



The Role of Health Insurance on the Affordability of Healthcare Services by Patients in the Buea Municipality

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Abstract

Healthcare is a fundamental human right, and access to affordable healthcare services is crucial for a population's well-being. The primary purpose of this study is to investigate the role of health insurance in making healthcare services more affordable. The study adopted a cross-sectional research design. Data for this study was obtained with the help of a structured questionnaire and analysed using logistic regression. Results reveal that individuals with health insurance reported lower co-insurance and reduced financial strain when seeking healthcare services. Negotiation rate had a negative influence while preventive care coverage had a positive effect on affordability. Policymakers and insurers should consider enhancing the benefits offered by health insurance plans. This may include reducing deductibles, co-payments, and coinsurance rates, particularly for essential healthcare services and preventive care. Such measures can further improve the affordability and accessibility of healthcare services.

Keywords: Co-insurance; Negotiation rate; Preventive care coverage; Healthcare services

Introduction

The affordability of healthcare services has been gaining popularity around the world for several years. Studies have considered health insurance essential for the affordability of healthcare services. The global health insurance market size reached US\$ 1,714.0 Billion in 2022. Looking forward, International Market Analysis Research and Consulting (IMARC) Group expects the market to reach US\$ 2,599.8 Billion by 2028, exhibiting a growth rate (CAGR) of 7.11% during 2023-2028 (IMARC Group, 2021). Health insurance protects an insured individual against financial losses arising due to a medical emergency. This is due to the fact that, it covers medical treatment expenditures such as ambulance charges, doctor consultation fees, and hospitalization, medicines and day-care procedures costs. The pay-out is generally either made on actual expenses incurred in the hospital using original medical bills or diagnosis of diseases without submitting bills. In terms of regional

trends, a report by Statista, (2020), indicates that North America accounted for approximately 49.2% of the global health insurance market based on gross written premiums. This implies almost half of the global health insurance market was attributed to North America. This is primarily due to the high healthcare costs in the region and the presence of several established insurance providers (IMARC Group, 2021). The Asia-Pacific region is expected to experience the fastest growth in the health insurance market due to growing middle class in the region and increasing government initiatives to expand healthcare coverage. The global health insurance market is expected to continue growing in the coming years, driven by factors such as rising healthcare costs and increasing awareness about the benefits of health insurance. The adoption of technology is also expected to play a key role in the industry's growth, as insurers seek to improve efficiency and enhance the customer experience. The increasing costs of healthcare services, in confluence with the growing prevalence of



diabetes, cancer, stroke and kidney failure, represent one of the key factors escalating the demand for health insurance worldwide. Moreover, governing agencies of several countries are making it necessary for employers to provide health insurance to their employees. Health insurance plays a significant role in the affordability of healthcare services in the developed world. According to a report by the Commonwealth Fund, individuals with health insurance in the US are less likely to experience financial barriers to care and are more likely to receive preventive services than those without insurance [1]. Individuals who do not have access to employer-sponsored insurance may struggle to afford coverage on their own, as the cost of premiums can be prohibitively high [2]. Furthermore, even those with insurance may face high co-insurance costs, such as deductibles and co-payments, which can deter them from seeking necessary medical care [1]. In Canada, the United Kingdom, and France, where universal healthcare is provided, health insurance coverage is guaranteed for all citizens, ensuring that they have access to necessary medical care without financial burden [3]. However, there are still some problems with health insurance in these countries like waiting for non-urgent medical procedures can be long, leading some individuals to seek private healthcare services outside the universal system [4]. In some cases, individuals may choose to pay co-insurance for medical care that is not covered by their insurance, which can be expensive and limit their ability to access other essential services.

In Africa, the problem with health insurance is understanding and awareness among the population about the importance of having health insurance coverage [5]. Many individuals may not understand how insurance works, or they may not be aware of the insurance options available to them. This lack of awareness can prevent individuals from seeking out insurance coverage, even if it would be beneficial for them. Without access to affordable health insurance, individuals and families may struggle to pay for necessary medical care, leading to financial hardship and potentially negative health outcomes [6]. Additionally, limited access to medical care can exacerbate existing health disparities and lead to higher rates of morbidity and mortality in low-income and vulnerable populations. Health insurance has a critical role in making healthcare services more affordable and accessible in Africa, where many individuals struggle to access necessary medical care due to high costs and low income. Observations suggest that health insurance coverage is relatively low in many African countries, with less than 10% of the population having access to health insurance in some countries [7]. This low coverage can lead to financial barriers to care and may result in individuals delaying or forgoing necessary medical care. One significant problem with health insurance in Africa is the cost of premiums. Many individuals and families, particularly those with low

incomes, may struggle to afford health insurance premiums, even if they recognize the importance of having insurance [8]. The health insurance coverage in sub-Saharan Africa is generally low. And this is attributed to various factors, including the limited availability of insurance options and the high cost of premiums, which make insurance unaffordable for many individuals and families. In many cases, insurance plans cover only a limited range of services, leaving individuals responsible for paying for additional medical expenses out of pocket. This limited coverage can lead to financial hardship for individuals and families and may discourage individuals from seeking out medical care when they need it. Health insurance schemes in the region are often fragmented and uncoordinated, leading to duplication of efforts and inefficiencies. This fragmentation can make it difficult for individuals to navigate the system and can lead to gaps in coverage, ultimately resulting in higher co-insurance expenses for medical care. Another problem associated with health insurance in sub-Saharan Africa is the lack of trust in insurance providers (Ataguba & Day, 2015). Many individuals are hesitant to enrol in insurance plans due to concerns about the reliability and transparency of insurance providers, as well as fears of fraud and mismanagement. Cameroon is one of the countries in sub-Saharan Africa where access to affordable health care is a major challenge for many people. The role of health insurance in making health care more affordable in Cameroon is significant, but there are also several issues that limit its effectiveness. Health insurance coverage in Cameroon is limited, with only around 3% of the population having access to health insurance (World Bank, 2021). This low coverage is due in part to the high cost of insurance premiums and limited awareness of the benefits of health insurance among the population. Buea Municipality, located in the Southwest Region of Cameroon, has experienced significant changes in the affordability of healthcare over the years. Prior to the 20th century, healthcare services in Buea Municipality were limited and primarily provided by traditional healers and missionaries. The demand for healthcare was relatively low, mainly due to the population's reliance on traditional medicine and cultural beliefs. However, with the establishment of the Buea Regional Hospital in the mid-20th century, the demand for healthcare services began to increase. The hospital provided a wider range of medical services and attracted patients from Buea Municipality and neighbouring regions. This led to a growing demand for healthcare facilities and professionals in the area. In recent years, the demand for healthcare in Buea Municipality has been further influenced by population growth, urbanization, and increased awareness of the importance of healthcare.

Statement of the Problem



The affordability of healthcare services in the Buea Municipality is still very low and may be influenced by several factors, including income levels, health insurance coverage, availability of healthcare services, cost of medications, and government policies. Patients with low-income levels may struggle to afford healthcare services, particularly those who require expensive treatments or medications. Additionally, patients who do not have health insurance may face higher co-insurance for healthcare services, making them less affordable. The consequences of unaffordable healthcare services can be severe, particularly for patients who require urgent or life-saving treatments. Patients may delay seeking medical care or forego treatment altogether, which can lead to poorer health outcomes and increased healthcare costs in the long run. This can also have wider societal impacts, such as increased healthcare spending and reduced productivity due to illness.

Patients in the Buea Municipality face challenges related to the demand or affordability of healthcare services. The population in the municipality is growing, and with this growth comes an increased demand for healthcare services. However, the healthcare infrastructure in the municipality is not well-developed, resulting in a shortage of healthcare facilities and healthcare professionals. Additionally, the cost of healthcare services is often beyond the reach of many people in the municipality, resulting in limited access to healthcare. The lack of adequate healthcare infrastructure and the high cost of healthcare services in Buea Municipality result in several problems. These problems include limited access to healthcare services, financial burden, and poor health outcomes. Limited access to healthcare services is a significant problem due to the shortage of healthcare facilities and healthcare professionals in the municipality. This can result in delayed diagnosis and treatment of illnesses, leading to more severe health problems. Financial burden is another problem resulting from the high cost of healthcare services. This will increase morbidity and mortality rates, particularly for people with chronic illnesses or those in need of emergency care. Poor health outcomes can result in reduced economic productivity, as people are unable to work due to illness or disability. The government of Cameroon, with support from international partners such as the World Bank, implemented a series of health sector reforms like Community Based Insurance Schemes, and the National Health insurance schemes aimed at improving healthcare access and financial protection for the population which later failed. Against this background, the researcher seeks to investigate the role of health insurance on the affordability of health care services in Buea municipality by providing answers to the following questions.

- What is the influence of co-insurance on the affordability of healthcare services in the Buea municipality?

- To what extent does preventive care coverage affect the affordability of healthcare services in the Buea municipality?
- To what extent does negotiated rates affects healthcare service on the affordability of healthcare services in the Buea municipality?

Literature Review

Health insurance is a type of insurance that provides financial protection against the cost of medical expenses incurred by the policyholder. It is a contract between the insurance company and the policyholder, where the policyholder pays a premium in exchange for coverage of medical expenses. The coverage provided by health insurance can vary depending on the policy, but it typically includes expenses related to hospitalization, surgery, diagnostic tests, and prescription drugs. According to Rosenbaum, health insurance is a mechanism for financing medical care expenses that provides financial protection against the risk of incurring high medical costs. It involves the transfer of risk from individuals to insurers, who in turn pool the risks of many individuals to minimize the impact of high-cost medical events on any one individual. There are several types of health insurance, including private insurance, employer-based insurance, government-sponsored insurance, group insurance and international insurance. Private health insurance is typically purchased by individuals or families from a private insurance company. Employer-based health insurance is provided by an employer to its employees as part of their benefits package. Government-sponsored insurance, such as Medicare and Medicaid, is provided by the government to eligible individuals and families. International health insurance is designed to cover the medical expenses of individuals traveling outside of their home country.

Co-insurance

Co-insurance is the payments that individuals make directly for healthcare services that are not covered by insurance or other forms of health financing. These costs can include deductibles, co-payments, coinsurance, and other expenses that individuals pay for services such as doctor visits, prescription drugs, and hospital stays. The meaning of co-insurance has been discussed extensively by different authors in the healthcare literature. For example, according to the World Health Organization (WHO), co-insurance payments are "payments made by individuals at the time-of-service use" (WHO, 2010). Similarly, the Kaiser Family Foundation (KFF) defines co-insurance as "the payments that individuals make for health care services, including deductibles, co-payments, and coinsurance, as well as any other expenses that are not covered by insurance" (KFF, 2021). The KFF notes that co-insurance varies

widely depending on the type of insurance coverage and the specific healthcare services received.

Preventive care coverage

Preventive care coverage are the services and treatments that are designed to prevent or detect medical conditions before they become more serious or expensive to treat. These services can include routine check-ups, screenings, vaccinations, and counselling for behavioural or lifestyle changes. The meaning of preventive care coverage has been discussed extensively by different authors in the healthcare literature. According to the Centres for Disease Control and Prevention (CDC), preventive care coverage includes "services that help prevent health problems or detect them early when they are most treatable" (CDC, 2021). The CDC notes that preventive care coverage is an essential component of healthcare because it can help individuals stay healthy, avoid more costly treatments, and improve overall health outcomes.

Negotiated rates

Negotiated rates refer to the prices that healthcare providers and insurance companies agree upon for specific healthcare services or procedures. These rates can vary depending on the type of healthcare provider, the type of insurance coverage, and the specific services provided. According to the Centres for Medicare and Medicaid Services (CMS), negotiated rates are "the rates that healthcare providers and insurance companies agree upon for specific healthcare services" (CMS, 2021). The CMS notes that negotiated rates can be an important factor in determining the cost of healthcare services for both patients and insurers.

Affordability of Healthcare Services

Affordability of healthcare services refers to the ability of individuals or families to access and pay for necessary medical care without facing undue financial burden. It is a complex issue that can affect people's health outcomes, quality of life, and financial stability. Affordability of healthcare services is influenced by various factors, including the cost of healthcare services, the availability of health insurance, and individuals' income and financial resources [9]. The Affordable Care Act (ACA) of 2010 aimed to improve the affordability of healthcare services by expanding access to health insurance coverage and regulating healthcare costs. The ACA introduced health insurance marketplaces, where individuals and families could shop for and purchase private health insurance plans. It also provided subsidies to help low- and middle-income individuals afford health insurance premiums and reduced cost-sharing for certain healthcare services [10]. Access to health insurance is another important factor that affects the affordability of healthcare services. Health insurance

provides financial protection against medical expenses and can help individual's access necessary medical care without facing excessive financial burden. However, not all individuals have access to health insurance, and even those who do may face barriers to obtaining coverage, such as high premiums or limited plan options [11]. The availability and quality of health insurance is another essential aspect of affordability. Health insurance provides financial protection against medical expenses and enables individuals to access necessary medical care without bearing the full financial burden. Individuals' income and financial resources are also crucial factors that determine affordability. Low-income individuals and families may struggle to pay for necessary medical care, particularly if they do not qualify for public health insurance programs or cannot afford to purchase private health insurance. Thus, the relationship between health insurance and affordability of healthcare services can be presented on framework (Figure 1).

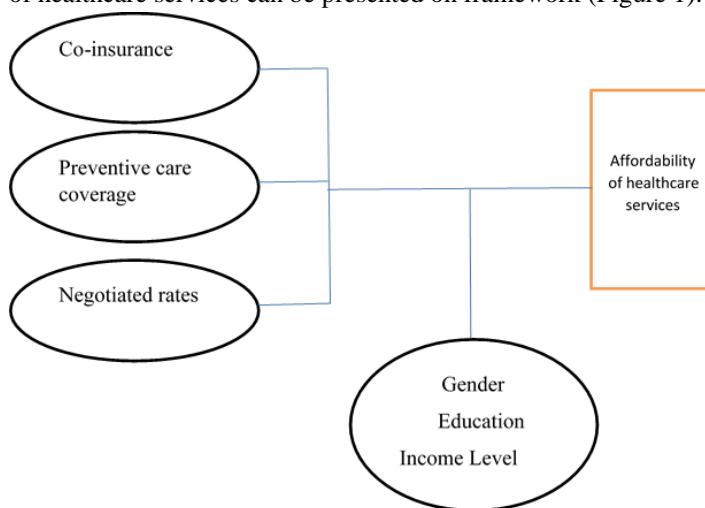


Figure 1: Conceptual frame work of the health insurance and affordability of healthcare services. Source: Constructed by authors (2023).

Grossman (1972) Model of Health Production

The Grossman model of health production is an economic model that explains the production of health as a function of investment in health-related activities. The model views health as a stock variable that is produced over time through investments in medical care and health-related behaviour's [12]. The theory suggests that individuals invest in health to increase their life expectancy, enhance their quality of life, and reduce the risk of premature death. The health-related activities are grouped into two categories: medical care and health-related behaviour. Medical care includes both preventive and curative care, such as vaccinations, check-ups, and treatments for illnesses, while health-related behaviour includes activities such as exercise, diet, and avoiding risky behaviours like smoking and excessive drinking. The level of

investment in health-related activities is determined by several factors, including the cost of medical care and health-related behaviour, the individual's income and wealth, and the availability of health-related resources [12]. The level of investment in health-related activities affects the level of health stock over time, which in turn affects the individual's productivity and utility. Output and better wellbeing, can be interpreted as both good expenditures, through a stream of balanced days that enable business and non-market operations, and as good consumption of enhanced welfare or usefulness. So, to Grossman, demand for healthcare is a derivative demand, originating from demand for good health and health is a sustainable capital stock that generates a safe time yield. The Grossman model of health production provides a useful framework for understanding the determinants of health status. The model highlights the importance of investments in both medical care and health-related behaviour in improving health outcomes. However, the model's assumptions and weaknesses must be taken into account when interpreting its results and applying it to real-world situations [13,14].

Moral hazard theory (arrow, 1963)

The Moral Hazard Theory by Arrow (1963) suggests that individuals with insurance may engage in riskier health behaviour's because they are protected from the full financial consequences of their actions. The Moral Hazard Theory can be seen in the context of health insurance, where individuals may feel less inclined to take preventative measures or make lifestyle changes to maintain good health, since they are protected by their insurance coverage. For example, a person may smoke or engage in other unhealthy habits knowing that their health insurance will cover the costs of any health issues that arise from those habits. As a result, insurance companies may raise premiums to cover the increased costs of care, which can lead to a cycle of rising costs for both the insurance companies and the insured. The Moral Hazard Theory provides a framework for understanding how insurance coverage can affect health behaviours, but it has its limitations. To fully understand the impact of insurance coverage on health behaviour's, other theories such as Adverse Selection Theory, Income and Price Elasticity Theory, and Consumer Theory should also be considered.

The rational decision-making model

The Rational Decision-Making Model is a theoretical framework that explains how individuals make decisions by weighing the costs and benefits of various options [15,16]. The model assumes that individuals are rational and seek to maximize their utility or satisfaction by making decisions that are consistent with their preferences and goals. The Rational Decision-Making Model suggests that individuals evaluate their options by assigning values

to the costs and benefits of each option and choosing the option with the highest net benefit. The model assumes that individuals use a variety of cognitive processes, including reasoning, judgment, and intuition, to make decisions. However, research has shown that individuals do not always behave rationally when making decisions. For example, individuals may be influenced by emotions, biases, or heuristics, which can lead to suboptimal decision making [15]. These deviations from rational decision making are often referred to as behavioural biases. The Rational Decision-Making Model provides a useful framework for understanding how individuals make decisions by weighing the costs and benefits of various options. However, the model's assumptions and weaknesses must be taken into account when interpreting its results and applying it to real-world situations. Though the literature provides a comprehensive understanding of the relationship between health insurance and the affordability of healthcare services, there are still some gaps that need to be addressed. While health insurance coverage can improve the affordability of healthcare services, cost-sharing, such as co-payments and deductibles can still be a significant burden for some individuals. More research is needed on how cost-sharing affects healthcare affordability and how it can be mitigated. While some studies have compared the impact of health insurance on healthcare affordability across different countries, there is still a need for local comparisons to better understand how different healthcare systems affect affordability for different populations. Affordability is not only determined by financial factors but also non-financial factors such as availability and accessibility of healthcare services. Very few studies have tried to establish a link between health insurance and healthcare services in the country. Empirical literature shows that the relationship between affordability of healthcare services for health practitioners and health insurance has gained immense concern especially in the present period where most countries across the globe are facing mounting pressure for universal health coverage. Despite the growing concern on the relationship between affordability of health care services and health insurance, the subject still has very scant literature. Thus, there is little or no empirical study that clearly establishes the relationship between health insurance and affordability of health care services. The Scope and area of our study makes a huge difference and fills the gap that exists in literature as the study focuses on healthcare units within the Buea municipality. No studies of this nature have used a similar case study.

Methodology

This study is limited to the effects of health insurance on the affordability of healthcare services in Buea Municipality, Cameroon. Thus, a cross-sectional survey research design was



adopted since the attention is on making derivations about a population at a point in time (Lavrakas, 2008) and drawing inferences from existing differences between people, subjects, or phenomena. In Cameroon, health insurance coverage is primarily provided by the National Social Insurance Fund (CNPS), which is a compulsory health insurance scheme for formal sector employees. The CNPS provides coverage for medical consultations, hospitalization, medication, and some surgical procedures (National Social Insurance Fund, n.d.). In addition to the CNPS, there are also private health insurance providers operating in Cameroon that offers a range of health insurance plans that cover different aspects of healthcare, including consultations, hospitalization, medications, and specialized treatments (Cameroon Insurance, n.d.). The study was carried out in Buea Municipality. There are 36 healthcare units in Buea health district. Fourteen (14) of these health units are provided by the government or local authorities and these healthcare units are carefully located across the municipality. Nine (9) of the healthcare units are conventional; that is they are provided by the Catholic Baptist, Presbyterian and other religious denominations. Two (2) are provided for by the military core while thirteen (13) are under the private sector. Below is a map of the town of Buea.

Population sampling technique and sample size

The population of the study comprised all health insurance subscribers in the Buea Municipality which is unknown. The cluster sampling technique was adopted since it creates equal opportunity for every member of the population to be selected for the study. The patients are grouped in various hospitals. Some of the hospitals visited include the following; Mount Mary Hospital, General Hospital, Solidarity Clinic, Buea Road Integrated Health Centre, Moliko Health Centre, Muea Health Centre, Buea Town Health Centre, Bokwango Health Centre, and Military Hospital Buea. In determining the sample size calculation of unknown population size, you can use the following formula: $n = z^2 \cdot [p \cdot q] / d^2$, which is used to calculate the sample size of a qualitative variable in cross-sectional studies. In this formula, n is the sample size, P is the estimated proportion of the study variable based on previous studies (70%), $q = 1 - P$ (30%), and d is the margin of error (5%). z is the Z-score corresponding to (100%, $\alpha/2\%$), where α refers to the significance level or the probability of making a type I error. The researcher added some hypothetical values and the sample size would be 350.

Sources and methods of data collection

Primary source of data collection was to obtain information at first hand from the clustered respondents. The main instrument being questionnaire. The questionnaire made used of closed ended questions with items on the questionnaire structured into four-point

Likert scales: strongly disagree, disagree, agree, and strongly agree.

Model Specification

In examining the role of health insurance on the affordability of health care services in Buea municipality, an econometric model that specify affordability of healthcare service as a function of healthcare services is present as follows.

$$AHS = f(\text{health insurance})$$

$$AHS_{it} = \beta_0 + \beta_1 cins_{it} + \beta_2 pcc_{it} + \beta_3 nr_{it} + \beta_4 inl_{it} + \beta_5 gender_{it} + \beta_6 edu_{it} + \mu_{it} \dots \dots \dots (1)$$

Where: AHS_{it} = Affordability of healthcare services in Buea municipality, Cins = Co-insurance, Pcc = preventive care coverage, Nr = negotiated rates, Inl = income levels, gender = gender of respondents, edu = educational attainment of respondents. The parameters $\beta_0 \neq 0$, $\beta_1, \beta_2, \beta_3, \beta_4$ are expected to have a positive relationship with the dependent variable affordability of healthcare services

Estimation technique

Affordability of healthcare services is modelled as a binary outcome taking the value 1 or 0. The value 1 indicates that a patient can afford healthcare services while the value 0 otherwise. Thus, a binary logistic regression is suitable for the study. The binary logistic model uses the maximum likelihood Estimation (MLE) procedures to predict the probability of the occurrence of an event, that is, the natural log of the odds ratio of reaching one or the other alternatives. Practically, the logistic model is used to model the odds of success of an event. The probability function for affordability of healthcare services in this situation is given as:

$$p = 1 / [1 + e^{-z}] = e^z / [1 + e^z]$$

.....(2)

$$\text{Where } z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n$$

From the above, the probability function for non- affordability of healthcare services can be deduced as: $1 - p = 1 / [1 + e^z]$

.....(3)

Obtaining the odds ratio in favour of affordability of healthcare services by dividing the probability of affordability by the probability of non- affordability of healthcare services,

$$p / [1 - p] = (e^z / [1 + e^z]) / (1 / [1 + e^z]) = e^z$$

.....(3)

Validity and Reliability of the Study

The questionnaire was prepared and shown to other researchers for modifications before it was later administered to respondents. A pilot survey was conducted on 20 patients to see if the research will get the required responses from the respondents. The test-retest measure was used to test the reliability of the study as the test is

usually necessary in survey studies because respondents might experience different moods or external conditions which might affect their ability to respond accurately. Cronbach alpha is another instrument used to measure the reliability of the instrument with a reliability coefficient of at least 0.7.

Table 1: Empirical Literature.

Authors	Country	Methods	Findings
Jia et al (2020)	China	Multivariate logistic regression	The study found that health insurance significantly increases health service utilization and reduces healthcare expenditure in China
Fadlallah et al. (2019)	Low- and Middle-income countries	Narrative Synthesis	The study found that health insurance has a positive impact on access to healthcare services in low- and middle-income countries.
Bhatia et al. (2019)			The study found that cancer survivors with health insurance coverage were less likely to report difficulty affording healthcare services compared to those without coverage.
Goldman et al. (2018)	Unite States	Difference in Difference Analysis	Among the previously uninsured group, the ACA led to a significant decline in the uninsurance rate, and decreased barriers to medical care, and prescription drugs, compared to a control group with stable employer-sponsored insurance.
Cunningham et al. (2018)	United States of America		The study found that low-income adults in states that expanded Medicaid were less likely to report difficulty affording healthcare services compared to those in non-expansion states.
Schoen et al. (2017)	11 high-income countries.		The study found that adults with chronic conditions and health insurance coverage were less likely to report difficulty affording healthcare services compared to those without coverage in all 11 countries studied

Buchmueller <i>et al.</i> (2016)	United States	Descriptive Statistics	The study found that the percentage of adults who reported difficulty affording healthcare services decreased significantly after the implementation of the Affordable Care Act, particularly among those who gained insurance coverage.
Onoka and Onwujekwe (2016)	Nigeria	Logistic Regression	The study found that health insurance significantly improves healthcare affordability and utilization in Nigeria.
Sommers et al. (2015)	Three states in US	Difference in Difference Analysis	The study found that low-income adults in states that expanded Medicaid were more likely to have health insurance and less likely to report difficulty affording healthcare services compared to those in non-expansion states.
Sood, et al (2013)	United States	Difference in Difference Analysis	The study found that health insurance significantly improves healthcare affordability and utilization in the United States.
Abiuro and McIntyre (2013)	South Africa	Multivariate Regression Analysis	The study found that health insurance significantly improves healthcare affordability and utilization in South Africa.
Kruk <i>et al.</i> , (2009)	Haiti	Multivariate Regression Analysis	The study found that health insurance significantly improves healthcare affordability and utilization in Haiti.

Table 2: Demographic Responses of the Respondent.

Variable	Responses and Percentage	
Gender	Male	150(46.3%)
	Female	174(53.7%)
Level of Education	Secondary	118(36.4%)
	Bachelor/HND.	132(40.7%)
	Masters	53(16.4%)
	Others	21(6.5%)
Length of using the services	1 – 5 years	145(44.8%)
	6 – 10 years	105(32.4%)

	Above 10 years	63(19.4)
	Missing	10(3.1%)
Age of the Respondent	18 – 25years	63(19.4%)
	26 – 30years	43(13.3%)
	31 – 35years	36(11.1%)
	36 – 40years	85(26.2%)
	Above 40years	97(29.9%)

Table 3: Cronbach AlphaTest.

Variables	Cronbach’s Alpha Value	Number of Items
Negotiations Rates	0.775	4
Preventive Care Coverage	0.803	4
Co-insurance	0.733	4
Income Level	0.995	3
Overall Reliability	0.769	15

Table 4: Correlation Matrix.

	Afford	Co-insurance	Negotiation rate	Preventive care coverage	income	Education	gender
Afford	1.0000						
Co-insurance	-0.165***	1.0000					
	0.0029						
Negotiation _rates	-0.225***	0.1238**	1.0000				
	0.0000	0.0273					
Preventive care coverage	-0.1316**	0.2307***	0.2237***	1.0000			
	0.0185	0.0000	0.0001				
Income	-0.1329**	0.2163***	0.3049***	0.2556***	1.0000		
	0.0170	0.0001	0.0000	0.0000			
education	0.0679	-0.0462	-0.0686	-0.1320**	-0.200***	1.0000	
	0.2230	0.4099	0.2209	0.0182	0.0003		
Gender	-0.0583	0.1495***	0.0600	0.0280	0.1140**	-0.1235**	1.0000
	0.2955	0.0073	0.2848	0.6183	0.0408	0.0262	

Ethical Consideration

The underlying principles of research ethics namely; informed consent, confidentiality and wellbeing of respondents were the researcher’s concern. The researcher had to inform potential participants that responses are anonymous and results from the survey would be used in an academic research project. Potential respondents were informed that their participation was purely voluntary and they were free to decline the offer (without

repercussion), all information provided for this research are to be protected and be used for academic work only, information reported here, would be real, that the researcher would avoid being biased by giving equal opportunities for all within the population sample, that the researcher would ensure that promises and agreements are respected. Finally, the researcher had to obtain a stamped authorization from the Department or faculty of the researcher and the administration of the concerned projects to act as a respondent (Tables 1-3).

Presentation and Discussion of Results

Out of a total of 350 questionnaires distributed, 324 were returned, representing a response rate of 92.6%. This means that a high proportion of the individuals who received the questionnaires filled in and returned them. Out of the 324 respondents, 150 (46.3%) identified as male, while 174 (53.7%) identified as female. This implies that there are more female insured patients in Buea municipality. This goes to support the fact that women have a strong immune system than male counterparts, For level of education, 118 (36.4%) reported having a secondary level of education. Additionally, 132 respondents (40.7%) indicated having a Bachelor's degree or Higher National Diploma (HND). 53 respondents (16.4%) reported having a Master's degree, while 21 respondents (6.5%) indicated having a different level of education like ACCA and DEPET I."Out of the 323 valid responses, the majority of respondents (145, 44.9%) reported using the services for 1 to 5 years. Additionally, 105 respondents (32.5%) reported using the services for 6 to 10 years. Furthermore, 63 respondents (19.5%) indicated using the services for more than 10 years. There were also 10 respondents who did not answer the question. With regards to the age of the respondent, the age distribution is as follows: 19.4% (63) fall within the age range of 18 to 25 years, 13.3% (43) fall within the age range of 26 to 30 years, 11.1% (36) fall within the age range of 31 to 35 years, 26.2% (85) fall within the age range of 36 to 40 years, and 29.9% (97) are above the age of 40.

Test for Reliability

The Cronbach's Alpha was used with an accepted threshold of at least 0.6. The internal consistency of the participants was not violated for any of the variables with Cronbach Alpha coefficient values ranged from 0.733 to 0.803. The overall reliability of the instrument (integrated value mapping) is 0.7695 which was above the recommended threshold of 0.7. Thus, the indicators were consistent in their responses for all the variables. There exists a significant negative relationship between co-insurance, negotiation rate, preventive care coverage, income and affordability of health care services (Table 4). While income level is showing a positive insignificant relationship with affordability of health care services. Since the highest correlation value is 0.3049 between income level and negotiation rate it indicates that our result is free from perfect collinearity problem. The result indicated that the odd of increasing co-insurance spending will lead to a decrease in the odds of perceiving health services as affordable decreased by approximately 70.7%. This suggests that higher co-insurance spending is associated with a lower likelihood of perceiving health services as affordable. Previous studies have consistently found that high co-insurance is associated with reduced affordability of

healthcare services like Smith who observed that high cost-sharing requirements can lead to decreased access to necessary care [17]. Buchmueller found that the percentage of adults who reported difficulty affording healthcare services decreased significantly after the implementation of the Affordable Care Act, particularly among those who gained insurance coverage [18]. The insured individuals were more likely to access healthcare services and have lower co-insurance expenses than the uninsured ones. For a unit increase in negotiation, the odds of being able to afford for health insurance decreases by a factor of 0.2925. This implies that the lower the negotiation rate the higher the probability or likelihood of being able to afford for health care insurance. The effect is statistically significant with a p-value of 0.004. Research by Cooper and colleagues (2019) provides insights into the variation in negotiated rates and their implications for healthcare spending. Jia, Yuan, Huang, Lu, and Xie found that health insurance significantly increases health service utilization and reduces healthcare expenditure in China [19-30] (Table 5).

Table 5: Logistics regression result introducing categorical variable.

Afford	Odds Ratio
Co-insurance	.2925244*** (.1018109)
Negotiation rates	.4340838*** (.1319791)
Preventive care coverage	.4340838** (.0010965)
Income	1.002267 (.2645417)
Gender	.9057305 (.2483743)
Educational attainment	
2 (Bachelor Degree/HND)	1.007566 (.3064422)
3 (Masters)	.9661647 (.4063448)
4 (Others)	2.524648 (1.704281)
_cons	677.2184*** (820.8565)
Prob > chi2	= 0.0000
Pseudo R2	= 0.0935

Preventive care coverage was found to have a significant positive effect. This indicates that a higher awareness and preventive care coverage are associated with a slightly greater likelihood of perceiving health services as affordable. The odds that a person who is having a high preventive care coverage are predicted to be about 0.23 times as large as those for a person who is having a

preventive care coverage. Moreso, the odd of increasing income levels leading perceiving health services as affordable decreased by approximately 13.5%. This suggests that higher increasing income levels is associated with a higher likelihood of perceiving health services as affordable. Income levels have been shown to be a significant factor in healthcare affordability. Lower income individuals or households often face challenges in affording necessary healthcare services. Research by Berk and colleagues (2017) examined the relationship between income and healthcare access and found that income disparities can contribute to disparities in healthcare affordability. For the variable gender, the odds of increasing the demand for healthcare services are predicted to be about 0.0943 times lower among women than their male counterparts. The education variable takes on values 1 through 4 (secondary, Bachelor Degree/HND, Masters and Others). A lower level of education was given a rank of 1 while those with a rank of 4 were a higher level of education. Having attended an undergraduate institution, versus a secondary institution increases the odds of demanding for healthcare services by 1.007. With a master's degree, the odds of demanding healthcare services are 0.0339 times higher than those with secondary education.

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