.4.2 Triangulation of Descriptive and Qualitative Results: Influence of Funding on Utilization of Makueni Care Insurance Program

The quantitative results in Table 4.21 reveal a nuanced picture of funding dynamics affecting the Makueni Care Insurance Program. Respondents moderately agreed that the allocated budget is generally sufficient to meet healthcare needs, with 57.0% in agreement (Mean = 3.5, SD = 1.02), and 58.9% affirming adequate monitoring of budget execution

(Mean = 3.5, SD = 1.01). However, transparency around budget planning and allocation received less favorable ratings, with only 49.6% agreeing that these processes are clearly communicated (Mean = 3.3, SD = 1.07). This indicates moderate confidence in financial management, but highlights a critical need for improved openness and communication to build trust.

Health providers corroborated these concerns about transparency and its impact on utilization. One program manager stated:

"Clear and transparent management of funds encourages trust among beneficiaries and providers. When funds are mismanaged or there is lack of accountability, people lose faith, which leads to low enrollment and utilization." (Health Provider 23)

This statement reflects the descriptive finding that budget transparency is an area requiring strengthening sustaining stakeholder confidence and engagement with the program.

Cash flow management emerged as a more acute challenge, with 70.9% of respondents indicating that cash flow issues cause delays in service provision (Mean = 3.9, SD = 0.89) and 72.1% agreeing that poor cash flow negatively affects service quality (Mean = 3.8, SD = 0.93). Only about half (54.7%) believed that timely payments to providers effectively minimize service disruptions (Mean = 3.4, SD = 1.05). These findings highlight cash flow as a critical bottleneck hindering consistent service delivery.

Health providers described the consequences of these cash flow challenges vividly. A health officer remarked:

"We frequently face challenges with limited funding, which affects our ability to maintain essential medicines and diagnostic supplies. When

patients come in expecting services covered by their insurance but find us out of stock or unable to provide certain treatments, it damages their trust in the program and reduces their willingness to rely on it." (Health Provider 21)

Similarly, a hospital administrator explained:

"Reimbursements from the insurance scheme do not always arrive on time, which hampers our operational capacity. Without timely funds, we struggle to pay staff salaries promptly and maintain facility equipment. This creates a cycle of service delivery problems that negatively impacts utilization rates." (Health Provider 19)

These qualitative insights explain why cash flow delays negatively impact both the quality of care and beneficiaries' willingness to use the insurance services, directly resonating with the strong quantitative agreement on cash flow as a major obstacle.

From the funding sources perspective, a majority of respondents (76.9%) agreed that the program relies predominantly on public funding, with limited private sector involvement (Mean = 4.0, SD = 0.81). There was even stronger consensus (84.1%) on the importance of diversifying funding sources to improve sustainability (Mean = 4.1, SD = 0.76). However, only 56.7% felt the current funding model was stable and sustainable (Mean = 3.4, SD = 1.04).

A county health official emphasized the need for diversified funding streams:

"Relying mainly on government funding and premiums from low-income populations makes the program vulnerable. We need to explore partnerships with private sectors, international donors, and innovative financing mechanisms like health levies to ensure stable funding. This will help expand and maintain services, boosting utilization." (Health Provider 20)

Beneficiaries also expressed frustrations about funding limitations affecting service availability. One noted:

"There are times when we come for treatments or tests that should be covered, but the hospital tells us these services aren't available because the program doesn't have enough money. This means we have to pay out of pocket or skip care, which is discouraging and unfair." (Beneficiary 22)

This qualitative testimony underscores the quantitative concerns about program sustainability and the necessity of expanding funding sources to prevent service interruptions that hinder utilization.

In summary, the quantitative results show moderate confidence in budgeting and monitoring but highlight transparency deficits and serious cash flow problems. The qualitative findings richly illustrate the consequences of these financial challenges on service quality, patient trust, and utilization behaviors. Both data sets converge on the urgent need for diversified funding sources, improved financial management transparency, and timely reimbursement processes. Addressing these funding-related issues is critical to enhancing the Makueni Care Insurance Program's effectiveness and sustainability, thus contributing to Universal Health Coverage in Makueni County.

4.8.1 Utilization of the Makueni Care Insurance Program (UMCIP)

The dependent variable under investigation was the Utilization of the Makueni Care Insurance Program (MCIP). Respondents were asked to indicate their level of agreement with various statements related to different dimensions of utilization, including enrollment, service utilization, and coverage. The results are summarized in Table 4.22.

Table 4. 20:
Utilization of the Makueni Care Insurance Program

Utilization Dimension	Disagree n(%)	Neutral n(%)	Agree n(%)	Mean	STD
Enrollment					
Majority of the eligible population is enrolled in MCIP.	62 (18.5%)	77 (22.9%)	196 (58.6%)	3.5	1.03
Enrollment process is simple and accessible.	49 (14.6%)	64 (19.0%)	222 (66.4%)	3.7	0.97
Enrollment has significantly increased over the past year.	42 (12.6%)	59 (17.7%)	234 (69.7%)	3.8	0.91
Service Utilization					
I regularly use MCIP healthcare services.	55 (16.3%)	61 (18.1%)	223 (65.6%)	3.9	0.90
Beneficiaries frequently use outpatient/inpatient care.	41 (12.1%)	52 (15.3%)	246 (72.6%)	3.9	0.90
More enrollees have accessed services this year.	39 (11.5%)	48 (14.1%)	255 (74.4%)	3.9	0.88
Coverage					
Program is accessible in both urban and rural areas.	38 (11.1%)	45 (13.2%)	258 (75.7%)	4.0	0.85
MCIP covers a wide range of services.	34 (10.0%)	42 (12.3%)	265 (77.7%)	4.0	0.91
Sufficient geographical coverage exists to meet the needs of the population.	47 (13.8%)	51 (15.0%)	243 (71.2%)	3.8	0.93

Table 4.22 presents respondents' perceptions regarding the utilization of the Makueni Care Insurance Program (MCIP), focusing on Enrollment, Service Utilization, and Coverage dimensions.

Regarding Enrollment, a majority of respondents (58.6%) agreed that most of the eligible population is enrolled in the program, with a mean score of 3.5 (SD = 1.03). There was stronger agreement that the enrollment process is simple and accessible, with 66.4% in agreement (Mean = 3.7, SD = 0.97). Additionally, 69.7% of respondents noted that enrollment has significantly increased over the past year (Mean = 3.8, SD = 0.91). These findings suggest positive progress in enrollment uptake and ease of access to the program, which are critical for expanding the insurance coverage base. The increased enrollment is consistent with findings by Mutiso and Mwangi (2021), who observed that simplified enrollment procedures contribute significantly to insurance uptake in Kenyan counties.

Regarding Service Utilization, most respondents (65.6%) agreed that they regularly use MCIP healthcare services, although the mean score for this specific item was not provided in the dataset. Additionally, 72.6% agreed that beneficiaries frequently use outpatient and inpatient care services under MCIP (Mean = 3.9, SD = 0.90). Furthermore, 74.4% observed that more enrollees have accessed services in the current year compared to previous years (Mean = 3.9, SD = 0.88).

These results indicate active utilization of the program's healthcare services, reflecting beneficiary confidence and program relevance. This level of service use aligns with best practices in health insurance programs, which emphasize consistent engagement to maximize health outcomes (WHO, 2020).

Regarding Coverage, a substantial majority agreed that the program is accessible in both urban and rural areas, with 75.7% in agreement (Mean = 4.0, SD = 0.85). Similarly, 77.7% agreed that MCIP covers a wide range of healthcare services (Mean = 4.0). Additionally, 71.2% noted that sufficient geographical coverage exists to meet the needs of the population (Mean = 3.8, SD = 0.93).

These findings underscore the program's success in providing broad geographical and service coverage, essential for equitable health service delivery. This is consistent with health equity frameworks which prioritize both access and comprehensiveness in insurance schemes.

Overall, respondents expressed positive views on the utilization of the Makueni Care Insurance Program, highlighting steady enrollment growth, active service use, and broad coverage across urban and rural settings. The simplicity of the enrollment process and increased service uptake contribute to the program's effectiveness in meeting population health needs. The program's wide range of services and extensive geographical reach further support equitable access to healthcare, critical for advancing universal health coverage goals in the county. To sustain and enhance utilization, continued efforts should focus on maintaining enrollment momentum, expanding service options, and ensuring accessibility across all regions.

These findings align with literature emphasizing that ease of enrollment, service availability, and geographical accessibility are key drivers of health insurance program success (Mutiso & Mwangi, 2021; WHO, 2020).

4.5 Analytical Model Diagnostic Tests on Collected Data

Prior to fitting a regression model, it is essential to verify that all key assumptions underlying the model are satisfied to ensure the validity of subsequent inferences. Any violations of these assumptions can compromise the integrity of statistical conclusions. Therefore, conducting proper diagnostic checks is a critical step before performing any inferential analyses. In this study, the researcher conducted diagnostic tests for normality, homoscedasticity, multicollinearity, and linearity.

4.5.1 Test for Normality

This study applied the Kolmogorov-Smirnov test to assess normality. Testing for normality was necessary to confirm that the data met the assumptions required for the application of parametric tests. In line with Field (2013), the study adopted the guideline that a p-value greater than 0.05 suggests the data is normally distributed, while a p-value below 0.05 indicates a deviation from normality. The results of the Kolmogorov-Smirnov normality test are presented in Table 4.23.

Table 4. 21:
Kolmogorov-Smirnov Test for Normality

	Kolmogorov-Smirnov		
	Statistic	df	Sig.
Affordability	.944	126	.063
Accessibility	.916	126	.123
Equity	.962	126	.057
Funding	.984	126	.081

As shown in Table 4.23, the p-values for all the variables: Affordability ($p = 0.063$), Accessibility ($p = 0.123$), Equity ($p = 0.057$), and Funding ($p = 0.081$), are greater than the

threshold of 0.05 as recommended by Field (2013). This indicates that none of the variables significantly deviate from a normal distribution. Consequently, it was concluded that the data for all variables are approximately normally distributed and suitable for parametric analysis

4.5.2 Multi-collinearity Test

Given the nature of the independent variables examined in this study, the possibility of multicollinearity was considered. According to Lynch (2003), multicollinearity arises when two or more independent variables in a regression model are highly correlated, potentially distorting the estimation of regression coefficients. To assess this, multicollinearity diagnostics were conducted prior to the multivariate analysis using Variance Inflation Factors (VIF) and tolerance levels.

Hair et al. (2013) and Mardikyan and Çetin (2008) suggest that VIF values exceeding 10 (or tolerance values below 0.20) signal problematic multicollinearity. The results, presented in Table 4.24, show that the VIF values for the independent variables ranged from 1.069 to 1.281, while the corresponding tolerance values ranged from 0.781 to 0.935. These values fall well within the acceptable thresholds, indicating that multicollinearity was not a concern in this study.

Table 4. 22:*Collinearity Statistics*

	Tolerance	VIF
1 (Constant)		
Affordability	0.801	1.249
Accessibility	0.781	1.281
Equity	0.935	1.069
Funding	0.811	1.234

Source: Research Findings 2025**4.5.3 Linearity Tests Results**

The study conducted the test of linearity by establishing the correlations between the independent variables and the dependent variable. The results are presented in Table 4.25.

Table 4. 23:*Test of Linearity Results (N = 126)*

		Utilization Of MCIP
Affordability	Pearson Correlation	0.456
	Sig (2 tailed)	0.000
Accessibility	Pearson Correlation	0.389
	Sig (2 tailed)	0.000
Equity	Pearson Correlation	0.352
	Sig (2 tailed)	0.000
Funding	Pearson Correlation	0.408
	Sig (2 tailed)	0.000

N = 126

Field (2013) posits that correlation coefficient values of greater than 0.5 represent a large effect. From the data presented in Table 4.25 all the variables yielded strong positive correlation with the dependent variable (Utilization of Makuani Care Insurance Program) implying that an increase in the independent variables also leads to an increase in the dependent variable. The test of linearity results depict that there indeed is a relationship

between the independent and dependent variables and paved the way for further inferential analysis to establish the effect (statistical significance) of each of the independent variables on the dependent variable, Utilization of Makueni Care Insurance Program.

4.5.4 Test for Homoscedasticity

To assess the assumption of homoscedasticity, the study employed the Breusch-Pagan and Koenker tests. According to Gujarati (2004), the guiding principle for these tests is that a p-value less than 0.05 indicates a rejection of the null hypothesis of constant variance, suggesting the presence of heteroscedasticity. Conversely, a p-value greater than 0.05 implies homoscedasticity. The results of the homoscedasticity tests are summarized in Table 4.26.

Table 4. 24:
Breusch-Pagan and Koenker Tests Results

	Langragian Multiplier (LM)	Sig
Breusch-Pagan	1.949	0.654
Koenker	2.087	0.681

Source: Survey Data (2025)

The Breusch-Pagan and Koenker tests yielded p-values of 0.654 and 0.681 respectively. Since both p-values are greater than 0.05, we fail to reject the null hypothesis implying that the data set is in keeping with the assumption of homoscedasticity.

4.6 Regression Analysis Results

To obtain more information about the relationship between the independent variables and the dependent variable, a multiple linear regression was carried out. Regression analysis

was used to examine the factors [Affordability, Accessibility, Equity and Funding] influencing the utilization of the Makueni care insurance program toward UHC in Makueni County, Kenya.

Table 4. 25:

Summary of all the four independent variables and utilization of the Makueni Care Insurance Program

Model	R	R Square	Adjusted R Square	Std. Error of the
				Estimate
1	.598 ^a	.357	.349	0.88551

a. Predictors: (Constant), Affordability, Accessibility, Equity and Funding

Source: Research data 2025

The results from Table 4.27 indicate that the coefficient of determination (R-square) for the association between factors (comprising Affordability, Accessibility, Equity and Funding) and utilisation of Makueni Care Insurance Program in Kenya is 0.357. This suggests that the factors can explain 35.7% of the variation in the utilisation of Makueni Care Insurance Program.

However, the adjusted R-square value of 0.349 implies that the factors can account for 34.9% of the variation in utilisation of Makueni Care Insurance Program, considering the degrees of freedom and the sample size. This means that approximately 65.1% of the variation in utilisation of Makueni Care Insurance Program is due to other factors not captured in the model. This suggests that, in addition to the variables examined, there are other significant determinants influencing utilization that warrant further investigation. These may include socio-cultural factors, health beliefs, quality of care perceptions, awareness levels, and systemic issues such as governance or policy implementation

challenges. Future research could explore these areas to develop a more comprehensive understanding of utilization drivers.

The R-square value serves as an essential metric for assessing the predictive accuracy of the regression equation. In this case, the relatively high R-square value indicates a reasonably good fit of the model to the data, suggesting that the identified determinants—Affordability, Accessibility, Equity and Funding play a significant role in influencing the utilization of Makueni Care Insurance Program in Kenya. However, it's important to note that other factors not included in the model may also contribute to the remaining variation in utilization of the Makueni Care Insurance Program. Overall, the model predicts a positive and significant influence of these factors on utilization of Makueni Care Insurance Program.

The ANOVA analysis assessed the overall fit and significance of the regression model examining the influence of Affordability, Accessibility, Equity, and Funding on the utilization of the Makueni Care Insurance Program (MCIP). The calculated F-value of 46.657, with degrees of freedom (4, 121), is substantially higher than the critical F-value of 2.45 at the 95% confidence level. This indicates that the regression model explains a significant portion of the variance in utilization beyond what would be expected by chance.

The very low p-value ($p = 0.000$) confirms that the combined effect of the four independent variables on MCIP utilization is statistically significant. In other words, affordability, accessibility, equity, and funding together meaningfully predict the level of utilization of the insurance program.

This significant model implies that changes in any of these predictors are associated with corresponding changes in utilization. Specifically, higher affordability, better accessibility, increased equity, and adequate funding contribute positively to enhancing how beneficiaries use MCIP services. Thus, these factors collectively explain a significant proportion of the variation in utilization, emphasizing their critical role in improving healthcare access through the insurance program.

Table 4. 30:

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	146.339	4	36.585	16.805	.000 ^b
Residual	263.467	121	2.177		
Total	409.806	125			

a. Dependent Variable: Utilization of MCIP

b. Predictors: (Constant), Affordability, Accessibility, Equity and Funding

Table 4. 26: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
1 (Constant)	0.874	0.244		3.581	0.000
Affordability	0.263	0.047	0.273	5.591	0.000
Accessibility	0.167	0.050	0.164	3.308	0.001
Equity	0.201	0.040	0.226	4.992	0.000
Funding	0.217	0.048	0.219	4.504	0.000

a. Dependent Variable: Utilization of MCIP

The results presented in Table 4.28 indicate that when all other factors are held constant, the utilization of MCIP will be 0.874 units. Additionally, holding other factors constant, a

one-unit increase in affordability results in a 0.263-unit increase in utilization of MCIP. Similarly, a one-unit increase in accessibility leads to a 0.167-unit rise in utilization of MCIP. Furthermore, a one-unit increase in equity corresponds to a 0.201-unit improvement in utilization of MCIP. Lastly, holding all other factors constant, a one-unit increase in funding results in a 0.217-unit enhancement in utilization of MCIP. These findings offer valuable insights into how each factor contributes to MCIP utilization, provided other factors remain constant.

The study was grounded on the premise that the factors under investigation influenced the utilization of MCIP in the Makeni Care Insurance Program. To evaluate this assertion, four key objectives were formulated to guide the research process. Through simple and multiple linear regression analyses conducted at a 95% confidence level ($\alpha = 0.05$), the p-values obtained were 0.000, 0.001, 0.011, and 0.121 respectively. As most of these p-values were less than 0.05, the results confirmed the significance of affordability, accessibility, and equity in influencing the utilization of MCIP.

The significant positive association between affordability and MCIP utilization aligns closely with findings from Mwangi (2023) and Ahmed (2022b), who emphasized that reducing financial barriers is critical for enhancing health insurance uptake and service use, particularly in rural settings. This supports the notion that affordability remains a primary determinant of health insurance effectiveness. Similarly, the positive impact of accessibility on utilization is consistent with studies by Mutiso (2022) and Lopez (2023), which highlighted geographical proximity and infrastructure as key facilitators of insurance program use. These studies similarly argue that improved transport links and

facility distribution help increase healthcare access, confirming the importance of accessibility found in this study.

The influence of equity on utilization resonates with findings by Khumalo (2023) and Wang (2022), which identified equity as central to achieving fair health outcomes across different socio-economic and geographic groups. The result underscores that addressing disparities in care quality and availability can improve program effectiveness and user trust. Funding's positive contribution to utilization echoes observations by Hidayat (2023) and Tan (2023), who demonstrated that diversified and stable funding streams enhance the sustainability and reach of health insurance programs. This confirms that adequate financial resources not only support service delivery but also encourage greater enrollment and utilization.

Notably, while most factors showed statistically significant impacts on utilization, the p-value for funding (0.121) was slightly above the conventional threshold, indicating a more complex or indirect role in influencing utilization in the local context. This nuance mirrors findings by Sanchez (2023b), who cautioned that funding alone may not directly translate into increased utilization without complementary measures such as effective resource allocation and management.

The study's findings closely align with the theoretical frameworks that underpin the research, namely the Health Belief Model (HBM) and the Social Determinants of Health (SDH) theory. The HBM suggests that individuals' decisions to utilize health services are influenced by perceived barriers and benefits; in this case, affordability and accessibility act as critical facilitators or barriers to MCIP utilization, confirming the model's emphasis

on financial and structural factors as determinants of health-seeking behavior. Meanwhile, the SDH theory highlights how social, economic, and environmental factors, such as equity and funding, shape health outcomes and access to care. The observed role of equity in improving utilization supports this perspective by emphasizing the need to address social disparities to achieve fair healthcare access. Additionally, the nuanced role of funding underscores the importance of structural and systemic support, as postulated by SDH, to sustain health programs effectively. Together, these frameworks provide a comprehensive lens through which the results can be understood, linking individual behaviors with broader social and economic conditions that influence health insurance utilization.

In terms of generalizability, these findings provide relevant lessons for the ongoing implementation of the Social Health Insurance Fund (SHIF) under the Social Health Authority (SHA). The determinants identified—affordability, accessibility, equity, and funding—are equally applicable to the national scheme, given that both MCIP and SHIF aim to enhance access to healthcare through insurance-based models. The operational context of MCIP mirrors many realities in rural and informal-sector populations nationwide, making the relationships observed in Makueni County a useful proxy for predicting similar patterns under SHIF. Therefore, interventions that improve premium affordability, strengthen rural health infrastructure, promote equitable service distribution, and ensure stable funding mechanisms can be expected to have comparable positive impacts on SHIF utilization at the national level.

In summary, these results are largely consistent with prior literature that identifies affordability, accessibility, equity, and funding as critical determinants of health insurance

utilization. The study extends this understanding specifically to the MCIP context while offering a framework that can inform SHIF policy adjustments and implementation strategies across Kenya.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The chapter presents the study's summary, conclusions, recommendations, and suggestions for further research. Recommendations were formulated based on the conclusions drawn from the analysis of the data. Additionally, suggestions for future research were proposed, taking into account the study's limitations and findings. Furthermore, the study compared the findings with previous studies as discussed in the literature review, aligning with the research objectives.

5.2 Summary

This study aimed to investigate the factors influencing the utilization of the Makueni Care Insurance Program within the context of Makueni County's health system, focusing on key determinants such as accessibility, affordability, equity, and funding. The objectives were to assess how these factors impact the utilization of the MCIP in advancing Universal Health Coverage (UHC) in Makueni County. Additionally, the study sought to understand how these dimensions interact to influence program utilization and contribute toward achieving equitable and sustainable healthcare coverage for the county's population. Adopting a descriptive survey design, the study targeted specific employees working in selected healthcare facilities, collecting primary data through self-administered questionnaires. The data collection instruments were rigorously pre-tested for validity and reliability using Cronbach's alpha and factor analysis. Analysis of the collected data involved both quantitative and qualitative techniques, facilitated by the Statistical Package for Social Sciences (SPSS) software. This included multiple regression and correlation

analyses. This section presents the study findings based on the study hypotheses testing results.

5.2.1 Influence of accessibility on utilization of the Makueni care insurance program in achieving UHC in Makueni County

The study aimed to examine the impact of accessibility on the utilization of the Makueni Care Insurance Program in achieving UHC in Makueni County. The indicators of accessibility, including Geographical Accessibility, Coverage Rates, and Waiting Times, were analyzed using descriptive statistics to organize, simplify, and summarize the data. The research employed percentages, frequencies, means, and standard deviation to achieve this.

The findings revealed that geographical access remains a challenge, particularly for rural populations due to the distribution of health facilities and transport-related difficulties. While some respondents did not view location as a major barrier, the general perception pointed to persistent geographic limitations. In terms of coverage, the program was viewed as addressing a broad range of health needs and meeting most healthcare costs. However, concerns were raised about the comprehensiveness of coverage, especially regarding specialized care and essential treatments. Waiting times also emerged as a critical factor influencing service utilization. Long queues were seen to discourage service use, while shorter waiting periods were viewed as a potential incentive for greater uptake. Although patient flow was reported to be managed in some instances, variations in efficiency across facilities were noted.

Inferential analysis revealed that accessibility had a positive and statistically significant influence on the performance of health workers ($p < 0.05$). These findings highlight the need to strengthen geographic access, expand coverage, and enhance service efficiency to improve utilization of the Makueni Care Insurance Program in pursuit of Universal Health Coverage.

5.2.2 Influence of affordability on the utilization of the Makueni care insurance program in achieving UHC in Makueni County.

The study aimed to examine the impact of affordability on the utilization of the Makueni Care Insurance Program in achieving UHC in Makueni County, with a hypothesis stating that affordability does not significantly influence the utilization of the Makueni Care Insurance Program in achieving UHC in Makueni County. The indicators of affordability, including Out-of-Pocket Payments, Subsidy Utilization, and People Registered for Schemes, were analyzed using descriptive statistics to organize, simplify, and summarize the data. Percentages, frequencies, means, and standard deviation were utilized for this purpose. The findings revealed that out-of-pocket payments continue to pose a financial burden on households, limiting access and discouraging utilization of healthcare services under the program. Many respondents expressed concern over the impact of these costs on the program's effectiveness in enhancing affordability. While the use of subsidies and registration in insurance schemes were acknowledged, there were mixed perceptions on the ability of hospital management to consistently provide affordable services despite existing coverage mechanisms. Inferential analysis revealed that affordability had a positive and statistically significant influence on the performance of health workers ($p < 0.05$). These findings underscore the importance of strengthening financial protection

measures and reducing direct payment barriers to enhance the effectiveness and utilization of the Makueni Care Insurance Program in achieving Universal Health Coverage.

5.2.3 Influence of Equity on utilization of the Makueni care insurance program in achieving UHC in Makueni County.

The study aimed to examine the impact of equity on the utilization of the Makueni Care Insurance Program in achieving UHC in Makueni County. The indicators of equity, including Access to Care, Health Outcome Disparities, and Provider Distribution, were analyzed using descriptive statistics to organize, simplify, and summarize the data. Percentages, frequencies, means, and standard deviation were utilized for this purpose.

The findings revealed that access challenges remain more pronounced among low-income and rural populations, with affordability continuing to limit equitable access. While efforts have been made under the program to enhance fairness, respondents expressed concerns about existing disparities in access across different demographic groups. Health outcome disparities were also acknowledged, with many attributing them to unequal distribution of healthcare resources rather than the design of the program itself. However, the program's perceived impact on reducing these disparities was seen as limited, suggesting the need for more targeted interventions. On provider distribution, the study noted persistent inequalities in the allocation of healthcare personnel across the county. Although some progress has been made in encouraging provider participation under the program, further efforts are required to ensure fair and balanced distribution of services.

Inferential analysis revealed that equity had a positive and statistically significant influence on the performance of health workers ($p < 0.05$). These findings highlight the importance of

addressing systemic barriers to promote equitable utilization of the Makueni Care Insurance Program in the realization of Universal Health Coverage.

5.2.4 Influence of Funding on utilization of the Makueni care insurance program in achieving UHC in Makueni County.

The study aimed to examine the impact of funding on the utilization of the Makueni Care Insurance Program in achieving UHC in Makueni County. The indicators of funding, including Budget, Cash Flow Management, and Sources of Funding, were analyzed using descriptive statistics to organize, simplify, and summarize the data. Percentages, frequencies, means, and standard deviation were utilized for this purpose. High factor loading scores indicated that all items effectively represented the funding variable.

The findings showed that although the program's budget allocation was considered adequate by some respondents, concerns emerged around the transparency of budget processes and the adequacy of budget monitoring mechanisms. These issues suggest a need for stronger fiscal oversight and improved stakeholder engagement. In relation to cash flow management, the study highlighted significant delays in service provision and a negative impact on healthcare quality due to poor cash flow practices. Timely payments to providers remained an area of concern, pointing to the need for more efficient financial operations to support uninterrupted healthcare delivery. Regarding sources of funding, there was broad acknowledgment of the program's dependence on public funds. While the importance of diversified funding was recognized as crucial for sustainability, doubts were raised about the stability of the current model, emphasizing the need for innovative and reliable funding mechanisms.

Inferential analysis revealed that funding had a positive and statistically significant influence on the performance of health workers ($p < 0.05$). These findings underscore the necessity for transparent, well-managed, and diversified funding systems to ensure the long-term sustainability and effectiveness of the Makueni Care Insurance Program in achieving Universal Health Coverage.

5.3 Conclusions

5.3.1 Accessibility and the performance of health workers

The study concludes that accessibility significantly influences the utilization of the Makueni Care Insurance Program in achieving Universal Health Coverage in Makueni County. With regard to geographical accessibility, the findings indicate that physical distance and transport-related barriers continue to hinder service uptake, particularly for residents in rural and remote areas. While some respondents did not perceive location as a major constraint, the overall sentiment reflected ongoing challenges in reaching health facilities easily and affordably. In terms of coverage, the program was generally acknowledged to cater to a wide array of basic health needs and to alleviate direct healthcare costs for users. However, limitations in access to specialized services and certain essential treatments were noted, suggesting that while the program reduces financial barriers, it may not fully address the complexity of healthcare demands. On waiting times, the study found that delays in service delivery negatively affect user experience and willingness to engage with the program. Although some facilities demonstrated effective management of patient flow, inconsistencies across healthcare centers contributed to prolonged queues and service inefficiencies in several areas.

Overall, the study concludes that enhancing geographic reach, broadening service coverage, and standardizing efficiency in service delivery are critical to improving the accessibility of the Makueni Care Insurance Program. Addressing these factors is essential for increasing program utilization and advancing the goal of Universal Health Coverage in the county.

5.3.2 Affordability and the Utilization of the Makueni Care Insurance Program in Achieving UHC in Makueni County

The study concludes that affordability influences the utilization of the Makueni Care Insurance Program in achieving Universal Health Coverage in Makueni County. Regarding out-of-pocket payments, respondents indicated that healthcare costs continue to pose a financial burden, particularly for low-income households. These costs were perceived to deter many residents from utilizing the program, despite its intended purpose of financial protection. In terms of subsidy utilization, the findings suggested that while subsidies exist, their reach and adequacy remain limited, leaving certain population groups underserved. This highlights the need for improved targeting and scaling of subsidies to enhance inclusivity.

Concerning registration for schemes, the program has made efforts to enroll residents, yet challenges persist in ensuring sustained membership and equitable access to financial support. Awareness, affordability, and administrative barriers were seen as factors affecting enrollment levels. Overall, the study concludes that addressing out-of-pocket costs, expanding effective subsidy mechanisms, and improving access to insurance registration are vital steps toward enhancing affordability and thereby increasing the

utilization of the Makueni Care Insurance Program in the journey toward Universal Health Coverage.

5.3.3 Equity and the Utilization of the Makueni Care Insurance Program in Achieving UHC in Makueni County

The study concludes that equity influenced the utilization of the Makueni Care Insurance Program in achieving Universal Health Coverage in Makueni County. Regarding access to care, respondents acknowledged that individuals in low-income and rural areas continue to face significant barriers, with affordability and geographic disparities limiting equitable utilization of services. While the program aims to improve access, gaps remain in reaching marginalized groups. In relation to health outcome disparities, the findings indicated that inequalities persist across demographic groups, often linked to unequal resource distribution rather than the program's design alone. The program's contribution to reducing these disparities was noted but viewed as insufficient in fully closing the equity gap. On provider distribution, the uneven allocation of healthcare providers across the county was reported to hinder fair access to care. Although the program has promoted some level of provider participation, there was consensus on the need for further efforts to ensure equitable distribution and service availability across all regions.

Overall, the study concludes that while the Makueni Care Insurance Program has made strides in promoting equity, significant challenges remain in addressing systemic inequalities. Enhancing equitable access, reducing health outcome disparities, and improving provider distribution are essential to achieving greater utilization of the program in the pursuit of Universal Health Coverage.

5.3.4 Funding and the Utilization of the Makueni Care Insurance Program in Achieving UHC in Makueni County

The study concludes that funding influenced the utilization of the Makueni Care Insurance Program in achieving Universal Health Coverage in Makueni County. Regarding budget adequacy, respondents expressed mixed views, with some acknowledging that the allocated budget meets basic healthcare needs, while others raised concerns about transparency and effective communication in budget processes. These gaps may affect stakeholder trust and program engagement. In terms of cash flow management, delayed provider payments and inefficiencies in financial flow were highlighted as barriers to consistent service delivery. Poor cash flow was linked to service disruptions and diminished care quality, ultimately discouraging utilization.

With regard to sources of funding, the program's reliance on public funds was acknowledged, but respondents emphasized the importance of diversifying financial streams to enhance sustainability. Limited confidence in the current funding model pointed to potential risks for long-term viability if financial innovation is not pursued. Overall, the study concludes that stable, transparent, and diversified funding mechanisms are critical to improving service delivery and sustaining the utilization of the Makueni Care Insurance Program as a pathway to achieving Universal Health Coverage.

5.4 Recommendations

According to the study findings and conclusions, the study provided recommendations for the management of county governments and policy recommendations.

5.4.1 Managerial Recommendations

Based on the study findings, which revealed statistically significant relationships between the independent variables and the utilization of the Makueni Care Insurance Program in achieving Universal Health Coverage (UHC), several managerial recommendations are proposed to guide county-level decision-making and program enhancement.

Firstly, regarding **accessibility**, the study found a positive and statistically significant influence on the utilization of the insurance program. This suggests that addressing geographical, infrastructural, and service delivery barriers is essential. The County Government of Makueni should invest in expanding healthcare infrastructure in remote and underserved areas, improving road networks, and deploying mobile clinics to reach isolated populations. Additionally, efforts should be made to streamline patient flow processes and reduce waiting times in health facilities by increasing staffing levels and enhancing operational efficiency. The scope of services covered by the program should also be periodically reviewed to ensure it meets the broad and evolving health needs of the population, including access to specialized care.

Secondly, the study established a significant relationship between affordability and program utilization. Therefore, the County Government is advised to enhance financial accessibility through targeted subsidies, reduced out-of-pocket costs, and the introduction of flexible payment plans. Community-based microinsurance models can be explored to encourage participation from informal sector workers and economically disadvantaged households. Furthermore, transparency in subsidy allocation and heightened awareness of available financial support under the program are necessary to ensure that affordability

barriers do not hinder access to healthcare services. Periodic reviews of household health expenditures can help assess the financial burden and adjust policies accordingly.

In terms of equity, the findings indicated a significant influence on utilization, underscoring the need for inclusive and fair service delivery. To promote equity, Makueni County should develop strategies that prioritize marginalized and vulnerable groups, including those in rural and low-income settings. This may involve using data-driven equity mapping to identify and close gaps in access and health outcomes. To ensure fair distribution of healthcare workers, the county could implement incentive schemes that encourage provider deployment in hard-to-reach areas. Additionally, the program should promote continuous community engagement, integrate culturally appropriate care, and reinforce measures that uphold social inclusion and fairness across all demographic segments.

Finally, the study revealed a significant impact of **funding** on program utilization, pointing to the critical need for financial sustainability. The County Government should work to strengthen cash flow management systems to minimize delays in provider payments and improve service continuity. Transparency in budgeting processes must be enhanced through regular financial reporting and stakeholder communication. Diversifying the sources of funding is also crucial; this may include forming partnerships with development partners, engaging the private sector, and introducing dedicated health levies. Strategic financial planning should be reinforced to ensure the long-term viability of the program, allowing it to expand coverage while maintaining quality and responsiveness.

In summary, addressing the challenges and opportunities presented under each variable—accessibility, affordability, equity, and funding, will be vital for the Makueni Care

Insurance Program to fully achieve its mandate of delivering equitable and universal health coverage to all residents of the county.

5.4.2 Policy Recommendations

Based on the findings of the study, several policy recommendations are proposed to support the effective utilization of the Makueni Care Insurance Program in achieving Universal Health Coverage (UHC) in Makueni County. These recommendations address the four key variables examined in the study: accessibility, affordability, equity, and funding.

Firstly, the study revealed that accessibility significantly influenced the utilization of the program. To address the geographical and infrastructural challenges highlighted, there is a need for policy reforms that prioritize the equitable distribution of healthcare facilities, especially in rural and hard-to-reach areas. Policymakers at both the national and county levels should enact legislation that supports the development of infrastructure such as roads, health centers, and mobile clinics to bridge the accessibility gap. Additionally, policies should support improved staffing and deployment strategies to reduce patient waiting times and ensure health workers are efficiently distributed across all regions.

Secondly, the findings indicated that affordability was a significant factor affecting utilization. To this end, policy frameworks should be strengthened to expand financial access to healthcare, particularly for low-income households. This can be achieved by formulating policies that introduce income-based premium contributions, subsidies for vulnerable populations, and mechanisms to minimize out-of-pocket expenses. Moreover, legislation should support the integration of community-based insurance models and

ensure that financial protection mechanisms are embedded within the broader national and county health financing strategies.

Thirdly, the study confirmed that equity played a critical role in shaping service utilization. Policy measures should therefore be developed to address disparities in healthcare access and outcomes among different demographic and geographic groups. This includes implementing equity audits in healthcare programs, embedding equity indicators in performance monitoring systems, and enacting policies that guide the equitable distribution of healthcare providers and resources. Policies should also encourage participatory governance, ensuring that marginalized communities have a voice in healthcare planning and oversight.

Fourthly, the study found that funding significantly influenced the sustainability and functionality of the program. To strengthen financial sustainability, there is a need for policy interventions that promote transparency, accountability, and diversification of funding sources. Governments should consider enacting policies that support dedicated health financing units at the county level, implement routine financial audits, and ensure timely reimbursement to service providers. Additionally, policies that encourage partnerships with private sector actors and introduce innovative financing approaches, such as health levies and performance-based funding, should be considered to enhance resource mobilization and long-term program viability.

In addition, it is critical to review and align existing legal frameworks to facilitate the seamless onboarding of beneficiaries from county-level programs like Makueni Care into the national Social Health Insurance Fund (SHIF). The Social Health Authority Act (2023)

and related regulations provide mechanisms to incorporate previous community-based insurance beneficiaries into SHIF, ensuring continuity of coverage and minimizing gaps in service utilization (Government of Kenya, 2023; SHA, 2024). County governments and the Ministry of Health should collaborate to establish clear guidelines and legal provisions that support the transfer and recognition of enrollment records, financial contributions, and benefits entitlements from county schemes to SHIF. This alignment will safeguard beneficiaries' rights and enhance policy coherence, thereby maximizing the impact of health insurance programs in achieving UHC.

Overall, these policy recommendations are essential for creating an enabling environment that supports equitable, affordable, accessible, and well-funded healthcare services, ultimately advancing the goal of achieving Universal Health Coverage in Makueni County and beyond.

5.5 Areas of Further Research

While this study provides valuable insights into the influence of accessibility, affordability, equity, and funding on the utilization of the Makueni Care Insurance Program in advancing Universal Health Coverage (UHC) in Makueni County, the model explained only 34.9% of the variation in utilization. This implies that approximately 65.1% of the variation remains unexplained, indicating that other significant factors affecting utilization were not captured in this analysis.

Future research should therefore aim to identify and examine these additional determinants that may impact the uptake and sustained use of county-level health insurance schemes.

Potential areas for investigation include healthcare provider attitudes and behaviors, beneficiary health literacy and education levels, administrative efficiency in claims processing, perceptions of service quality, as well as cultural beliefs and social norms that influence health-seeking behaviors. Furthermore, levels of awareness and satisfaction with the insurance program warrant deeper exploration.

In addition, future studies could assess the role of trust in the health system and insurance providers, the effectiveness of communication strategies, and the influence of political and economic factors on program uptake. Employing mixed methods approaches, integrating quantitative analysis with qualitative techniques such as interviews, focus group discussions, and case studies, would offer richer, more nuanced understanding of user experiences and contextual barriers not fully captured through surveys alone.

By broadening the scope to include these factors, future research can develop more comprehensive explanatory models, improving our understanding of utilization patterns. This, in turn, will inform the design of more targeted and effective policy interventions to enhance the equity, efficiency, and overall impact of health insurance schemes, thereby supporting Kenya's ongoing journey toward Universal Health Coverage.

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APPENDICES

Appendix 1: Informed Consent Form

Kenya Methodist University

P. O Box 267-00200,

Meru, Kenya

Subject: Informed Consent

Dear Respondent,

My name is Mary Kisilu. I am a Masters' student from Kenya Methodist University. I am conducting a study titled "Factors Influencing the Utilization of the Makueni Care Insurance Program toward Universal Health Coverage in Makueni County, Kenya". The information obtained will be used to review current policies for improving utilization of healthcare insurance in public health facilities and contribute towards strengthening health service delivery to those who need it and when they need them.

Procedure to be followed

Participation in this study will require that I ask you some questions and also access the hospital and the staff. I will present to you the attached self-administered questionnaire for your honest action and response and record information on your responses to the Key Informant Interview Guide.

You have the right to refuse participation in this study. You will not be penalized nor victimized for not joining the study and your decision will not be used against you nor affect you at your place of work.

Please remember that participation in the study is voluntary. You may ask questions related to the study at any time. You may refuse to respond to any questions and you may stop an

interview at any time. You may also stop being in the study at any time without any consequences to the services you are rendering.

Discomforts and risks

Some of the questions you will be asked are on the intimate subject and maybe embarrassing or make you uncomfortable. If this happens; you may refuse to answer if you choose. You may also stop the interview at any time. The interview may take about 40 minutes to complete.

Benefits

Your participation in this study will contribute to understanding the factors influencing the utilization of the Makueni Care Insurance Program, advancing Universal Health Coverage in Makueni County. By helping identify key barriers and enablers, you will support efforts to improve healthcare accessibility, affordability, and equity for residents, ensuring a more sustainable and effective healthcare system.

Rewards

If you agree to participate in this study it will be voluntary and that no monetary rewards will be provided but will thank you for your participation.

Confidentiality

The interviews will be conducted in a private setting within the hospital. Your name will not be recorded on the questionnaire and the questionnaires will be kept in a safe place at the University.

Contact Information

If you have any questions or concerns about the study, please contact Mary Syontheke Kisilu at +254727373729 or mkisilu2818@stu.kemu.ac.ke. You may also reach out to the academic supervisors: Ms. Felistus Musyoka at felistusmusyoka506@gmail.com or +254

723 961187 and Mr. Musa Oluoch at Musa.oluoch@kemu.ac.ke or +254 722 483909 or Kenya Methodist University research review committee of Box 267-00200, Meru, Kenya.

Participant's Statement

The above statement regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time. I understand that I will not be victimized at my place of work whether I decide to leave the study or not and my decision will not affect the way I am treated at my workplace.

Signature of Participant..... Date.....

Investigator's Statement

I, the undersigned, have explained to the volunteer in a language she/he understands, the procedures to be followed in the study and the risks and the benefits involved.

Name of Interviewer..... Date.....

Interviewer Signature.....

Appendix 2: Questionnaire

I am a postgraduate student at Kenya Methodist University. I would be grateful if you would answer questions herein. The information will be treated confidentially and will only be used for the purpose of the research. Please respond to questions by ticking (✓) against the appropriate information and writing appropriate answers in blank spaces. Don't write your name or that of the facility anywhere on the questionnaire interview.

SECTION A: DEMOGRAPHIC INFORMATION.

1. Age:

18-24	[]	25-34	[]
35-44	[]	45-54	[]
55 and above	[]		

2. Gender:

Male	[]
Female	[]

3. Educational Level:

Certificate	[]	Diploma	[]
Higher diploma	[]	Bachelor's Degree	[]
Master's	[]	Doctorate	[]

Other (Please specify): _____

4. Primary managerial role within the healthcare facility:

Insurance Program Management	[]
Financial and Revenue Management	[]
Clinical Operations Management	[]
Health Program Coordination	[]

Hospital Administration and Operations []

Other (Please specify): _____

5. Years of Experience in the healthcare sector:

Less than 5 years [] 5-10 years []

11-20 years [] 7-10 years []

Over 20 years []

SECTION B:

Part A: Affordability (AFD)

6. To what extent do you agree with the following statements on Affordability (AFD)?

Please tick the appropriate box, where 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree.

	Statement	1	2	3	4	5
	Out of pocket payments					
AFD1	Out-of-pocket payments for healthcare services remain a significant financial burden for many patients in Makueni County.					
AFD2	The cost of out-of-pocket payments discourages many patients from utilizing the Makueni Care Insurance Program.					
AFD3	Hospital management faces challenges in making medical services more affordable for patients, despite insurance coverage.					
	Subsidy utilization rate					
AFD4	The availability of subsidies significantly improves the affordability of healthcare services under the Makueni Care Insurance Program.					

AFD5	Subsidy utilization is low due to insufficient awareness and understanding of the available subsidies.					
AFD6	The existing subsidies are sufficient to make healthcare services affordable for the majority of low-income patients in Makueni County.					
	People registered for schemes					
AFD7	The affordability of insurance premiums under the Makueni Care Insurance Program influences the number of people who register for the program.					
AFD8	High premiums and additional costs prevent many people from registering for the Makueni Care Insurance Program, even if they are eligible.					
AFD9	Increased awareness of affordable premium options has led to higher enrollment in the Makueni Care Insurance Program.					

In what ways does the cost of enrolling in and using the Makueni Care Insurance Program affect your decision to utilize health services?

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Can you share your experiences regarding financial challenges or support when accessing healthcare through the Makueni Care Insurance Program?

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Part B: Accessibility (ACS)

7. To what extent do you agree with the following statements on Accessibility (ACS)?

Please tick the appropriate box, where 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree.

	Statement	1	2	3	4	5
	Geographical accessibility					
ACS1	The geographic distribution of healthcare facilities in Makueni County makes it difficult for people in rural areas to access services covered by the Makueni Care Insurance Program.					
ACS2	The location of health facilities does not present a significant barrier to the utilization of the Makueni Care Insurance Program in most areas of the county.					
ACS3	The availability of transportation to healthcare facilities is a major challenge for some individuals seeking services under the Makueni Care Insurance Program.					
	Coverage rates					
ACS4	The Makueni Care Insurance Program provides comprehensive coverage, addressing a wide range of health needs for insured individuals.					
ACS5	The health insurance coverage under the Makueni Care Insurance Program is sufficient to cover the majority of healthcare costs for patients.					
ACS6	The Makueni Care Insurance Program covers all necessary medical treatments, including specialized care, for patients across the county.					
	Waiting times					
ACS7	Long waiting times at healthcare facilities discourage some patients from utilizing services covered by the Makueni Care Insurance Program.					
ACS8	Healthcare facilities that accept the Makueni Care Insurance Program generally manage patient flow effectively to minimize waiting times.					

ACS9	Reducing waiting times for medical consultations and treatment would increase the utilization of the Makueni Care Insurance Program among insured individuals.					
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How do you describe the ease or difficulty of reaching health facilities covered under the Makueni Care Insurance Program in your area?

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What barriers related to location or transportation affect your ability to utilize services under the Makueni Care Insurance Program?

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Part C: Equity (EQT)

8. To what extent do you agree with the following statements on Equity (EQT)? Please tick the appropriate box, where 1 = Strongly Agree, 2 = Agree, 3 = [Neutral, 4 = Disagree, and 5 = Strongly Disagree.}

	Statement	1	2	3	4	5
	Access to care					
EQT1	People in low-income or rural areas of Makueni County face greater challenges in accessing healthcare services covered by the Makueni Care Insurance Program.					
EQT2	The Makueni Care Insurance Program provides equitable access to healthcare for all residents, regardless of income or geographic location.					

EQT3	The affordability of insurance premiums and out-of-pocket costs disproportionately affects low-income populations, limiting their access to necessary healthcare services.					
	health outcome disparities					
EQT4	There are significant disparities in health outcomes between different demographic groups (e.g., rural vs urban, rich vs poor) in Makueni County.					
EQT5	The Makueni Care Insurance Program has helped reduce health outcome disparities among various groups in Makueni County.					
EQT6	Health disparities in Makueni County are primarily due to unequal distribution of healthcare resources and services, rather than the insurance program itself.					
	Provider distribution					
EQT7	The distribution of healthcare providers (doctors, specialists, hospitals) is uneven across Makueni County, leading to unequal access to services.					
EQT8	The Makueni Care Insurance Program has helped address the unequal distribution of healthcare providers by encouraging more providers to participate in the insurance scheme.					
EQT9	More efforts are needed to ensure that healthcare providers are equitably distributed across all regions of Makueni County to ensure universal access to care.					

How do you perceive the fairness of healthcare service delivery to different groups (e.g., based on income, gender, location) under the Makueni Care Insurance Program?

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Have you observed any disparities in access or quality of services among beneficiaries of the Makueni Care Insurance Program? Please explain.

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Part D: Funding (FDG)

9. To what extent do you agree with the following statements on Funding (FDG)? Please tick the appropriate box, where 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree.

	Statement	1	2	3	4	5
	Budget					
FDG1	The budget allocated for the Makueni Care Insurance Program is sufficient to meet the healthcare needs of the population.					
FDG2	Budget planning and allocation for the Makueni Care Insurance Program are transparent and clearly communicated to stakeholders (e.g., hospitals, beneficiaries).					
FDG3	There is adequate monitoring of the budget execution to ensure that funds are properly utilized in providing services to the insured population.					
	Cash-flow management					
FDG4	Cash flow management is a challenge for healthcare providers participating in the Makueni Care Insurance Program, leading to delays in service provision.					
FDG5	The Makueni Care Insurance Program ensures timely payments to healthcare providers, minimizing disruptions to services.					
FDG6	Poor cash flow management negatively impacts the quality of healthcare services provided under the Makueni Care Insurance Program.					
	Sources of funding					

FDG7	The main source of funding for the Makueni Care Insurance Program comes from public funds, with minimal support from private sources.					
FDG8	Increasing the diversity of funding sources for the Makueni Care Insurance Program (e.g., private sector contributions, international aid) would improve its financial sustainability and reduce reliance on public funds.					
FDG9	The funding model of the Makueni Care Insurance Program is stable and sustainable, ensuring long-term availability of resources for healthcare provision.					

How do funding levels or availability impact the quality and consistency of healthcare services you receive under the Makueni Care Insurance Program?

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What improvements would you suggest regarding the financing of the Makueni Care Insurance Program to enhance service utilization?

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SECTION C: Utilization of the Makueni Care Insurance Program (UMCIP)

10. To what extent do you agree with the following statements on Utilization of the Makueni Care Insurance Program (UMCIP) Please tick the appropriate box, where 1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Disagree, and 5 = Strongly Disagree.

	Statement	1	2	3	4	5
	Enrollment Rate					
UMCIP 1	I believe that the majority of the eligible population in Makueni County is enrolled in the Makueni Care Insurance Program (MCIP)					

UMCIP 2	The process for enrolling in the Makueni Care Insurance Program is simple and accessible for everyone in the county					
UMCIP 3	There has been a significant increase in the number of people enrolled in the Makueni Care Insurance Program over the past year					
	Service Utilization					
UMCIP 4	I regularly utilize the healthcare services provided under the Makueni Care Insurance Program.					
UMCIP 5	MCIP beneficiaries frequently use the available healthcare services, such as outpatient and inpatient care.					
UMCIP 6	The number of MCIP enrollees accessing medical services has increased significantly over the last year					
	Coverage					
HSD7	The Makueni Care Insurance Program is accessible to people in both urban and rural areas of Makueni County					
HSD8	The Makueni Care Insurance Program covers a wide range of health services across participating health facilities					
HSD9	The program has sufficient geographical coverage to meet the healthcare needs of most residents in Makueni County					

Thank you for taking the time to complete this questionnaire!

Your feedback is valuable for our research

Appendix 3: Program Users Questionnaire

Dear Participant,

Thank you for taking part in this survey. We are gathering insights on how accessibility, equity, and affordability influence the use of the Makueni Care Insurance Program in achieving Universal Health Coverage (UHC) in Makueni County.

Instructions:

- Your responses are confidential and for research purposes only.
- Answer all questions honestly.
- Some questions may allow multiple answers.
- The survey will take approximately 10-15 minutes.

We appreciate your time and participation!

Section A: Demographic Information

1. Age: _____
2. Gender:
Male ☐ Female ☐
3. Occupation: _____
4. Household Size: _____
5. Highest level of education:
None ☐ Primary ☐
Secondary ☐ Tertiary ☐

Section B: Accessibility

6. How far is the nearest health facility where you can access Makueni Care Insurance services?
Less than 5 km ☐ 5-10 km ☐
Over 10 km ☐

7. Do you experience any transportation challenges in accessing healthcare services?
 Yes ☐ No ☐
8. How often do you visit a health facility for services under Makueni Care?
 Once a month ☐ Once every 3 months ☐
 Rarely ☐
9. Is the health facility open at convenient hours for you to access care?
 Yes ☐ No ☐
10. Have you faced any physical or logistical barriers in accessing healthcare services?
 Yes ☐ No ☐
11. If yes, please specify: _____

How do you describe the ease or difficulty of reaching health facilities covered under the Makueni Care Insurance Program in your area?

.....

.....

.....

What barriers related to location or transportation affect your ability to utilize services under the Makueni Care Insurance Program?

.....

.....

.....

Section C: Equity

12. Do you feel that Makueni Care Insurance services are equally available to all community members regardless of income or social status?
 Yes ☐ No ☐
13. Have you observed any differences in the quality of services provided to different groups within your community?
 Yes ☐ No ☐

14. If yes, please describe: _____

15. Are there any specific groups in your community who have better access to Makueni Care services than others?

Yes [] No []

16. If yes, please describe: _____

17. How do you perceive the fairness of healthcare service delivery to different groups (e.g., based on income, gender, location) under the Makueni Care Insurance Program?

.....
.....
.....
.....

18. Have you observed any disparities in access or quality of services among beneficiaries of the Makueni Care Insurance Program? Please explain.

.....
.....
.....

Section D: Affordability

19. Do you find the premiums of the Makueni Care Insurance program affordable?

Yes [] No []

20. Have you ever been unable to pay the premiums due to financial constraints?

Yes [] No []

21. Do you believe the Makueni Care Insurance program offers value for money in terms of healthcare services?

Yes [] No []

22. Would you recommend the program to others based on its cost?

Yes [] No []

In what ways does the cost of enrolling in and using the Makueni Care Insurance Program affect your decision to utilize health services?

.....

.....

.....

Can you share your experiences regarding financial challenges or support when accessing healthcare through the Makueni Care Insurance Program?

.....

.....

.....

Section E: Funding

How do funding levels or availability impact the quality and consistency of healthcare services you receive under the Makueni Care Insurance Program?

.....

.....

.....

What improvements would you suggest regarding the financing of the Makueni Care Insurance Program to enhance service utilization?

.....

.....

.....

Thank you for your participation!

Appendix 4: Ethical Approval

REPUBLIC OF KENYA

GOVERNMENT OF MAKUENI COUNTY



OFFICE OF THE DIRECTOR HEALTH SERVICES

P.O BOX 89-90300 MAKUENI

Email: county.health@makueni.go.ke contact@makueni.go.ke

Website: www.makueni.go.ke

REF: GMC/DOH/CDH/RES.2 (39)

Date: 25th April, 2025

Mary Syontheke Kisilu – Master's Student

Kenya Methodist University

Email: marydekisilu@gmail.com

Telephone number: +254727 373 729

RE: AUTHORISATION TO CONDUCT A STUDY IN MAKUENI COUNTY

Reference is made to your request seeking authorization to collect data in Makueni County for the study titled *"Factors Influencing the Utilization of the Makueni Care Insurance Program Towards Universal Health Coverage in Makueni, Kenya."* We acknowledge receipt of the introduction letter referenced KEMU/ISERC/HSM/08/2025 and NACOSTI license No: NACOSTI/P25/417968.

The department of health services hereby grants you permission to conduct the study in the county and remains committed to providing the necessary support. Kindly adhere to all stipulated ethical requirements and ensure you disseminate preliminary findings to help inform services programming and decision-making in our county.

Thank you.

Dr. Stephen Mwatha

Ag. Director Preventive and Promotive Services

COUNTY DIRECTOR OF HEALTH
MAKUENI COUNTY

25 APR 2025

P.O. Box 89 - 90300, MAKUENI
Email: county.health@makueni.go.ke

Copy:

1. CECM – Health Services
2. CO – Health HR Management and Administration
3. Ag. CO - Health Services
4. CEO – Makueni County Referral Hospital
5. Directors – Health Services
6. Med. Supts. – Makindu, Kibwezi and Emali Sub-County Hospitals
7. County Research and Knowledge Management Coordinator



KENYA METHODIST UNIVERSITY

P. O. BOX 267 MERU - 60200, KENYA
TEL: 254-064-30301/31229/30367/31171

FAX: 254-64-30162
EMAIL: info@kemu.ac.ke

Our Ref: KEMU/ISERC/HSM/08/2025

March 21, 2025

MARY SYONTHEKE KISILU
HSM-3-2818-3/2022

Dear Mary,

SUBJECT: FACTORS INFLUENCING THE UTILIZATION OF THE MAKUENI CARE INSURANCE PROGRAM TOWARDS UNIVERSAL HEALTH COVERAGE IN MAKUENI COUNTY, KENYA

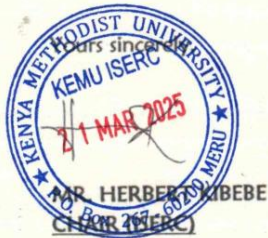
This is to inform you that Kenya Methodist University Institutional Scientific Ethics and Review Committee has reviewed and approved your research proposal. Your application approval number is KeMU/ISERC/HSM/08/2025. The approval period is 21st March, 2025 – 21st March, 2026.

This approval is subject to compliance with the following requirements:-

- I. Only approved documents including (informed consents, study instruments, MTA) will be used.
- II. All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Institutional Scientific Ethics and Review Committee.
- III. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU ISERC within 72 hours of notification.
- IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU ISERC within 72 hours.
- V. Clearance for export of biological specimens must be obtained from relevant institutions.

- VI. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- VII. Submission of an executive summary report within 90 days upon completion of the study to KeMU ISERC.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://oris.nacosti.go.ke> and also obtain other clearances needed.



Appendix 5: Research Permit

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 220856	Date of Issue: 14/April/2025
RESEARCH LICENSE	
	
This is to Certify that Ms. Mary Syontheke Kisilu of Kenya Methodist University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in on the topic: FACTORS INFLUENCING THE UTILIZATION OF THE MAKUENI CARE INSURANCE PROGRAM TOWARD UNIVERSAL HEALTH COVERAGE IN MAKUENI COUNTY, KENYA for the period ending : 14/April/2026.	
License No: NACOSTI/P/25/417968	
Applicant Identification Number 220856	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code
	
NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.	
See overleaf for conditions	

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to.
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
 - i. Endanger national security
 - ii. Adversely affect the lives of Kenyans
 - iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
 - iv. Result in exploitation of intellectual property rights of communities in Kenya
 - v. Adversely affect the environment
 - vi. Adversely affect the rights of communities
 - vii. Endanger public safety and national cohesion
 - viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. Neither the license nor any rights thereunder are transferable.
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and
Innovation(NACOSTI),
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