

ACCESSIBILITY AND UTILIZATION OF THE MAKUENI CARE INSURANCE PROGRAM IN ACHIEVING UHC IN MAKUENI COUNTY

*Mary Syontheke Kisilu¹, Ms. Felistus Musyoka² & Mr. Musa Oluoch Ong'ombe³

¹ Postgraduate Student (MSc in Health Systems Management), School of Medicine and Health Sciences, Kenya Methodist University

² Lecturer, Department of Health Systems Management, School of Medicine and Health Sciences, Kenya Methodist University

³ Lecturer, Department of Health Systems Management, School of Medicine and Health Sciences, Kenya Methodist University

Correspondent Email: marydekisilu@gmail.com

Published: 29 July 2025

ABSTRACT

The purpose of this study was to investigate the effect of accessibility on the utilization of the Makueni Care Insurance Program (MCIP) in achieving Universal Health Coverage (UHC) in Makueni County, Kenya. A descriptive research design was employed. The study targeted 128 hospital administrators and departmental heads, 333 healthcare providers across 16 public hospitals, and 132,500 program users. Using the Yamane formula, a sample of 45 administrators and departmental heads, and 99 healthcare providers was selected. In addition, purposive sampling was used to select 40 beneficiaries from each of four public health facilities: Makueni County Referral Hospital, Kalawa Sub-County Hospital, Makindu Sub-County Hospital, and Kibwezi Sub-County Hospital. Data were collected using structured questionnaires designed for program beneficiaries, administrators, and healthcare providers. The data were analyzed using SPSS (Version 26), and a linear regression analysis was conducted to evaluate the relationship between accessibility and the utilization of the Makueni Care Insurance Program (MCIP). The results showed that accessibility influenced the utilization of the Makueni Care Insurance Program (MCIP) ($\beta = 0.167$; $p\text{-value} = 0.001$). To enhance MCIP utilization and advance UHC in Makueni County, improve geographical accessibility, increase community enrollment through sensitization, and reduce waiting times by streamlining services and staffing. These steps will strengthen accessibility and drive higher program participation.

Keywords: *Accessibility, Utilization of the Makueni insurance program, geographical accessibility, coverage rates, and waiting times*

1.0 Introduction

The World Health Organization (WHO) identifies six core building blocks essential for a well-functioning health system: service delivery, health workforce, health information systems, access to essential medicines, health financing, and leadership/governance (WHO, 2010). These components are critical for strengthening health systems, improving health outcomes, and achieving Universal Health Coverage (UHC). Among these, health financing plays a pivotal role in ensuring that individuals can access needed health services without suffering financial hardship. Effective financing ensures adequate resource mobilization, equitable pooling, and efficient service delivery (Kutzin, 2013). This study focuses on the health financing pillar by assessing how accessibility, as a key factor, influences the utilization of the Makueni Care Insurance Program (MCIP). Specifically, it examines

the influence of geographical accessibility, coverage rates, and waiting times on program utilization, an important indicator of the success of MCIP in contributing to UHC in Makueni County.

Globally, health insurance programs are a key strategy for achieving Universal Health Coverage (UHC), as they help reduce out-of-pocket expenditures and improve access to essential healthcare services (World Health Organization [WHO], 2021). Countries such as Thailand, Ghana, and Rwanda have successfully implemented national health insurance schemes that expanded coverage and utilization, particularly among rural and underserved populations (Evans et al., 2020). These initiatives show that inclusive insurance models can enhance equity, financial protection, and health outcomes. However, global trends reveal emerging challenges, including low enrollment, geographical disparities, and fiscal sustainability (World Bank, 2023). Additionally, inefficiencies such as long waiting times and insufficient infrastructure persist. Innovations like mobile-based enrollment, digital claims systems, and outreach services are gaining traction to address these issues (Nguyen & Yoshida, 2022). Strengthening accessibility remains vital to improving the effectiveness of health insurance programs.

Globally, health insurance programs have become essential in advancing Universal Health Coverage (UHC) by reducing financial barriers and expanding access to quality healthcare. In countries such as Japan, Germany, and Thailand, robust national insurance schemes have ensured widespread coverage and significantly decreased out-of-pocket expenses (Ikegami, 2019; Tangcharoensathien et al., 2018). These models emphasize mandatory enrollment, pooled risk-sharing, and government subsidies. While they offer lessons in efficiency and equity, many high- and middle-income nations now face emerging challenges, such as aging populations and financial sustainability, prompting innovations like digital health platforms and value-based purchasing (Reeves et al., 2022). In Africa, countries such as Rwanda and Ghana have made notable progress, with Rwanda's Community-Based Health Insurance covering over 90% of the population (Chemouni, 2018), while Ghana's NHIS faces sustainability and reimbursement delays (Alhassan et al., 2016). Despite increased uptake, most African nations grapple with low enrollment among informal workers, inadequate infrastructure, and weak administrative systems (World Bank, 2023).

Within East Africa, countries like Tanzania and Ethiopia have piloted or scaled community-based health insurance with varying levels of success. Ethiopia's model has improved rural access (Mebratie et al., 2015), while Uganda has yet to operationalize its proposed scheme due to political and institutional constraints (Tashobya et al., 2017). Kenya's National Health Insurance Fund (NHIF) has made considerable progress, yet coverage gaps, especially in informal sectors and rural areas, persist (Barasa et al., 2018). In response, Makueni County implemented the Makueni Care Insurance Program (MCIP), a localized initiative targeting UHC through subsidized access to public health facilities. The MCIP has shown promise in increasing service utilization among vulnerable populations (Makueni County Government, 2022). However, barriers such as poor geographical accessibility, long waiting times, and incomplete coverage continue to limit full program impact (Okech & Lelegwe, 2016). Lessons from Makueni's experience can inform broader reforms aimed at strengthening county-based insurance models across Kenya and similar settings.

Statement of the Problem

Despite the implementation of the Makueni Care Insurance Program (MCIP) as a flagship initiative to achieve Universal Health Coverage (UHC), healthcare utilization in Makueni County remained suboptimal (Makueni County Government, 2022; Ministry of Health Kenya, 2021). The program was launched to mitigate financial hardships and expand access to healthcare services for all residents (Mutunga et al., 2020; Barasa et al., 2018). However, a 2022 county report indicated that only 65% of registered beneficiaries consistently utilized healthcare services under MCIP, which was significantly below the national UHC target of 80% service utilization (Kenya Ministry of Health, 2021). These issues hindered timely access to care, increased the risk of poor health outcomes, and undermined the

primary goal of the program to offer equitable, affordable, and quality healthcare to all Makueni residents.

Previous studies in Kenya had largely focused on national-level insurance schemes such as the National Health Insurance Fund (NHIF), leaving a gap in understanding county-specific models like MCIP. For example, Barasa et al. (2018) assessed NHIF's role in UHC nationally, while Okech and Lelegwe (2016) highlighted systemic inefficiencies without examining localized schemes. At the local level, studies by the Makueni County Health Department (2021) had provided descriptive statistics on program enrollment but lacked empirical analysis on how accessibility factors such as geographical distance, coverage, and waiting times influenced utilization. This created a knowledge gap in understanding the program's operational effectiveness and user experience. Therefore, the current study sought to fill that gap by investigating the extent to which accessibility affected the utilization of MCIP, providing evidence that could inform both local and national health policy frameworks aiming to strengthen UHC implementation.

Objectives

1. This study sought to examine the influence of accessibility to health services on utilization of the Makueni care insurance program in achieving UHC in Makueni County.

Research question

1. What is the influence of accessibility on utilization of the Makueni care insurance program in achieving UHC in Makueni County?

2.0 Literature Review

Existing studies emphasized the significant role of accessibility in enhancing the utilization of health insurance programs, particularly in advancing the goals of Universal Health Coverage (UHC). In the context of the Makueni Care Insurance Program (MCIP), accessibility was conceptualized through three dimensions: geographical accessibility, coverage rates, and waiting times. Although these elements had been studied independently across various health systems globally, limited research examined their combined influence on insurance utilization within the specific setting of Makueni County, Kenya.

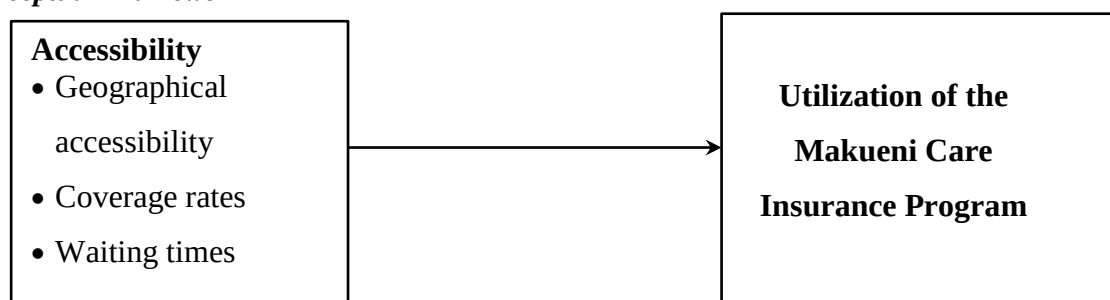
Geographical accessibility had been widely researched in both global and regional contexts. For instance, Mutiso (2022) explored Kenya's health insurance accessibility and revealed that rural populations encountered long travel distances to healthcare facilities, resulting in low enrollment. In Argentina, Gonzalez (2023) found that residents in rural provinces often traveled over 100 kilometers to access care, negatively affecting utilization. Lopez (2023), examining the Philippines' PhilHealth program, showed that remote regions faced travel burdens that reduced insurance registration. However, these studies did not assess how such barriers influenced post-enrollment service utilization. Johansson (2022), studying Sweden's UHC system, found lower coverage among marginalized groups but did not explore how this related to geographical challenges—highlighting a theoretical gap. Similarly, Ramirez (2023) in Mexico and Aydin (2022) in Turkey identified infrastructural and informational barriers to coverage in rural settings but lacked analysis of their effects on utilization.

Regarding waiting times, Rodriguez (2023) found that rural patients in Colombia experienced long delays in accessing specialized services, while Owusu (2022) in Ghana observed shorter waits for

general care but continued delays for specialized treatment. Tan (2023) in Singapore reported similar issues despite a well-resourced system. Nevertheless, these studies generally examined waiting time in isolation and did not assess its interplay with geographical access or insurance coverage.

In summary, although previous research such as that by Mutiso (2022), Gonzalez (2023), and Lopez (2023) addressed physical access, and others including Ramirez (2023), Johansson (2022), and Aydin (2022) explored insurance coverage, none of them evaluated how these factors alongside waiting times interacted to influence actual utilization. This revealed a significant empirical and theoretical gap. The current study filled this gap by investigating how geographical accessibility, coverage rates, and waiting times collectively influenced the utilization of the Makueni Care Insurance Program, thereby contributing to improved understanding and advancement toward UHC in Makueni County.

Conceptual Framework



Independent variable

3.0 Methodology

The research employed a descriptive research design to examine the influence of accessibility on the utilization of the Makueni Care Insurance Program (MCIP) towards achieving Universal Health Coverage (UHC) in Makueni County. The study targeted a population comprising 128 hospital administrators and departmental heads, 333 healthcare providers across 16 public hospitals, and 132,500 program users. Using Yamane's formula for finite populations, a sample of 45 administrators and departmental heads and 99 healthcare providers was selected. Additionally, purposive sampling was employed to select 40 program beneficiaries from each of four public health facilities: Makueni County Referral Hospital, Kalawa Sub-County Hospital, Makindu Sub-County Hospital, and Kibwezi Sub-County Hospital. This sampling approach ensured a representative cross-section of key MCIP stakeholders. Data were collected using structured questionnaires tailored to each respondent group and designed to capture the influence of geographical accessibility, coverage rates, and waiting times on MCIP utilization. A five-point Likert scale was used to ensure response consistency. The data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 26, with descriptive statistics (means, standard deviations, and frequencies) summarizing key variables, and regression analysis assessing the influence of accessibility on program utilization.

The regression model used in this study was specified as follows:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where: Y = Utilization of Makueni Care Insurance program; β_0 = The intercept; β_1 = Coefficients for the variable Accessibility; X_1 = Accessibility and ε = The error term.

4.0 Findings

This section presented the results of the Descriptive Analysis, Regression Analysis, and Model Summary.

Descriptive Analysis Results

The study aimed to evaluate the influence of accessibility on the utilization of the Makueni Care Insurance Program (MCIP). The descriptive results for accessibility are presented in Table 1.

Table 1: Respondents' Views on Accessibility of the Makueni Care Insurance Program

Accessibility Dimension	Disagree n(%)	Neutral n(%)	Agree n(%)	Mean	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 1 presented 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 examining Geographical Accessibility, the findings indicated that 65.9% of respondents agreed that the spatial distribution of healthcare facilities in Makueni County posed challenges for rural populations in accessing program-covered services (Mean = 3.7, SD = 0.88). Similarly, 60.0% of respondents identified 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 constituted 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 emphasized that while facility distribution may have been adequate in some parts of the county, residents in more remote or underserved areas still faced physical access challenges. This

aligned with prior research by Mutiso and Mwangi (2019), who found that rural populations in Kenya often experienced structural barriers due to poor infrastructure and sparse facility placement. Addressing transport-related constraints and redistributing healthcare investments could have improved spatial equity in service delivery.

Regarding Coverage Rates, most respondents expressed confidence in the program's comprehensiveness, with 67.9% agreeing that it addressed a wide range of health needs (Mean = 3.8, SD = 0.79). Additionally, 61.1% agreed that the coverage sufficiently offset 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 suggested that while general coverage was viewed positively, there may have been limitations in access to advanced or specialist services. This echoed findings from Maina and Kirigia (2022), who argued that insurance programs in devolved units often lacked the financial depth or infrastructure to support specialized care. Strengthening referral systems and integrating specialized providers could have enhanced the program's perceived and actual comprehensiveness.

Concerning Waiting Times, a strong majority of respondents (72.9%) agreed that long waiting times discouraged utilization of services under the program (Mean = 3.9, SD = 0.75). Similarly, 74.6% believed that reducing waiting times would have increased utilization (Mean = 3.9, SD = 0.80). However, only 60.3% agreed that facilities managed patient flow effectively to minimize delays (Mean = 3.5, SD = 0.89), indicating ongoing concerns about operational efficiency. These results underscored the operational inefficiencies that could have undermined an otherwise well-designed health insurance program. According to WHO (2020), excessive wait times disproportionately affected vulnerable populations such as the elderly and those in informal employment, who might not have afforded extended absences from work. Investing in staff capacity, digital queue systems, and improved triaging would have been practical steps toward improving the patient experience and program effectiveness.

Overall, the findings revealed strong agreement that while the Makueni Care Insurance Program offered relatively good coverage and attempted to make services accessible, significant barriers persisted in terms of geographical access, transportation, and waiting times. The moderate agreement levels on specialized care and facility location suggested variability in service experience across different regions. These findings were consistent with existing literature (Mutiso & Mwangi, 2019; Maina & Kirigia, 2022; WHO, 2020), which highlighted 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 were advised to prioritize investments in rural infrastructure, transport subsidies, facility expansion, and administrative efficiencies. Doing so would have enhanced not only access but also the overall trust and satisfaction among beneficiaries—key components for achieving Universal Health Coverage (UHC).

Accessibility of Nearest Health Facility

Table 2: 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 2 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 Njoroge et al. (2021), 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.

Transportation Challenges in Accessing Healthcare

Table 2: Transportation Challenges in Accessing Healthcare

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

Table2 summarized respondents' experiences with transportation challenges when accessing healthcare services. Transportation was a key factor that affected healthcare access, particularly in areas where distances to facilities were significant or infrastructure was poor. Out of the 120 respondents, 57 individuals (47.5%) reported experiencing transportation challenges, indicating that nearly half of the population faced obstacles in reaching healthcare services. Conversely, 63 respondents (52.5%) indicated no transportation difficulties, suggesting that just over half of the respondents had relatively smooth access to transport when seeking care.

These findings highlighted the critical role that transportation infrastructure and services played in healthcare accessibility. They also aligned 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 was essential to improving health outcomes and ensuring equitable access to healthcare services for all population segments.

Frequency of Visits to Health Facility

Table 3: 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 3 displayed how often respondents visited health facilities for services under Makueni Care Insurance. Understanding these patterns helped assess healthcare usage and guided resource allocation. The largest group, 53 respondents (43.9%), visited the health facility once every three months. This likely reflected routine care schedules or ongoing management of health conditions. Next, 41 respondents (34.1%) reported visiting once a month, indicating a segment that required more frequent healthcare access. Lastly, 26 respondents (22.0%) reported visiting rarely, suggesting some barriers or a less immediate need for healthcare services. These patterns were consistent with findings by Kamau et al. (2021), which showed that healthcare utilization varied by individual health needs and accessibility. Promoting consistent healthcare engagement remained vital to improving outcomes under Makueni Care Insurance.

Convenience of Health Facility Operating Hours

Table 4: Convenience of Health Facility Operating Hours

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

Table 4 showed respondents' perceptions of whether health facilities operated during convenient hours for accessing care. Facility hours significantly influenced 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 were 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 posed a barrier for over one-third of the population.

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

Physical or Logistical Barriers to Healthcare Access

Table 5: Physical or Logistical Barriers to Healthcare Access

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

Table 5 presented respondents' experiences with physical or logistical barriers when accessing healthcare services. Such barriers included distance, transport availability, infrastructure, and other practical challenges that hindered timely care. Among the 120 respondents, 47 individuals (39.2 percent) reported facing physical or logistical barriers, highlighting that a significant portion of the

population encountered difficulties in reaching healthcare services. Conversely, 73 respondents (60.8 percent) indicated no such barriers, suggesting that most respondents had relatively unobstructed access. These findings were consistent with research by Mwangi and Wanjiku (2022), which emphasized that physical and logistical challenges remained major obstacles to healthcare in many regions. Identifying and addressing these barriers was 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 hindered 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 highlighted systemic issues within the healthcare infrastructure that disproportionately affected accessibility. Addressing these barriers by improving transportation networks, extending health facility hours, and increasing the availability of local healthcare services could have substantially enhanced access to care and ultimately improved health outcomes across the community.

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

From the service providers' view, geographical accessibility remained a concern, particularly for rural residents. They highlighted that while the distribution of facilities may have served urban or central areas well, populations in remote parts of the county still faced challenges in reaching care due to distance and poor transport infrastructure. This pointed to structural inequities in physical access across different regions. Program users echoed this, with a notable portion acknowledging that they encountered physical or logistical barriers when seeking care. This confirmed that geographic and infrastructural factors remained a challenge for some.

Service coverage was positively rated by providers, who agreed that the program generally met 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 were well integrated, more advanced care remained a limitation. This aligned 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, which left 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 have enhanced overall access. On the other hand, a majority of users found the operating hours of health facilities convenient, although a substantial minority indicated otherwise. This pointed to scheduling constraints that could have hindered access for working individuals or caregivers.

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

Regression Analysis Results

To evaluate the relationship between accessibility and the utilization of the Makueni Care Insurance Program (MCIP), a simple linear regression analysis was conducted. This analysis was guided by the objective of assessing how accessibility influences the utilization of MCIP towards Universal Health Coverage (UHC) in Makueni County.

Model Summary

The results show that the coefficient of determination (R^2) was 0.312, meaning that 31.2% of the variation in the utilization of MCIP could be explained by accessibility to health services. The adjusted R^2 of 0.306 confirms this explanatory power after adjusting for the sample size and degrees of freedom. This suggests that accessibility plays a notable role in influencing the utilization of healthcare services under MCIP, although 68.8% of the variation may be explained by other factors not captured in this model.

Table 6: Model Summary

Model	R	R-Square	Adjusted R-Square	Std. Error of the Estimate
1	0.559	0.312	0.306	0.91246

a. Predictor: (Constant), Accessibility

Source: Research Data (2025)

The ANOVA results indicated that the regression model was statistically significant ($F = 19.057$, $p < 0.001$). This confirms that accessibility has a significant effect on the utilization of MCIP.

Table 7: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	128.1724	1	128.172	19.057	.000
Residual	281.634	119	2.366		
Total	409.806	120			

^aDependent Variable: Utilization of MCIP

^bPredictors: (Constant), Accessibility

Table 8: Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
	B	Std. Error	Beta	
1 (Constant)	1.054	.237		4.448
Accessibility	0.268	.061	.559	4.366

a. Dependent Variable: Utilization of MCIP

The coefficients table presents the unstandardized and standardized regression coefficients for the independent variable *Accessibility* in relation to the dependent variable *Utilization of the Makueni Care Insurance Program (MCIP)*. The derived regression equation is:

$$Y = 1.054 + 0.268A$$

Where: Y represents *Utilization of the MCIP*; A represents *Accessibility to health services*.

From the results, it is evident that when accessibility is held constant, the baseline utilization of the MCIP is 1.054. Each unit increase in accessibility is associated with a 0.268 unit increase in the utilization of the MCIP, with a statistically significant p-value of 0.000. This suggests that accessibility to health services is a significant predictor of program utilization in Makueni County. As the p-value is less than the standard threshold of 0.05, the null hypothesis stating that there is no significant relationship between accessibility and utilization of MCIP is rejected. Consequently, the alternative hypothesis is supported, affirming that accessibility to health services has a statistically significant and positive influence on the utilization of the MCIP, thereby contributing to the achievement of Universal Health Coverage (UHC) in Makueni County.

5.0 Conclusions

The study concluded that accessibility to health services significantly influences the utilization of the Makueni Care Insurance Program in Makueni County and contributes to the achievement of Universal Health Coverage. The regression analysis showed that accessibility, measured through geographical accessibility, coverage rates, and waiting times, has a positive and statistically significant impact on the utilization of MCIP services. Improved geographical accessibility enables beneficiaries to reach health facilities more easily, while higher coverage rates increase the number of individuals enrolled in the program. Shorter waiting times further encourage utilization by making services more efficient and responsive. These findings affirm that accessibility, as defined in the study, is a key determinant in the utilization of the Makueni Care Insurance Program.

6.0 Recommendations

To enhance the utilization of the Makueni Care Insurance Program and support the achievement of Universal Health Coverage in Makueni County, several improvements in accessibility are recommended. First, geographical accessibility should be enhanced by increasing the number of health facilities or strengthening outreach services in underserved areas to reduce the distance beneficiaries need to travel. Second, coverage rates should be improved by intensifying community sensitization and enrollment campaigns to ensure that more eligible residents are registered in the program. Lastly, waiting times at health facilities should be minimized by streamlining service delivery processes and ensuring adequate staffing and medical supplies. These measures will help improve accessibility and, in turn, increase the utilization of the Makueni Care Insurance Program.

REFERENCES

- Alhassan, R. K., Nketiah-Amponsah, E., & Arhinful, D. K. (2016). A review of the National Health Insurance Scheme in Ghana: What are the sustainability threats and prospects? *PLOS ONE*, 11(11), e0165151. <https://doi.org/10.1371/journal.pone.0165151>
- Aydin, M. (2022). *Health coverage and access disparities in rural Turkey: A systems analysis*. Ankara Health Policy Research Institute. (Unpublished report)

- Barasa, E., Rogo, K., Mwaura, N., & Chuma, J. (2018). Kenya National Hospital Insurance Fund reforms: Implications and lessons for universal health coverage. *Health Systems & Reform*, 4(4), 346–361. <https://doi.org/10.1080/23288604.2018.1513267>
- Chemouni, B. (2018). The political path to universal health coverage: Power, ideas and community-based health insurance in Rwanda. *World Development*, 106, 87–98. <https://doi.org/10.1016/j.worlddev.2018.01.023>
- Evans, T. G., Saksena, P., & Elovainio, R. (2020). Health systems financing: The path to universal coverage. *Bulletin of the World Health Organization*, 98(3), 146–147. <https://doi.org/10.2471/BLT.20.252312>
- Gonzalez, R. M. (2023). *Barriers to health insurance utilization in rural Argentina: Distance and infrastructure*. Buenos Aires School of Public Health. (Unpublished research paper)
- Ikegami, N. (2019). *Universal health coverage for inclusive and sustainable development: Lessons from Japan*. World Bank Group. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/693671468271805286/universal-health-coverage-for-inclusive-and-sustainable-development-lessons-from-japan>
- Johansson, L. (2022). *Equity and access in Sweden's universal health coverage system: A regional analysis* [Doctoral thesis, Uppsala University]. Uppsala University Press. (Unpublished doctoral thesis)
- Kamau, J., Mutua, M., & Wambugu, A. (2021). Determinants of health service utilization in devolved health systems: Evidence from selected counties in Kenya. *Journal of Health Economics and Policy*, 12(3), 45–58.
- Kutzin, J. (2013). Health financing for universal coverage and health system performance: Concepts and implications for policy. *Bulletin of the World Health Organization*, 91(8), 602–611. <https://doi.org/10.2471/BLT.12.113985>
- Lopez, A. J. (2023). Accessing PhilHealth in remote areas: Travel burdens and enrollment patterns in the Philippines. *Manila Health Systems Journal*, 12(3), 33–45.
- Maina, T., & Kirigia, D. (2022). Health insurance and access to specialized care in Kenya: Challenges in the decentralized healthcare system. *African Health Economics Review*, 8(1), 71–84. <https://doi.org/10.1177/24587543211024129>
- Makueni County Government. (2022). *Annual health sector performance report 2021/2022*. Department of Health Services.
- Makueni County Health Department. (2021). *Makueni Care Program Evaluation Report*. County Government of Makueni.
- Mebratie, A. D., Sparrow, R., Yilma, Z., Alemu, G., & Bedi, A. S. (2015). Enrollment in Ethiopia's community-based health insurance scheme. *World Development*, 74, 58–76. <https://doi.org/10.1016/j.worlddev.2015.04.011>

- Ministry of Health Kenya. (2021). *Kenya health sector strategic plan 2021–2025*. Government of Kenya.
- Mutiso, A. M., & Mwangi, J. K. (2019). Barriers to healthcare access among rural communities in Kenya: A case of Makueni County. *East African Medical Journal*, 96(6), 280–289.
- Mutiso, P. W. (2022). The role of accessibility in Kenya's health insurance uptake: Evidence from rural counties. *African Journal of Health Economics and Policy*, 9(2), 66–78.
- Mutunga, J. N., Mwangi, A., & Kirigia, J. (2020). Financing healthcare in devolved governments: Lessons from Makueni County. *International Journal of Health Planning and Management*, 35(6), 1475–1490. <https://doi.org/10.1002/hpm.3020>
- Mwangi, S., & Wanjiku, L. (2022). Transportation and physical access as critical determinants of healthcare service utilization in rural Kenya. *Kenya Journal of Public Health*, 14(2), 109–117.
- Nguyen, A., & Yoshida, N. (2022). Leveraging technology for universal health coverage: Innovations and insights from emerging economies. *World Bank Blogs*. <https://blogs.worldbank.org/health>
- Njoroge, P. W., Muthoni, J. M., & Kariuki, M. W. (2021). Distance to healthcare facilities and its impact on healthcare utilization in rural and peri-urban Kenya. *International Journal of Health Services Research*, 11(4), 222–235. <https://doi.org/10.1002/hsr2.333>
- Okech, T. C., & Lelegwe, S. L. (2016). Analysis of universal health coverage and equity on health care in Kenya. *Global Journal of Health Science*, 8(7), 218–227. <https://doi.org/10.5539/gjhs.v8n7p218>
- Owusu, F. A. (2022). Waiting time disparities in Ghana's NHIS: A study of rural and urban service delivery. *Ghana Journal of Public Policy*, 6(1), 21–34.
- Ramirez, C. D. (2023). *Healthcare coverage and rural disparities in Mexico's Seguro Popular: Challenges to UHC*. National Institute of Public Health, Mexico. (Unpublished policy paper)
- Reeves, A., Gourtsoyannis, Y., Basu, S., McCoy, D., McKee, M., & Stuckler, D. (2022). Financing universal health coverage—Effects of alternative tax structures on public health systems: Cross-national modelling in 89 low-income and middle-income countries. *The Lancet Public Health*, 7(1), e42–e50. [https://doi.org/10.1016/S2468-2667\(21\)00224-9](https://doi.org/10.1016/S2468-2667(21)00224-9)
- Rodriguez, S. L. (2023). Health insurance and specialist service delays in rural Colombia. *Journal of Health Systems in Latin America*, 8(1), 13–27.
- Tan, Y. L. (2023). Access delays in Singapore's UHC framework: An analysis of system bottlenecks. *Asia-Pacific Journal of Health Policy*, 17(2), 88–101.
- Tangcharoensathien, V., Mills, A., & Palu, T. (2018). Accelerating health equity: The key role of universal health coverage in the Sustainable Development Goals. *BMC Medicine*, 13, 101. <https://doi.org/10.1186/s12916-015-0342-3>
- Tashobya, C. K., Ssengooba, F., & Oliveira-Cruz, V. (2017). Health systems reforms in Uganda: Processes and outputs. *Health Policy and Development*, 5(1), 15–24.

World Bank. (2023). *Global monitoring report on financial protection in health 2023*. World Bank Group. <https://www.worldbank.org/en/topic/universalhealthcoverage>

World Health Organization. (2010). *Monitoring the building blocks of health systems: A handbook of indicators and their measurement strategies*. WHO Press. <https://apps.who.int/iris/handle/10665/258734>

World Health Organization. (2020). *Global monitoring report on universal health coverage: Tracking financial protection and service coverage*. <https://www.who.int/publications/i/item/9789240040618>

World Health Organization. (2021). *Tracking universal health coverage: 2021 global monitoring report*. WHO and World Bank. <https://www.who.int/publications/i/item/9789240040618>