Journal: Texila International Journal of Academic Research
Publisher: Texila International Journal
ISSN: 2520-3088
Volume 13 Issue 1, 2026
DOI: 10.21522/TIJAR.2014.13.01.Art016

Feasibility of Establishing Community-Based Health Insurance (CBHI) Scheme: A Comparative Analysis of Existence of CBHI Preconditions, and Capacity and Willingness to Pay in 5 Locations in Adamawa, Nigeria

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Abstract

Health systems financing in Adamawa is heavily dependent on out-of-pocket (OOP) expenditure. These expenditures predispose poor households to financial hardship, and blocks progress towards universal health coverage. Hence, adopting alternative health financing mechanisms is critical to expanding informal sector and vulnerable population' access and utilization of quality healthcare services. This study evaluated the feasibility of establishing community-based health insurance (CBHI) scheme based on findings from assessment of six preconditions for setting up CBHIs, and respondents' capacity and willingness to pay for CBHI in five locations in Adamawa. The mixed method study adopted used the sequential explanatory design classification method. The method used to elicit willingness to pay (WTP) is an adaptation of the contingent valuation method and specifically, the bidding game method using the Dutch system sequence. Findings showed respondents willing to pay a fee to join as individuals and enrol household members comprised 88.5% and 85.3% respectively. The mean individual out-of-pocket (OOP) expense was N3,820 in Damare, N5,617 in Dumne, N4,819 in Imburu, N4,732 in Mbilla, and N7,863 in Sabon Pegi. These amounts were at least twice the highest willingness to pay premium option of 1,500 offered for a standard CBHI service package. Expressing mean personal income left after spending on basic necessities as a percentage of mean personal monthly income in each district resulted in values which ranged from 9.94% in Imburu, to 56.2% in Damare. Findings from this study has demonstrated the existence of the six preconditions for setting up CBHI scheme, and ultimately, the feasibility for establishing CBHI scheme in Adamawa. The study also showed that the willingness and capacity to pay was substantial enough to promote the successful roll out of a viable community driven CBHI scheme.

Keywords: *Adamawa, Capacity to Pay, Community-Based Health Insurance, Feasibility, Willingness to Pay.*

Introduction

One of the major barriers to achieving universal health coverage (UHC) is the fiscal cost of equitably expanding healthcare access. To achieve UHC, substantial human, financial, and technical resources will have to be mobilised. The financial cost is considered higher in lower-middle-income countries like Nigeria, which are characterised by widespread poverty and multi-dimensional deprivations, such as inadequate access to healthcare and other basic necessities like clean water, sanitation, and education [1]. Poor healthcare and illness are universally dreaded as a source of destitution due to the cost of healthcare and the income loss associated with illness. In the absence of governments' subsidies, direct

Received: 02.12.2025 ***Accepted: 08.01.2026*** ***Published on: 30.01.2026***
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provision of care, donor intervention, and a prepayment system such as health insurance and tax-based healthcare financing, households are exposed to the financial risk of paying large medical bills from out-of-pocket expenses that in some cases can be described as either catastrophic or impoverishing [2]. Countries like Nigeria with relatively large informal sectors and limited information around household income often experience the exclusion of many households from national income tax schemes. This poses challenges when designing social protection programmes. The implication is that standard frameworks used in expanding formal sector health insurance enrolment are largely difficult to apply to the expanding informal sector in lower middle-income countries [3].

Nigeria's multidimensional poverty index report, in 2022, placed Adamawa's unemployment rate at 54.9% for 2020. Out of the 44.1% of residents who were employed in the state, more than half, 24.7% were considered underemployed [4]. Furthermore, Adamawa's fiscal performance ranking characterised it as one of the states with limited capacity for generating internal revenues. Hence, financing for health and social protection interventions through a broad tax base is inherently difficult considering the high poverty index, high unemployment rate, high debt profile, and the largely informal sector-based economy available in the state [5].

A British Broadcasting Corporation (BBC) publication on maternal mortality provided ample illustration of the state's performance around a key health outcome. The report indicated Nigeria as the world's worst country to give birth in, considering the country accounts for 29 percent of maternal deaths recorded worldwide [6]. The problem of access to skilled birth attendants is considered a major contributor to maternal deaths, given that less than half, or about 50 per cent, of all births in Nigeria were delivered by a skilled health worker. In Adamawa, the percentage of births assisted by skilled providers such as doctors, nurses or midwives is 24.4 percent. This is less than the North Eastern region's average of 32.3 percent and also far less than the national average of 45.9 percent. The percentage of institutional deliveries was 41.6 percent compared to the Northeastern states' average of 37.2 percent, and a national average of 43.4 percent. For under-5 mortality rates, while the national average is 110 deaths per 1,000 live births, the average rate for Adamawa and the six North Eastern states is 144 and 127, respectively [7]. With the relatively low percentage of births assisted by skilled providers, the problem of poor access is arguably a major contributor to the high maternal and child mortality rate recorded in Nigeria [8]. Factors including lack of access to antenatal care services, emergency caesarean sections, and delays in seeking care experienced by especially rural and low-income communities have been linked to the state's relatively high maternal mortality rate. This is corroborated by findings from studies which showed most maternal deaths at the state's teaching hospital, Modibbo Adama University Teaching Hospital (MAUTH), occurred within 24 hours of admission. The study further attributes delayed access, and specifically, delay in seeking care, as a major contributor to the high mortality rates documented [5].

Furthermore, the World Health Organization (WHO) asserts that chronic diseases account for approximately 71% of all global deaths. WHO also forecasted that by 2030, about 70% of all deaths in Nigeria will result from chronic diseases [9]. Poor access to quality healthcare, especially in rural communities, also contributed to hindering effective management of chronic conditions, negatively impacting a large population of Nigerians. Delayed access or outright lack of access may lead to delayed diagnosis, complications, and rising mortality rates for poorly managed cases. In Adamawa, only 62.3 percent of women prescribed medication following a diagnosis of high blood

pressure were actually taking medications for high blood pressure [7].

Because many chronic disease sufferers lack health insurance, catastrophic and even impoverishing health spending can result from households' efforts to treat chronic conditions, including complications arising from poorly managed cases. Nigeria is reported to have covered about 21 million Nigerians, an estimated 9 percent of her population, in health insurance schemes, with more than 2.4 million new enrollees covered in 2024 alone. At about 9 percent coverage, health insurance enrolment in Nigeria is relatively low, suggesting poor access to quality healthcare in a country with more than 237 million people. Nigeria's government plans to expand health insurance enrolment to at least 44 million residents by 2030 [10]. This plan amounts to expanding coverage to 18 percent within the next 5 years, implying an additional 19 million people by 2030, at an average annual enrolment of about 3.1 million new enrollees.

Adamawa is among the 27 states with health insurance enrolment rates that are at or below Nigeria's average coverage of 9 percent. Adamawa has enrolled 6 per cent of its population into health insurance [11]. As of September, 2025, Adamawa's total health insurance coverage of 364, 436 is the highest coverage amongst the six North Eastern states of Bauchi, Taraba, Borno, Yobe, and Gombe state. Enrolment is distributed among the following health insurance programs currently in existence in Adamawa: the Public Sector Social Health Insurance Program For Government Employees with 95,078 enrolees; the Group, Individual, And Family Social Health Insurance Programme (GIFSHIP) with 7,229 enrolees; Organized Private Sector Social Health Insurance Program (OPSSHIP) which is administered by National Health Insurance Authority (NHIA); and the State Social Health Insurance Schemes (SSHIAS) managed by the Adamawa State Health Insurance Management Agency (ASCHMA) which has a total of 113, 160 enrolees; Others include the Tertiary Institution's Social Health Insurance Programme (TISHIP) with 25, 709 enrolees; and the Private Health Plan provided by Health Maintenance Organizations (HMOs) with 7,211 enrolees. The Basic Healthcare Provision Fund (BHCPF), managed by ASCHMA, covers 116,045 enrollees. As of September, 2025, Adamawa has the 3rd highest BHCPF enrolment in the country after Kano with 231, 406 enrolments, and Oyo with 116, 805 enrolments [12].

A study which evaluated the effectiveness of Nigeria's National Health Insurance Policy from inception to date identified the following factors to have contributed to the low enrolment status. They include inadequate public awareness, limited enrolment of the rural population and the informal sector, healthcare funding constraints, public apathy, and the scheme's poor management with its associated delays in payment to health facilities by HMOs [13].

CBHI has widely been acknowledged to increase healthcare access among the largely uninsured informal sector who comprised the majority of Nigeria's population. There is the need for community-led effort targeted at implementing adaptable and potentially sustainable health insurance schemes that are best suited for Nigeria, and more specifically, Adamawa's socio-economic contexts. Given that social health insurance accounted for 90 percent of all health insurance enrolments, social health protection schemes such as community-based health insurance schemes should be painstakingly explored for their inherent potential to improve access to healthcare services, reduce out-of-pocket expenses, reduce catastrophic health spending, and pool resources for more effective and qualitative service delivery [10].

It follows that designing sustainable CBHIs will not only require drawing lessons from the experiences of other countries, but more importantly, will require that contextual factors

are evaluated, understood, and accounted for during the design and implementation phase. The transformation of the Rwandan healthcare systems resulting from the introduction and expansion of the Community Based Health Insurance (CBHI) schemes can be considered a viable case study for other countries to draw out lessons from. As of 2014, CBHI schemes alone accounted for 76.4 percent of health insurance coverage compared with national health insurance and private or employer health insurance which accounted for 5 percent and 0.7 percent respectively. And by 2015/2016, health insurance enrolment rose to 81.6 percent for CBHI alone, and a cumulative 87 percent for CBHI, national and private health insurance.

Coverage from the Rwandan brand of CBHI before 2006 was recognised as one of the highest in Sub-Saharan Africa even while the scheme was still voluntary. This success is largely attributed to the country's adoption of a unique brand of health insurance that evolved from an essentially voluntary CBHI scheme to one whose enrolment became mandatory and also subsidised. Rwanda also faced the typical challenge of low enrolment associated with voluntary interventions that were prone to adverse selection. To mitigate the challenge of low coverage, the Rwandan government made CBHI enrolment compulsory for Rwandans in 2006 [15].

Nonetheless, literature is rife with evidence of CBHI's positive impact on healthcare financing systems and its role as a promising tool for effectively delivering easily accessible, affordable, and efficient healthcare services [16, 17]. A 2025 publication of the World Health Organization (WHO) suggests that a CBHI that relies only on voluntary, small-scale schemes with little or no subsidisation of poor and vulnerable populations is bound to play a limited role in helping countries advance towards universal health coverage [18].

It follows that designing viable and sustainable community-based health insurance schemes will not only require drawing lessons from the experiences of other countries, but more importantly, will require that contextual factors are evaluated, understood, and accounted for during the design and implementation phase. CBHIs have been implemented in a few states in Nigeria but at a relatively low scale. Early efforts to establish CBHI in Kwara, Lagos, Ogun, the FCT, Plateau, and Anambra states offer valuable lessons. Notable lessons from Kwara's experience include the need to adopt an intensive marketing approach to attracting and retaining enrollees; the need to align premium thresholds to enrollees' willingness and especially capacity to pay; the need for standards for quality of care to be established and monitored for universal compliance across participating health facilities; the understanding that an attractive CBHI package cannot be funded by low-income households without subsidisation; and lastly, the fact that requiring even the poorest enrollee to pay a token, no matter how small, will make them value their membership [19].

A better perspective on how insurance works will largely depend on how well we understand contextual factors such as clients' perception of health insurance and the challenges they face while accessing services. It is also important to analyse affordability by assessing households' capacity and willingness to pay several flat-rate premiums for hypothetical CBHI schemes. In effect, establishing an alternative health financing mechanism that, amongst other benefits, increases access to quality healthcare, offers protection from the catastrophic impact of high out-of-pocket health spending, improves quality of life, and strengthens health systems is paramount.

The general objective of this research was to assess the feasibility of establishing a community-based health insurance scheme and also assess household willingness and capacity to pay for community-based health insurance premiums. The specific objectives included the following: the assessment of the existence of

the six preconditions for establishing a community-based health insurance scheme in target communities; the determination of status of institutional readiness for the establishment of CBHI scheme; and the assessment of the willingness and capacity to pay for a hypothetical community-based health insurance service package. A comparative analysis of findings from all 5 communities was also made.

The six preconditions for establishing CBHI scheme which were assessed included (1) assessed the existence of traditions of mutual aid based on assessment of the presence of functional cooperative societies. (2) assess that health services of acceptable quality exist and were informed by public perception of the quality of healthcare services. (3) State of public confidence in the promoters of health service delivery. The other two preconditions include (4) assessed the existence of a trend of socio-economic development and (5) assessed the likelihood that the number of enrollees of a pilot scheme will be sufficiently high within the first year of establishing a scheme. ILO considers the first four preconditions to be indispensable and strongly advocates for a halt in the process of establishing CBHI if any of these preconditions are lacking [20].

Literature around the feasibility of establishing community-based insurance schemes in Adamawa is limited. This is the first comparative study around the feasibility of piloting a community-based health insurance scheme and household willingness and capacity to pay for CBHI scheme in Adamawa state. Findings from this study are expected to inform policy decisions around scaling up health insurance access beyond its current state coverage of below 10%. Data and technical insights generated will inform the tailored design and implementation of context-specific and community-driven – community-based – health insurance schemes. This serves as a baseline and an important technical resource for other scholars interested in carrying out further research around CBHI establishment and scale-up. Insights obtained from capacity and willingness to pay will also help programme managers address highlighted challenges. An important outcome expected from this study will be the policy implication of findings around the inter-relationship between out-of-pocket expense, capacity to pay, and willingness to pay, against the backdrop of the state's vulnerability status.

Materials and Methods

Study Setting

The study was carried out in five wards within four local government areas (LGAs) in Adamawa, Nigeria. These wards include Damare in Girei LGA; Sabon Pegi and Imburu wards in Numan LGA; Dumne in Song LGA; and Mbilla in Mayobelwa. On the other hand, FGDs were conducted in Girei I ward of Girei LGA, Namtari ward of Yola South LGA, and Ajiya ward in Yola North LGA (Figure 1).

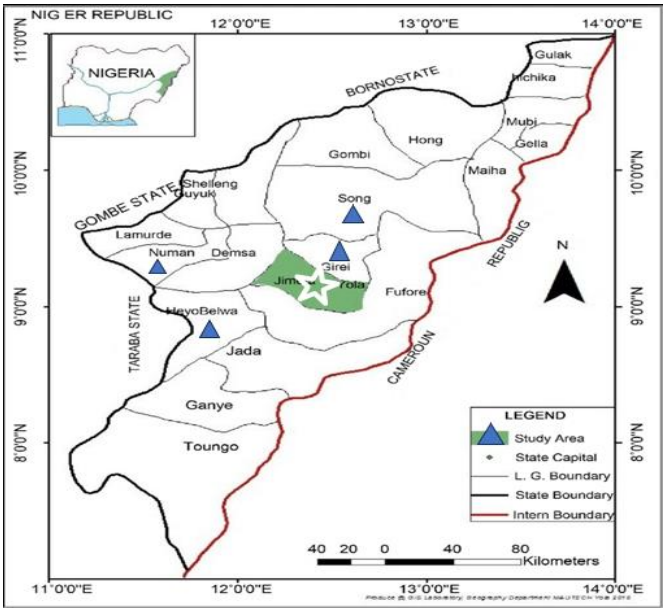

Figure 1: A map of Adamawa showing study areas

Source: Adapted from Adebayo, 1999 with modifications [45].

Study Design

This study adopted the mixed-method approach involving qualitative and quantitative studies. The sequential explanatory design classification method was adopted. While the descriptive cross-sectional survey, a quantitative method, informed the strategy for conducting all household-based assessments, the qualitative explorative approach, guided by semi-structured key informant interviews (KIIs) and focused group discussions (FGDs), was adopted for assessing the existence of preconditions for setting up CBHIs in five (5) communities, and institutional readiness.

The method used to elicit willingness to pay (WTP) is an adaptation of the contingent valuation method, and more specifically, the bidding game method using the Dutch system sequence (moving from highest amount to lowest amount). The willingness to pay assessment sought respondents' most preferred WTP amounts for the same standard basic minimum package of health service (BMPHS) currently offered by the Basic Healthcare Provision Fund (BHCPF) supported health facilities. Six bid premium options were determined following interviews with community members (FGDs), interviews with health facility managers of BHCPF-supported health facilities, and interactions with officials of the Adamawa State Contributory Health Management Agency (ACHMA). The current premium for BHCPF-supported health insurance's basic minimum service package is N1,000, while the capitation paid to health facilities for each enrollee is N570. The perceived affordability of the following six premium-price variants for a hypothetical standard CBHI health service package was also elicited: N300, N400, N600, N800, N1000, N1200, and N1500.

Sampling and Sample Size

The sample size for each community participating in the household-based survey was determined using Cochran's formula for determining a representative sample for proportions of large populations. No = Z2pq/e2. Where n is the minimum required sample size for a target population larger than 10,000; Z is the standard normal deviate set at 95% confidence interval (i.e., 1.96 for a 95% confidence interval); P is the estimated population proportion; (1 – p) or q is the complement of the population proportion; and D is the margin of error (or the desired level of

precision set at 0.05). Assuming a prevalence of rate of 60%, a minimum sample size of 368 was obtained. A total sample size of 480 was adopted to give room for at least 10% attrition and other potential data-related issues, such as missing data and data validation, that may lead to the discard of data. A significantly larger sample size was needed to accommodate the desired confidence interval and reliability expected for willingness to pay elicitation using the contingent valuation method.

This study's quantitative assessments adopted the convenience sampling technique as only participants who were available and accessible at the time of the research were considered. Participants of KIIs and FGDs were identified using purposive and criterion sampling techniques. This technique was adopted based on the need to identify individuals with relevant knowledge, experience, and authority. Criteria included those willing to engage in at least a 45-minute-long interview session.

Data Collection

Quantitative household-based data was collected by trained enumerators distributed across the five study locations while using the pretested interviewer-administered paper and mostly mobile phone-assisted personal interviewing (MPAPI) technique using the Kobo toolbox software. Qualitative data was collected using audio recorded in-depth interviews and focused group discussions. Twelve (12) FGDs and ten (10) KII involving high-level public officials, persons of interest with knowledge of the healthcare system, leaders of mutual aid organisations, influential community persons, and representatives of international organisations.

Data collection was conducted between September 2024 and February 2025. Each enumerator signed a digital non-disclosure agreement pledging to keep respondents' information confidential and private. The initial questionnaire was revised following observation from pilot studies covering 100 households in Namtari and Doubeli wards in Yola South and Yola North LGAs, respectively.

The household-based questionnaire comprised the following sections: demographic and household characteristics; education and socio-economic characteristics; knowledge, attitude, and perception about health insurance; household income and out-of-pocket expenditure; preference for different health insurance packages; and source of income for paying the CBHI scheme. Other key sections include affordability and willingness to pay for six variants of willingness to pay premiums for hypothetical individual and family insurance service packages. Out of the 2,539 households targeted, informed consent and responses were obtained from 2,309 respondents, giving a response rate of 90%. Given that 110 data points were discarded for incompleteness, 95% of data (2,199) were eventually exported from the Kobo Collect toolkit and analysed using SPSS software (version 30.0).

Data Analysis

1. Analysis of quantitative and descriptive data was conducted using Microsoft Excel 2016 and SPSS software version 30. Analysed data was presented in tables in the form of frequencies and percentages. All variables were subjected to frequency runs and logical data quality checks.
2. The content validity and reliability of this study's research instrument were enhanced by a total of five thematic area professionals with experience in health insurance, healthcare service delivery, and mixed-method research. Several important revisions were made following inputs from subject matter experts.
3. Analysis of qualitative data from FGDs and KIIs was done using the thematic analysis method, which is a qualitative research method used to identify, organise, analyse, and also interpret themes within a collated data set.

Result of Quantitative Studies

Descriptive Statistics & Sociodemographic Variables

Socio-Demographic Variables & Descriptive Statistics

Analysis of key socioeconomic variables is summarised in table 1. Overall, farming and trading, the two most prevalent occupations in all five communities, accounted for 44% (968) and 24.5% (539) of occupations, respectively. Farming was the highest preoccupation in 3 out of the 5 communities assessed. The three communities include Dumne in Song, Imburu in Numan, and Sabon Pegi, also in Numan. The highest distribution of respondents who were farmers was found in Dumne, Song, with 75.1% (307). Those who identified trading as their preoccupation were highest in Imburu, Numan, at 226 (50.3%). Overall, almost half of all the participants, 45.1% (991), in this study identified as self-employed.

The descriptive statistical analysis presented in Table 2 show that the mean age of respondents across the entire study is 42.25 years. The distribution of elderly participants above 65 years old was highest in Imburu with 54 (12%) and lowest in Mbilla with 0 (0%).

Descriptive data presented in table 2 showed the mean age of respondents in the entire study is 42.25 while the lowest mean age of study participants is 39.3 in Damare. The highest mean age was recorded in Imburu (45.83), Sabon Pegi (44.15), and Dumne (44.01). The distribution of elderly participants was therefore highest in Imburu with 54 (12%) and lowest in Mbilla with 0 (0%). Deviation from the mean was higher in Mbilla and lowest in Sabon Pegi ward. The mean number of children was lowest in Damare (2.44) and highest in Sabon Pegi (3.64) and Dumne (3.61). The number of children in households ranged from 0 to 9 across all 5 communities.

Assessing Preconditions for Establishing Community-Based Health Insurance Scheme

Existence of Traditions of Mutual Aid or Solidarity within Target Populations (Precondition 1)

Table 3 showed the percentages of respondents who were current members of mutual aid organisations. The existence of mutual aid organisations has been established in all the study locations. The highest proportion of residents who are members of mutual aid organisations reside in Mbilla with 30.7% (95) compared to all other 4 study locations. Only 14.1% (309) of respondents in the entire study were current members of cooperative societies. Across all locations, farmers' cooperatives had the highest proportions of membership, and was present in all 5 study locations at the following percentages: 39.6% (190); 70.2% (287); 65.5% (294); 29.4% (124); and 66.3% (291) for Damare, Dumne, Imburu, Mbilla, and Sabon Pegi, respectively.

Table 1. Socio-demographic Characteristics by Ward

		Total	**Damare**	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
		2199 (100)	480 (100)	409 (100)	449 (100)	422 (100)	439 (100)
Age of Respondents	18 – 29	318 (14.5)	102 (21.3)	38 (9)	75 (16.7)	48 (11.4)	55 (12.5)
	30 – 39	684 (31.1)	180 (37.5)	101 (24.7)	97 (21.6)	175 (41.5)	131 (25.8)
	40 – 49	618 (28.1)	111(23.1)	153 (37.4)	106 (23.6)	148 (35.1)	100 (22.8)
	50 – 59	353 (16.1)	49 (10.2)	80 (19.6)	91 (20.3)	43 (10.2)	90 (20.5)
	60 – 65	106 (4.8)	19 (4.2)	26 (6.4)	26 (5.8)	8 (1.9)	27 (6.2)
	Above 65	120 (5.5)	19 (4)	11 (6.7)	54 (12.0)	0 (0)	36 (8.2)
	Rural	1735 (78.9)	133 (27.7)	406 (99.3)	372 (88.2)	401 (89.3)	423 (96.4)

Geographical location	Urban	464 (21.1)	347 (72.3)	3 (0.7)	50 (11.8)	50 (11.8)	16 (3.6)
Gender	Male	1369 (62.3)	277 (57.7)	301 (73.6)	213 (47.4)	336 (79.6)	242 (55.1)
	Female	830 (37.7)	203 (42.3)	108 (26.4)	236 (52.6)	86 (20.4)	197 (44.9)
Occupation	Farmer	968 (44.0)	78 (16.3)	307 (75.1)	226 (50.3)	77 (18.2)	280 (63.8)
	Trader	539 (24.5)	149 (31.0)	10 (2.4)	163 (36.3)	107 (25.4)	110 (25.1)
	Artisan	353 (16.1)	147 (30.6)	22 (5.4)	21 (4.7)	84 (19.9)	84 (19.9)
	Carpenter	88 (4.0)	20 (4.2)	1 (0.2)	18 (4.0)	32 (7.5)	17 (3.9)
	Health worker	33 (1.5)	6 (1.3)	0 (0)	5 (1.1)	9 (2.1)	13 (3.0)
	Transportation	53 (2.4)	11 (2.3)	24 (5.9)	1 (0.2)	10(2.4)	7 (1.6)
	Others	135 (7.5)	69 (14.4)	45 (9.4)	15 (3.1)	103 (21.5)	72 (15)
Educational Status	Above tertiary	37 (1.7)	10 (2.1)	4 (1.0)	10 (2.2)	7 (1.7)	6 (1.4)
	Tertiary	337 (15.3)	18 (16.9)	52 (12.7)	59 (13.1)	72 (17.1)	73 (16.6)
	Senior Secondary	1348 (61.3)	291 (60.6)	305 (74.6)	276 (61.5)	207 (49.1)	269 (61.3)
	Junior Secondary	128 (5.8)	9 (1.9)	1 (0.2)	31 (6.9)	19 (4.5)	68 (15.5)
	Primary school	195 (8.9)	62 (12.9)	27 (6.6)	52 (11.6)	48 (11.4)	8 (1.8)
	Islamic education only	84 (3.8)	15 (3.1)	5 (1.2)	10 (2.2)	48 (11.4)	6 (1.4)
	No formal education	70 (3.2)	12 (2.5)	15 (3.7)	11 (2.4)	23 (5.5)	9 (2.1)
Marital Status	Married	1583 (72.0)	320 (66.7)	317 (77.5)	326 (72.6)	301 (71.3)	319 (72.7)
	Single	401 (18.2)	116 (24.2)	62 (15.2)	79 (17.9)	62 (14.7)	82 (18.7)
	Engaged	61 (2.8)	15 (3.1)	1 (0.2)	11 (2.4)	21 (5.0)	13 (3.0)
	Divorced	29 (1.3)	0 (0)	9 (2.2)	3 (0.7)	13 (3.1)	4 (0.9)
	Separated	50 (2.3)	11 (2.3)	12 (2.9)	12 (2.7)	11 (2.6)	4 (0.9)
Employment Situation	Employed	478 (21)	109 (22.7)	120 (29.3)	60 (13.4)	88 (20.9)	101 (23.0)
	Self-employed	991 (45.1)	255 (53.1)	91 (22.2)	243 (54.1)	182 (41.5)	182 (41.5)
	Unemployed	449 (20.4)	73 (15.2)	163 (39.9)	66 (14.7)	73 (16.6)	73 (16.6)
	Retired	90 (4.1)	16 (3.3)	10 (2.4)	21 (4.7)	33 (7.5)	33 (7.5)
	Housewife	157 (7.1)	24 (5.0)	14 (3.4)	39 (8.7)	50 (11.4)	50 (11.4)
	Unable to work	34 (1.5)	3 (0.6)	11 (2.7)	20 (4.5)	0 (0)	0 (0)
Relation to Head of Household	Head of household	1395 (63.4)	259 (54.0)	291 (71.1)	244 (54.3)	309 (73.2)	298 (67.9)
	Spouse	369 (16.8)	104 (21.7)	54 (13.2)	80 (17.6)	52 (12.3)	79 (18.0)
	Sibling	39 (1.8)	15 (3.1)	6 (1.5)	11 (2.4)	4 (0.9)	3 (0.7)
	Song or Daughter	226 (10.32)	84 (17.5)	24 (5.9)	44 (9.8)	39 (9.2)	29 (6.6)
	Parent	138 (6.3)	8 (1.7)	28 (6.8)	63 (14.0)	12 (2.8)	27 (6.2)
	Others	32 (1.5)	10 (2.1)	6 (1.5)	7 (1.6)	6 (1.4)	3 (0.7)

Table 2. Descriptive Analysis of Key Socio-demographic Variables

	Damare		**Dumne**		**Imburu**		**Mbilla**		**Sabon Pegi**	
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
Age of Respondent	39.3	11.819	44.01	11.274	45.83	15.603	39.22	8.885	44.15	13.925
Number of children	2.44	2.34	3.61	2.199	3.43	2.37	3	2.314	3.64	2.295
Number of children under 5 years	0.71	0.896	0.98	0.888	0.98	0.938	0.88	1.005	0.96	0.899

Number of adults between 18 and 64	1.1	1.328	1.8	1.317	1.8	1.377	1.6	1.438	1.7	1.167
Number of adults above 65	0.09	0.369	0.18	0.566	0.42	0.752	0.28	0.63	0.26	0.608
Total number. of persons in household	4.33	1.993	5.5	2.176	5.64	2.23	5.39	2.534	5.72	2.072

Determining if Health Services are of Acceptable Quality Exists

Table 4 showed results of respondents' overall experience with health facilities. Respondents' perception about how satisfied or dissatisfied they were was assessed using a 5-point scale; 1 for very satisfied and 5 for very dissatisfied. Results of the service quality assessment indicate cumulatively 70% of all respondents were (either satisfied or very satisfied) with health service delivery, while 8.8% expressed dissatisfaction (dissatisfied or very dissatisfied). High levels of satisfaction with healthcare services were recorded in Damare with rural-based respondents of 27.7% and Imburu with rural-based respondents of 89.3% (85.2% and 4.2%, respectively). Respondents who selected either 'satisfied' or 'very satisfied' were highest in Damare, with a combined percentage of 89.4%. Mbilla also recorded the highest percentage of consumers who were neutral, that is, neither satisfied nor dissatisfied, at 45.7%.

Priority Need for Protection Against Financial Risk Associated with Sickness

Trends in the number of respondents with chronic conditions and delayed healthcare seeking. Data shown in table 4 provided insights into the potential health status of study participants. It was observed from table 5 that Dumne, with the highest mean age of 45.83, recorded the highest proportion of respondents with chronic conditions, which is 1 in every 5 participants – 21.0% (86). Damare, with a mean age of 44.01, recorded that 5.0% (24) of its study population acknowledged they have at least one chronic condition. Percentage distribution of chronic conditions in the other study sites include 14.4% (65) in Imburu, 13.3% (56) in Mbilla, and 20.7% (91) in Sabon Pegi. Apart from Damare with 5.0%, at least 1 in every 10 respondents in Imburu and Mbilla and 1 in every 5 respondents in Damare and Sabon Pegi have a priority need for protection against financial risk associated with sickness, including chronic illnesses.

Table 3. Existence and Membership of Cooperative or Mutual Aid Organisations

		Damare	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
		Freq (%)	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**
Membership of mutual aid or cooperative societies	Farmer's Cooperative	190 (39.6)	287 (70.2)	294 (65.5)	124 (29.4)	291 (66.3)
	Fishermen's cooperative	39 (8.1)	10 (2.4)	36 (8.0)	35 (8.3)	25 (5.7)
	Artisan or worker cooperative	80 (16.7)	4 (1.0)	11 (2.4)	23 (5.5)	20 (4.6)
	Transport-related cooperative	30 (6.3)	19 (4.6)	15 (3.3)	47 (11.1)	12 (2.7)
	Multipurpose cooperative	79 (16.5)	192 (4.2)	49 (10.9)	66 (15.6)	149 (33.9)

	Consumer cooperative	11 (2.3)	90 (22)	13 (2.9)	11 (2.6)	13 (3.0)
	Savings and loans cooperative	105 (21.9)	3 (0.7)	72 (16.0)	44 (10.4)	120 (27.3)
	Other	187 (39.0)	0 (0)	92 (20.5)	207 (49.1)	5 (1.1)
Current membership of cooperative societies by ward	N (% within each ward)	52 (10.8%)	81 (19.8%)	48 (10.7%)	95 (22.5%)	33 (7.5%)
	N (% among the membership of the cooperative society	52 (16.8%)	81 (26.2%)	48 (15.5%)	95 (30.7%)	33 (10.7%)

Table 4. Overall Performance Rating of Health Facility

		Damare	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
		Freq (%)	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**
How would you RATE your overall experience with this health facility?	Very Satisfied	20 (4.2)	11 (2.7)	87 (19.4)	32 (7.6)	14 (3.2)
	Satisfied	409 (85.2)	229 (56.0)	302 (67.3)	166 (39.3)	269 (61.3)
	Neither satisfied nor dissatisfied	32 (6.7)	45 (11.0)	53 (11.8)	193 (45.7)	145 (33.0)
	Dissatisfied	16 (3.3)	40 (9.8)	1 (0.2)	21 (6.0)	5 (1.1)
	Very dissatisfied	3 (0.6)	84 (20.5)	6 (1.3)	10 (2.4)	6 (1.4)
	Total	480 (100)	409 (100)	449 (100)	422 (100)	439 (100)

Table 5. Chronic Disease Prevalence among Respondents/Household Members

		Total	**Damare**	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
		Freq (%)	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**
Mean age		43.13	44.01	45.83	39.22	44.15	42.46
Standard Deviation (SD)		12.51	11.274	15.603	8.885	13.925	12.843
Do you have any chronic conditions, such as hypertension, diabetes, etc., that you are currently receiving treatment for or taking medication for?	Yes	327 (14.8)	24 (5.0)	86 (21.0)	65 (14.5)	56 (13.3)	91 (20.7)
	Refuse to say	108 (4.9)	7 (1.5)	45 (11.0)	13 (2.9)	35 (8.3)	8 (1.8)
	No	1769 (80.4)	449 (93.5)	278 (68.0)	371 (82.6)	331 (78.4)	340 (77.4)
	Total	2199 (100)	480 (100)	409 (100)	449 (100)	422 (100)	439 (100)

As shown in table 6, 13.8% (66) in Damare visited the doctor for diagnosis or management of high blood pressure issues while 8.3% (40) said their visit was associated with diabetes management. Comparatively, diabetes-associated consultations were highest in Sabon Pegi with 22.1% (97) and lowest in Damare (8.3%). Similarly, high blood pressure-associated visits were highest in Sabon Pegi with 37.1% (163) and lowest in Mbilla with 16.8% (71). The number of times respondents delayed seeking needed care due to lack of financial capacity or cost constraints is also presented in table 6. Results showed those who experienced delays were 9.2% (44), which is approximately 1 in every 11 respondents in Damare; 39.6% (162) in Dumne; 57% (256) in Imburu; 34.4% (145) in Mbilla; and 64.1% (286) in Sabon Pegi.

Trends in Out-of-Pocket Expenses of Respondents

Table 7 showed that the mean score for the highest out-of-pocket expense on health for 25% of respondents in the entire study population of 2,199 is N1,500 at the individual level and 3,900 at the household level. This implies that the mean out-of-pocket expense at the individual level is equal to or more than the highest set premium for a hypothetical individual package of N1,500 being proposed in this study.

The mean highest monthly out of pocket expense during the last three months is 5,341 for individual and N11,163 for households. The standard deviation from the mean is 8, 166 for personal income, and N14, 113 for household highest out of pocket expense. Overall, the mean income left for savings after spending on basic necessities such as food, transport, education, rent, utilities, groceries is N14, 927 while the standard deviation from this mean score is N30,121. Table 7 clearly revealed that at the 25th percentile, estimated monthly income was N25,000 for individual and N30,000 at household level. A relatively higher value was observed at the 75th percentile where monthly income was N70,000 at individual and N95,000 at household level.

From table 8, it was observed that the mean highest individual out-of-pocket expense is distributed as follows: N7,863.3 for Sabon Pegi, N5,617.4 for Dumne, N4,819.5 for Imburu, N4,732.7 for Mbilla, and N3,820 for Damare. The highest and lowest mean individual expenses were found in Sabon Pegi (N7,863.3), with 96.4% of respondents living in rural settings. The standard deviation from the mean individual out-of-pocket expense was lowest in Sabon Pegi with a mean of N7,863 and SD of 7,520 and highest in Damare with a mean of N3,820 and SD of 7,529 and highest in Damare with a mean of N3,820 and SD of 7,529.

Table 6. Healthcare Access and Utilization within the last 6 Months

Occurrences/utilisation within the last 6 months.		**Total**	**Damare**	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
No. of visits you or a household member made to a doctor within the last 6 months	Never	791 (36)	157 (12.7)	215 (52.6)	119 (26.5)	209 (49.5)	91 (20.7)
	Once	661 (30.1)	185 (38.5)	117 (28.6)	113 (25.2)	72 (17.1)	174 (19.6)
	Twice	540 (24.6)	107 (22.3)	59 (14.4)	142 (31.6)	90 (21.3)	142 (32.3)
	Thrice	163 (7.4)	22 (4.6)	15 (1.7)	62 (13.8)	35 (8.3)	29 (6.6)
	More than thrice	44 (2)	9 (1.9)	3 (0.7)	13 (2.9)	16 (3.8)	3 (0.7)
Have you or a household member visited a doctor for these health conditions? (Yes/No)	High blood pressure (yes)	567 (25.9)	66 (13.8)	139 (34.0)	128 (28.5)	71 (16.8)	163 (37.1)
	Diabetes (Yes)	285 (13)	40 (8.3)	37 (9.0)	48 (10.7)	63 (14.9)	97 (22.1)
	Eye condition (Yes)	203 (9.7)	28 (5.8)	39 (9.5)	72 (16.0)	29 (6.9)	45 (10.3)
Number of times you or a household member delayed seeking care due to cost or lack of funds.	Never	1306 (59.4)	436 (90.8)	247 (60.4)	193 (43.0)	277 (65.6)	153 (34.9)
	Once	578 (26.3)	32 (6.6)	133 (32.5)	136 (30.3)	87 (20.6)	190 (43.2)
	Twice	237 (10.8)	6 (1.3)	22 (5.4)	96 (21.4)	39 (9.2)	74 (16.9)
	Thrice	54 (2.5)	2 (0.4)	7 (1.7)	19 (4.2)	5 (1.2)	21 (4.8)
	More than thrice	24 (1.1)	4 (0.8)	0 (0)	5 (1.1)	14 (3.3)	1 (0.2)

Table 7. Descriptive Statistics of Personal and Household Out-of-Pocket Expenses on Health

	Mean	**Median**	**Std. Deviation**	**Percentiles**		
				25	**50**	**75**
Highest personal monthly out-of-pocket (OOP) expense on health within the last 3 months.	5,341	3,000	8,166	1,500	3,000	5,000
Estimated household highest monthly out-of-pocket (OOP) expense on health within the last 3 months.	11,163	6,000	14,113	3,900	6,000	12,000
Total personal income left for savings after spending on basic necessities such as food, transport, education, rent, etc.	14,927	3,000.00	30,121	-	3,000	15,000
Out-of-pocket expense as a percentage of discretionary income.	35.80%	-	-	-	-	-

Table 8. Descriptive Analysis of Estimated Monthly Personal Income Left after Expenses on Necessities

	Damare	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
Mean Individual/Personal Income	62,345.8	64,063.1	43,291.6	37,335.6	58,164
Mean Combined Household Income	103,668	94,603.8	52,512.4	52,745.5	65,508
Mean Personal Highest Out-of-Pocket (OOP) Expense	3,820.3	5,617.4	4,819.5	4,732.7	7,863
Mean Household Highest Out-of-Pocket (OOP) Expense	9,849.8	10,375.0	8,621.4	10,904.0	16,182
Mean Personal income left after spending on basic necessities (discretionary income).	35,033.9	144,28.9	4,302.2	10,349.3	8,674.3
Mean percentage of personal income left after spending on basic necessities.	56.20%	22.52%	9.94%	27.70%	14.90%
Out-of-pocket expense as a percentage of discretionary income.	10.90%	38.90%	112%	45.70%	90.60%

NB: Basic necessities include food, transport, education, groceries, rent

From table 8, it was observed that the mean highest household out-of-pocket expense on health was also highest in Sabon Pegi with a mean score of N16,182.04 and lowest in Imburu with a mean score of N8,621.4. Table 8 also showed personal income left after savings on basic necessities for all study sites. The mean personal income left after expenses is N35,023.96 (SD 44,006.4) in Damare, N14,428.9 (SD 33,969.9) in Dumne, and 10,349.3 (SD 30,850.7) in Mbilla. These values are thus higher than the maximum starting point premium offered for the hypothetical family CBHI health service package while trying to elicit willingness to pay. This implied that a significant percentage of respondents in each of the 5 study sites were forecasted to be able to afford premiums for a standard individual service package starting at N1,500.

Table 9 showed the overall estimated personal monthly out of pocket expense within the last 3 months. Overall, the cumulative proportion of respondents whose personal monthly out of pocket expense exceeded the highest premium or willingness to pay price offer of N1,500 comprise 75.2% (1655) of the entire study's' respondents. This implied that 75.2% and 84.1% of respondents have already spent more than N1,500 and N1,000 as out of

pocket expense. A higher 31.3% have spent more than N4,000.

Table 10 presented the distribution of personal out of pocket (OOP) expense in each of the five study locations. Data showed the proportion of respondents whose OOP is above N1,500 is 81% (331) in Dumne, 77.5% (348) in Imburu, 73.9% (355) in Damare, 72.9% (320) in Sabon pegi, and 65.7% (277) in Mbilla. Suffice we use N1,500 as a bench mark OOP since this was the maximum premium price or higher premium option for individual hypothetical CBHI model. In effect, across all study sites, at least 4 out of every 5 respondents in Dumne have spent this amount (N1,500) as out-of-pocket expense on health. Furthermore, at least 7 out of every 10 respondents have already spent at least N1,500 on personal OOP in Damare, Imburu, and Sabon pegi. Cumulatively, 75.2% (1654) respondents across all study sites have spent the starting price of N1,500.

Therefore, the priority need for financial protection from health care expenses has already been established since making respondents aware of this existing OOP experience is likely to encourage greater willingness to pay the same N1,500.

Table 9. Overall Estimated Personal Monthly Out of Pocket Expense within the last 3 Months

Personal Income	**Freq (%)**	**Household Income**	**Freq (%)**
Less than 500	169 (7.7%)	Less than 1000	158 (7.2%)
500 to 1000	182 (8.3%)	1001 to 2000	131 (6.0%)
1001 to 1500	193 (8.8%)	2001 to 3000	194 (8.8%)
1501 to 2000	231 (10.5%)	3001 to 4000	264 (12.0%)
2001 to 2500	204 (9.3%)	4001 to 5000	243 (11.1%)
2501 to 3000	233 (10.6%)	5000 to 6000	196 (8.8%)
3001 to 3500	133 (6.0%)	6000 to 7000	174 (7.9%)
3501 to 4000	166 (7.5%)	More than 7000	839 (38.2%)
More than 4000	688 (31.3%)		

Table 10. Personal Highest Monthly Out of Pocket (OOP) Expenses on Health by Ward

		Damare	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
		N (% within Ward)				
Estimated personal highest monthly out of pocket expense on health within the last 3 months.	Less than 500	36 (7.5)	31 (7.6)	26 (5.8)	43 (10.2)	33 (7.5)
	500 to 1,000	45 (9.4)	21 (5.1)	33 (7.3)	38 (9.0)	45 (10.3)
	1001 to 1,500	45 (9.4)	26 (6.4)	42 (9.4)	39 (9.2)	41 (9.3)
	1,501 to 2,000	45 (9.4)	39 (9.5)	53 (11.8)	44 (10.4)	50 (11.4)
	2,001 to 2,500	47 (9.8)	38 (9.3)	46 (10.2)	37 (8.8)	36 (8.2)
	2,501 to 3,000	42 (8.8)	42 (10.3)	61 (13.6)	45 (10.7)	43 (9.8)
	3,001 to 3,500	18 (3.8)	22 (5.4)	37 (8.2)	30 (7.1)	26 (5.9)
	3,501 to 4,000	36 (7.5)	40 (9.8)	25 (5.6)	33 (7.8)	32 (7.3)
	More than 4,000	166 (34.6)	150 (36.7)	126 (28.1)	113 (20.8)	133 (30.3)

	Total	480 (100)	409 (100)	449 (100)	422 (100)	439 (100)
Estimated household highest monthly out of pocket expense on health within the last 3 months.	Less than 1000	45 (9.4)	24 (5.9)	22 (4.9)	41 (9.7)	26 (5.9)
	1001 to 2000	19 (4.0)	22 (5.4)	32 (7.1)	32 (7.6)	26 (5.9)
	2001 to 3000	34 (7.1)	35 (8.6)	43 (9.6)	41 (9.7)	41 (9.3)
	3001 to 4,000	45 (9.4)	44 (10.8)	64 (14.3)	51 (12.1)	60 (13.7)
	4,001 to 5,000	49 (10.2)	44 (10.8)	52 (11.6)	58 (13.7)	40 (9.1)
	5,001 to 6,000	55 (11.5)	25 (6.1)	40 (8.9)	35 (8.3)	41 (9.5)
	6,001 to 7,000	38 (7.9)	38 (9.3)	45 (10.0)	24 (5.7)	29 (6.6)
	More than 7,000	195 (40.6)	177 (43.3)	151 (33.6)	140 (33.2)	176 (40.1)
	Total	480 (100)	409 (100)	449 (100)	422 (100)	439 (100)

Estimated self-reported household OOP health expense also shown in table 10 showed respondents who have experienced OOP of more than N7,000 were highest in Dumne with 43.3% (177), 40.6% (195) in Damare, and 40.1% (176) in Sabon pegi. Therefore, an estimated 2 out of every 5 respondents in Damare, Dumne and Sabon pegi spent more than 7,000 as household OOP within the last 3 months. With the right education, these categories of respondents were more likely to rationalize and justify paying N7,000 for a family health service package. Cumulatively, across all five locations, 38.2% (83) of respondents experienced household OOP of N7,000 and above.

The Potential Number of Covered Persons will be Sufficiently High from the First Year

Attitude towards Community-Based Health Insurance

Results presented in table 11 showed respondents' attitude towards CBHI, their interest in joining CBHI schemes, and their willingness to pay a fee to join a hypothetical CBHI scheme's service package. Those who thought participating in health insurance is a very good idea comprised 79.7% (350) in Sabon Pegi, 87.1% (391) in Imburu, 78.2% (320) in Dumne and 65.2% (313) in Damare. Those who thought participating in health insurance was either a very good or somewhat good idea comprised 88.3% in Damare, 97.8% in Dumne, 93.3% in Mbilla and 95.4% in Sabon Pegi. Table 11 also highlighted respondents' attitudinal disposition towards the establishment of CBHI in their communities. Less than 5% of respondents expressed a negative opinion in each of the 5 study sites. Positive attitude (either a very good idea or a somewhat good idea) was expressed by 90.6% (1992) across all 5 study locations.

Table 11. Attitude towards Health Insurance

		Total	**Damare**	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
		Freq (%)	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**
Do you think participating in health insurance is a good idea or a bad idea?	Very good idea	1598 (72.7)	313 (65.2)	320 (78.2)	391 (87.1)	224 (53.1)	350 (79.7)
	Somewhat of a good idea	449 (20.4)	4111 (23.1)	80 (19.6)	28 (6.2)	161 (38.2)	69 (15.7)
	Somewhat of a bad idea	40 (1.8)	11 (2.3)	3 (0.7)	3 (0.7)	11 (2.6)	12 (2.7)

	Very bad idea	16 (0.7)	-0.8	0 (0)	15 (3.3)	12 (2.8)	4 (0.9)
	I don't know.	77 (3.5)	41 (8.5)	6 (1.5)	12 (2.7)	14 (3.3)	4 (0.9)
Do you think it's a good idea or a bad idea to establish a community-based health insurance scheme (CBHI)?	Very good idea	1542 (70.1)	282 (58.8)	305 (74.6)	402 (89.5)	208 (49.3)	345 (78.6)
	Somewhat of a good idea	450 (20.5)	121 (25.2)	75 (18.3)	14 (3.1)	164 (38.9)	76 (17.3)
	Neither a good nor a bad idea	96 (4.4)	32 (6.7)	22 (5.4)	7 (1.6)	22 (5.2)	13 (3.0)
	Somewhat of a bad idea	13 (0.6)	6 (1.3)	0 (0)	0 (0)	7 (1.7)	0 (0)
	Very bad idea	14 (0.6)	4 (0.8)	0 (0)	0 (0)	10 (2.4)	0 (0)
	I don't know.	3.8)	35 (7.3)	7 (1.7)	26 (5.8)	11 (2.6)	5 (1.1)

Willingness to Join and Promote Community Enrolment into the CBHI Scheme

Overall findings from the assessment of the respondent's willingness to join the CBHI scheme across all 5 study sites are shown in table 12 below. Cumulatively, 88.5% (1947) of respondents were willing to pay a fee to join as individuals; 85.3% (1877) were willing to pay a fee to enrol a family or household member; and 89.6% (1928) were willing to encourage a neighbour to join. The potential for mutual aid and solidarity among residents of the study location was found in 4 out of 5 respondents. Ward level distribution of willingness to pay a fee to join is presented in table 13. Findings around respondents' willingness to pay a fee to enrol a family or individual member depicted in table 12 showed that at least 4 out of every 5 respondents also indicated positive interest (very interested or somewhat interested) in Imburu with 87.5% (393), Mbilla with 90.5% (382), and Sabon Pegi with 96.2% (422).

Preferred Willingness to Pay Amounts for Hypothetical Individual CBHI Health Service Package

Table 14 presents data on preferred willingness to pay amounts from premium offers ranging from 1,500/7,000 to 300/1,500 as monthly fees for individual and family package of CBHI service.

Table 12. Respondent's Overall Willingness to Join and Promote Enrolment of Others into the CBHI Scheme

Variable	Yes (N/%)	Neutral (N/%)	No (N/%)
Willingness to pay a fee to join CBHI	1947 (88.5%)	103 (4.7%)	149 (6.8%)
Willingness to pay a fee to enrol FAMILY	1877 (85.3%)	140 (6.4%)	149 (6.8%)
Willingness to encourage your neighbour to join	1928 (89.6%)	116 (5.3%)	155 (5.1%)

Table 13. Willingness to Pay a Fee to Join the CBHI Scheme (by Ward)

		Damare	Dumne	Imburu	Mbilla	Sabon Pegi
		N (% within Ward)				
Willingness to pay a fee to join.	Yes, I am very interested.	242 (50.4)	278 (68.0)	367 (81.7)	202 (47.9)	323 (73.8)

	Yes, I am somewhat interested.	135 (28.1)	96 (23.5)	31 (6.9)	171 (40.5)	102 (23.2)
	No, I am somewhat disinterested.	18 (3.8)	2 (0.5)	0 (0)	12 (2.8)	0 (0)
	No, I am not interested.	53 (11.0)	7 (1.7)	44 (9.8)	10 (2.4)	3 (0.7)
	Neither interested nor disinterested	32 (8.7)	26 (8.4)	7 (1.6)	27 (6.4)	11 (2.5)
Willingness to pay a fee to enrol your FAMILY or household members**.**	Yes, I am very interested.	236 (49.2)	199 (48.7)	352 (78.4)	208 (49.3)	312 (71.1)
	Yes, I am somewhat interested.	138 (28.8)	107 (26.2)	41 (9.1)	174 (41.2)	110 (25.1)
	Neither interested nor disinterested	30 (8.3)	69 (16.9)	9 (2.0)	17 (4.0)	15 (3.4)
	No, I am somewhat disinterested.	19 (4.0)	26 (6.4)	1 (0.2)	13 (3.1)	0 (0)
	No, I am not interested.	57 (11.9)	8 (2.0)	46 (10.2)	10 (2.4)	2 (0.5)
Willingness to encourage your neighbour and/or community members to join.	Yes, I am willing.	238 (49.6)	304 (74.3)	354 (78.8)	193 (45.7)	315 (71.8)
	Yes, I am somewhat willing.	131 (27.3)	73 (17.8)	43 (9.6)	177 (41.9)	100 (22.8)
	Neutral	41 (8.5)	23 (5.6)	4 (0.9)	26 (6.2)	22 (5.0)
	No, I doubt if I will.	17 (3.5)	6 (1.5)	4 (0.9)	14 (3.3)	0 (0)
	No, I will not.	53 (11.0)	3 (0.7)	44 (9.8)	12 (2.8)	2 (0.5)

Table 14. Willingness to Pay Monthly Premium for Standard CBHI Packages

		Damare	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**	**Total (Yes)**
		Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)	
		480 (100)	409 (100)	449 (100)	422 (100)	439 (100)	2199 (100)
Monthly fee of N1,500 per person for a standard plan of all services, and N7,000 for a family of up to 6	Yes	64 (13.2)	64 (15.6)	10 (2.2)	10 (2.4)	11 (2.5)	159 (7.2)
	No	416 (86.7)	345 (84.4)	439 (97.8)	412 (97.6)	428 (97.5)	2040 (92.8)
	Not Sure	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Monthly fee of N1,200 per person for a standard plan of all service, and N6,000 for a family of up to	Yes	64 (13.3)	64 (15.6)	10 (2.2)	10 (2.4)	11 (2.5)	159 (7.2)
	No	416 (86.7)	345 (84.4)	439 (97.8)	412 (97.6)	428 (97.5)	2040 (92.8)
	Not Sure	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Monthly fee of N1,000 per person for a standard plan of all services, and N5,000 for a family of up to 6	Yes	292 (60.8)	220 (53.8)	204 (45.4)	147 (34.8)	215 (49.0)	1078 (49.0)
	No	188 (39.2)	172 (42.1)	245 (54.6)	275 (65.2)	224 (51.0)	1104 (50.2)
	Not Sure	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Monthly fee of N0,800 per person for a standard plan of all service, and N4,200 for a family of up to 6	Yes	440 (91.7)	388 (94.9)	404 (90.0)	387 (91.7)	375 (85.4)	1994 (90.7)
	No	40 (8.3)	21 (5.1)	45 (10)	35 (8.3)	64 (14.6)	205 (9.3)
	Not Sure	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Monthly fee of N0,600 per person for a standard plan of all service, and N3,400 for a family of up to 6	Yes	464 (96.7)	402 (98.3)	435 (96.9)	414 (98.1)	425 (96.8)	2140 (97.3)
	No	16 (3.3)	7 (1.7)	14 (3.1)	8 (1.9)	14 (3.2)	59 (2.7)
	Not Sure	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Monthly fee of N0,400 per person for a standard plan of all service, and N2,200 for a family of up to 6	Yes	464 (96.7)	402 (98.3)	435 (96.9)	414 (98.1)	425 (96.8)	2140 (97.3)
	No	16 (3.3)	7 (1.70	14 (3.1)	8 (1.8)	14 (3.2)	59 (2.7)
	Not Sure	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Monthly fee of N0,300 per person for a standard plan of all service, and N1,500 for a family of up to 6	Yes	464 (96.7)	402 (98.3)	435 (96.9)	414 (98.1)	425 (96.8)	2140 (97.3)
	No	16 (3.3)	7 (1.70	14 (3.1)	8 (1.8)	14 (3.2)	59 (2.7)
	Not Sure	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

The distribution of those willing to pay each variant of the premium offer is as follows. In Damare, 13.2% (64) indicated yes for 1500; 13.3% (64) said yes for 1,200; and 60.8% (292) said yes for 1000. Those willing to pay 800, 600, 400 and 300 in Damare comprised 91.7% (440), 96.7% (464), 96.7 (464) and 96.4% (464) respondents respectively. For Dumne, the percentage increase moved from 15.5% (64) for 1500 to 53.8% (220) for 1,000, and 94.9% (388) for 800. Comparatively, the two study sites, Imburu and Sabon pegi located in the same local government area recorded similar proportion of respondents willing to pay for each amount.

Table 15 showed results of rural or urban distribution of preferred willingness to pay premiums for CBHI individual service package. Percentage distribution within each geographical segment showed that among rural dwellers, 93% (1,614) were willing to pay N800, while 94.8% (440) of those living in urban settlements were willing to pay N800. Above N800 (i.e. 1000 to 1500), proportion who were willing to pay were 49% (832) for 1,000; 7.4% (129) for 1,200; and 7.4% (129) for 1,500. Among dwellers of urban settlements, the price N800 had 94.8% (440) willing to pay. Beyond this price, the willingness ranged from 25.6% (286) for 1,000; 9.3% (43) for 1,200; and 8.3% (43) for 1,500 (Note N = 1,735). Among residents of urban settlements, 94.8% (440 out of 464) indicated willingness to pay N800. Beyond this price, the percentage ranged from 25.6% (280) for 1,000, 9.3% (43) for 1,200, and 9.3% (43) for 1,500.

Table 16 also presents the distribution of respondents willing to pay a monthly fee of N1,000 and N800 by ward. Findings reveal that as the premium price offering decreased from N1,000 to 800, the proportion of those willing to pay N800 as at against N1,000 moved from 63.5% (305) to 95.2% (457) in Damare; 55.3% (226) to 96.6% (393) in Dumne; 47.4% (213) to 93.1% (418) in Imburu; and 35.5% (150) to 93.6% (395%) in Mbilla. For Sabon pegi, the proportion moved from 51% (224) who were willing to pay N1,000 to 88.6% (439) who were willing to pay N800.

Table 15. Willingness to Pay for Individual CBHI Package by Geographical Location

Geography	**1500**	**1200**	**1000**	**800**	**600**	**400**	**300**
Rural (N = 1735)	129 (7.4%)	129 (7.4%)	832 (48%)	1614 (93%)	1735 (100%)	1735 (100%)	1735 (100%)
Urban (N = 464)	43 (9.3%)	43 (9.3%)	286 (25.6%)	440 (94.8%)	464 (100%)	464 (100%)	(100%)

Table 16. Willingness to Pay a Monthly Fee of 1000 (Current Benchmark Premium) by Ward

Willing to pay N1000 and N800	Damare	Dumne	Imburu	Mbilla	Sabon Pegi	Total
Yes, to N1000	305 (63.5%)	226 (55.3%)	213 (47.4%)	150 (35.5%)	224 (51%)	1118 (50.8%)
Yes, to N800	457 (95.2%)	395 (96.6%)	418 (93.1%)	395 (93.6%)	439 (88.6%)	2054 (93.4%)

Overall, across all study location, while 50.8% were willing to pay N1,000, 93.4% (2054) indicated willingness to pay N800. Respondents who were willing to pay N800 (93.4%) and N1,000 (50.8%) had a mean highest monthly out-of-pocket expense of N5,414 and N6,518, respectively.

Trends in Socio-Economic Developments

Assessing Household Income and Capacity to Pay for CBHI Service Package

Table 17 contained details of the estimated personal and household income percentage distribution by income range. From table 17, it was observed that 29.8% (656) and 26.2% (577) of respondents in the entire study earned less than N30,000 at personal and household level on a monthly basis. The highest income range was the range, 30,001 to 50,000, at individual level, and 50,001 to 100,000 range, at household level. The percentage of respondents in the above two categories was 33.2% (729) for personal income range of 30,001 to 50,000, and 31.5% (692) for household income range of 50,001 to 100,000.

Descriptive statistics of overall respondent's monthly income and out-of-pocket expense is presented in table 18. The table indicates that across all 5 study sites, the mean score for the number of persons in households was 5.3. The median score and standard deviation are 5.00 and 2.262, respectively. The mean score for estimated total personal monthly income based on respondent's recall was N53,140. Findings from the evaluation of trends in respondents' capacity to pay for health insurance showed the mean score for estimated total personal and household monthly income is N53,140 (SD 48,508) and N74,147 (SD 72,064), respectively.

At the 25th percentile, the mean score for the highest out-of-pocket expense on health is 1,500 and 3,900 at the individual and household levels, respectively. Therefore, the mean out-of-pocket expense at the individual level is equal to the highest willingness to pay amount of 1,500. The mean highest monthly out-of-pocket expense during the last three months is N5,341 at the individual level and N11,163 at the household level. From table 18, it was also observed that the 25th percentile estimated monthly income was 25,000 for individuals and 30,000 at the household level. A relatively higher value was observed at the 75^{th} percentile, where monthly income was 70,000 at the individual level and 95,000 at the household level. Overall, the mean personal income left for savings after spending on basic necessities such as food, transport, education, rent, utilities, and groceries is N14,927 (SD 30,121).

Table 19 showed data around distribution of personal and household income by ward. The estimated personal monthly income of less than N30,000 was earned by 37.4% (158) of respondents in Mbilla, 38.1% (171) of respondents in Imburu, 27.3% (120) of those in Sabon pegi, and 22.9% (110) of respondents in Damare ward.

Table 17. Estimated Personal and Household Monthly Income of Respondent

Income Range	Personal Income	Household Income
Less than 30,000	656 (29.8%)	577 (26.2%)
30,001 to 50,000	729 (33.2%)	455 (20.7%)
50,001 to 100,000	558 (25.4%)	692 (31.5%)
100,001 to 200,000	190 (8.6%)	341 (15.5%)
200,001 to 300,000	51 (2.3)	73 (3.3%)
More than 300,000	15 (0.7%)	61 (2.8%)

Table 18. Descriptive Statistics of Personal and Household Income Distribution

	Mean	Median	Std. Deviation	Percentiles		
				25	50	75
Total number of persons in household.	5.30	5.00	2.262	4	5	7
Estimated total personal monthly income.	53,140	40,000	48,508	25,000	40,000	70,000
Estimated total household combined monthly income.	74,147	50,000	72,064	30,000	50,000	95,000
Total personal income left for savings after spending on basic necessities such as food, transport, education, rent, etc.	14,927	3,000.	30,121	-	3,000	15,000

Table 19. Personal and Household Income of Respondents (Estimated)

		Damare	Dumne	Imburu	Mbilla	Sabon Pegi
		N (% within Ward)				
Estimated personal total monthly income	Less than 30,000	110 (22.9)	97 (23.7)	171 (38.1)	158 (37.4)	120 (27.3)
	30,001 to 50,000	146 (30.4)	131 (32.0)	158 (35.2)	128 (30.3)	166 (37.8)
	50,001 to 100,000	132 (27.5)	129 (31.5)	104 (23.2)	100 (23.7)	93 (21.2)
	100,001 to 200,000	65 (13.5)	37 (9.0)	12 (2.7)	27 (6.4)	49 (11.2)
	200,001 to 300,000	22 (4.6)	12 (2.9)	2 (0.4)	6 (1.4)	9 (2.1)
	More than 300,000	5 (1.0)	3 (0.7)	2 (0.4)	3 (0.7)	2 (0.5)
	Total	480 (100)	409 (100)	449 (100)	422 (100)	439 (100)
Estimated household combine total monthly income	Less than 30,000	47 (9.8)	157 (38.4)	160 (35.6)	160 (37.9)	53 (12.1)
	30,001 to 50,000	71 (14.8)	28 (0.8)	90 (20.0)	102 (24.2)	164 (37.4)
	50,001 to 100,000	190 (39.6)	78 (19.1)	160 (35.6)	110 (26.1)	154 (35.4)
	100,001 to 200,000	121 (25.2)	87 (21.3)	28 (6.2)	42 (10)	63 (14.4)
	200,001 to 300,000	32 (6.7)	29 (7.1)	4 (0.9)	4 (0.9)	4 (0.9)
	More than 300,000	19 (4.0)	30 (7.3)	7 (1.8)	4 (0.9)	1 (0,2)
	Total	480 (100)	409 (100)	449 (100)	422 (100)	439 (100)

The cumulative percentage of respondents earning a monthly income between 0 and 100,000 is 80.8% in Damare, 87.2% in Dumne, 96.5% in Imburu, 91.4% in Mbilla, and 86.3% in Sabon pegi. This implies that at least 4 out of every 5 residents in all five locations earned less than 100,000 or equal to 100,000 at the most, as personal monthly income.

Assessing Respondents' Preference for Various Hypothetical CBHI Packages

Table 20 showed respondents' preference for various hypothetical CBHI health service package by ward or study location. The most preferred CBHI service package was a package that covered 'everything", the one that covered only basic illness, and one that covered only outpatient services. These are the popular 3 out of the 8 options available. Respondents who preferred a package that covered everything (in-patient, outpatient, emergencies, and including basic illness) comprise 24.4% (117) in Damare; 52.6% (215) in Dumne; 58.9% (240) in Mbilla; and 30.3% (133) in Sabon pegi. The preference for a package that covered only basic illness is distributed as follows: 49.8% (239) in Damare; 68.6% (308) in Imburu; and 52.8% (232) in Sabon pegi. A package that covered everything was the most preferred package in Dumne (52.6%), and Mbilla (58.9%).

Value Added Services

Table 21 contained respondents' preference for various value-added services they think would most likely encourage and sustain enrolment especially among young adults. CBHI service package with subsidisation of enrolment into skill acquisition centres featured as the most preferred in Damare with 55.4% (266). In Dumne, a scheme with agricultural input subsidisation was the most recommended, with 38.9% (159). A scheme with weekly free recharge cards was preferred in Imburu and Mbilla. The distribution of respondents who recommended the provision of weekly free recharge cards as a value-added service comprised 40.1% (80) in Imburu and 50.4% (214) of respondents in Mbilla. In Sabon Pegi, a CBHI service package providing bi-weekly health information messages via text messages on key health-promoting topics was recommended by 44.4% (195) of respondents.

Table 20. Preference for Various CBHI Service Packages

	Damare	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**	**Total**
	Freq (%)	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**	**Freq (%)**
Everything (Complete Package)	117 (24.4%)	215 (52.6%)	41 (9.1%)	240 (58.9%)	133 (30.3%)	746 (33.9%)
Inpatient and Emergencies	15 (3.1%)	0 (%)	5 (1.1%)	7 (1.7%)	7 (1.6%)	34 (1.5%)
Impatient and Outpatient	10 (2.1%)	4 (1.0%)	7 (1.6%)	5 (1.2%)	7 (1.6%)	33 (1.5%)
Outpatient and Emergencies	36 (8.1%)	5 (1.2%)	28 (6.2%)	33 (7.8%)	23 (5.2%)	125 (5.7%)
Basic illness	239 (49.8%)	135 (33.0%)	308 (68.6%)	100 (23.7%)	232 (52.8%)	1,014 (46.1)
Only emergencies services	4 (0.8%)	0 (0%)	4 (0.9%)	3 (0.7%)	1 (0.2%)	12 (0.5%)
Only inpatient services	2 (0.4)	6 (1.5)	9 (2.0)	2 (0.5)	6 1.4)	25 (1.1%)
Only outpatient services	54 (11.3%)	44 (10.8%)	47 (22.7%)	32 (15.5%)	30 (14.5%)	207 (9.4%)

Table 21. Household Preference for Value-Added/Add-on Services likely to Enhance Youth Enrolment

	Damare	**Dumne**	**Imburu**	**Mbilla**	**Sabon Pegi**
	480 (100)	**409 (100)**	**449 (100)**	**422 (100)**	**439 (100)**
	Yes - N (%)	**Yes - N (%)**	**Yes - N (%)**	**Yes - N (%)**	**Yes - N (%)**
CBHI with weekly free recharge cards provided by telecom partners in collaboration with ACHMA.	156 (32.5)	159 (38.9)	180 (40.1)	214 (50.4)	161 (36.7)
CBHI with biweekly health information on selected topics in your preferred language delivered to your phone (facilitated by ACHMA in collaboration with UNICEF (U-report)).	187 (39.0)	89 (21.8)	171 (38.1)	197 (46.7)	195 (44.4)
CBHI with prospects of savings and loan facility provided by microfinance bank.	104 (21.7)	49 (12.0)	149 (33.2)	34 (8.1)	185 (42.1)
CBHI with agricultural input subsidies, food stamps, and consumer product subsidies	170 (35.4)	188 (46.0)	68 (15.1)	67 (15.9)	110 (25.1)
CBHI with subsidised transport fees organised in partnership with NURTW, MoT, ACHMA, and philanthropists	73 (15.2)	38 (9.3)	25 (5.6)	47 (11.1)	49 (11.2)
CBHI with free or subsidised children's education organised by ACHMA in collaboration with ADSUBEB, CSOs, INGOs, MoE, etc.	104 (21.7)	128 (31.3)	48 (10.7)	97 (23.0)	110 (25.1)
CBHI with free or subsidised enrolment to skill acquisition centres or adult education centres.	266 (55.4)	82 (20.0)	55 (12.2)	76 (18.0)	80 (18.2)

Results of Qualitative Studies

Results presented below comprised findings from qualitative studies. FGDs were held with internally displaced persons (IDPs); Ward and Village Development Community (WDC) chairmen; leaders of cooperative societies; youth groups; and women leaders. Men and women from various occupations, including traders, farmers, artisans, and fishermen were involved. Other participants of FGDs include health facility managers and women of childbearing age. Participants of key informant interviews (KII) include various categories of health managers and high-level stakeholders. Locations of FGDs and KII include Girei, Yola South, Yola North, and Song LGA.

Perceptions of Quality and Acceptability of Service Delivered by Health Facilities

Enquiries made during FGDs and KII also explored participants' perception of service delivery quality, the likelihood of referring these facilities to friends and families, and the quality and state of drug supply. Findings indicated higher quality service delivery perceptions were observed among participants accessing basic healthcare provision fund (BHCP)-supported health facilities compared to those accessing non-BHCPF-supported health facilities. Findings also indicated both positive and negative reviews were prevalent. For example, while the majority of participants

appraised service delivery quality to be satisfactory, there were others who expressed concerns over poor services. Even contrasting reviews were given for the same health facility. This subjective perception was based on the personal experience of participants and seemed to be dependent on the age of participants, marital status, and whether participants visited these facilities for maternal and child health-related issues. A key informant asserts all BHCPF-supported health facilities were accredited by the National Health Insurance Agency through the State Health Insurance Contributory Health Management Agency. To attain accreditation, he reported that these health facilities met predefined standards, which include the provision of health services that were of acceptable quality. In his word, key informant (KII-1) stated

"For all the wards in Adamawa State—there are 226 wards—we have focal health facilities that currently provide health insurance services to enrollees under the basic healthcare scheme. Even under the public sector, some have chosen these facilities as their service providers. Before any health facility begins providing services, it must be accredited by the National Health Insurance Agency through the State Contributing Health Management Scheme. All the health facilities have attained this level of accreditation. So, I believe the health services provided are of acceptable quality."

Perceptions around the Existence of Mutual Aid Organisations

This session of FGDs also soughted to examine perceptions around the existence, functionality, and extent of community participation in mutual aid organisations. Overall, findings revealed the existence of various types of cooperatives or mutual aid organisations. Findings indicated some of these organisations have been in existence for more than ten years, are currently active, and, in some cases, up to seventy percent of adult community members were active members. Revelation from FGD-2, which essentially comprised of community leaders and high-level community stakeholders, including ward development community chairmen, suggests the availability of several solidarity groups, jointly established for the purpose of supporting active community members during times of emergencies or times when some sort of solidarity or welfare support was needed. Participant 9 from FGD-2A highlighted thus:

"In my community, we have several cooperative societies that we established. We have the "Njaredi" cooperative society and the "Gadalgasol" cooperative society. Our members are engaged in farming and small businesses. We contribute weekly into a common purse, with members contributing according to their financial capacity. The funds are used to support members in their times of need. We also help each other with grants and loans to boost members' small-scale businesses, but the amount we give is not more than N50,000"

Attitudes Towards Health Insurance Among Young Adults

When focused group discussions transitioned to assessing attitudes of participants towards health insurance, findings revealed a favourable disposition towards the establishment of health insurance by the majority of participants. Discussion bordering on the enrolment of young adults did not attract the sort of fervour and consensus position that discussion on whether establishing community-based health insurance was a good idea attracted. A few participants believed since young adults are less likely to fall sick, they do not necessarily have to pay to be enrolled into the scheme. Participants (11 from FGD 1) posited that

"I don't think it is a good idea to pay if, as a young person, you rarely fall sick."

There were indications that community-based health insurance may be prone to adverse selection if communities are not adequately sensitised. The attitude of key informants

towards establishing community-based health insurance was also assessed. The key informant considered the establishment of community-based health insurance to be a good idea. The key informant also added that

"Any policy can succeed if people are properly educated and if relevant stakeholders, including radio hosts, TV presenters, traditional rulers, and religious leaders, are involved in advocating for it. If people understand the importance of the programme, they will participate willingly."

Affordability and Willingness to Join and Pay for Community-Based Health Insurance

Participants provided their views on what premium amounts they considered to be the most affordable for them and the majority of community residents. Participants were asked to state how much they considered affordable for individual and family packages. Premium amounts considered affordable varied and included N200, N300, N500, and N800. Virtually all participants indicated a willingness to join and pay for the scheme. Some participants hinged their willingness-to-pay decision on the scope of services covered by the package under review. The majority of the willingness to pay amount was between N500 and N800. The starting fee of N1,500 was considered unaffordable by almost all participants in both FGDs. For example, participant 11 of FGD-2 said

"There is economic hardship in the country. N1,500 is too much for my community. They won't be able to keep up. I think they can afford to pay N800 naira per person."

Experience with Monthly Out-of-Pocket (OOP) Expenses on Health within the Last 3 Months

To enable FGD participants better understand the difference between the suggested individual monthly starting premium of N1,500 and the potential marginal cost of care for those who happen to need care during a one-month period, they were asked what their highest monthly out-of-pocket expenditure on healthcare was within the last three months. Out-of-pocket expenditure ranged between N2,000 and 25,000 for the majority of participants. Everywhere this subject was discussed during the course of this study, there were many compelling anecdotes demonstrating how community members are constantly exposed to high out-of-pocket health spending. The poor and vulnerable, including persons living under the poverty trap, are usually most affected. Out-of-pocket expenses of up to 250,000 for childcare and 1,000,000 for an individual's surgical care were reported. For example, a female participant reported

"A few days ago, I spent N25,000 on my daughter's treatment."

Eventually, participants recognised that most of these amounts were much higher than the highest individual premium fees for a hypothetical community-based health insurance service package of N1,500. It is worthy to note that there was also a significant majority who personally did not spend money on healthcare within the last 1 to 3 months but had household members who did or for whom they purchased healthcare. There were also a significant number who were enrolled in the basic healthcare provision fund, supported health insurance, and only spent money to purchase prescribed drugs that were not available at the health insurance service provider.

Perception around Institutional Readiness

Institutional readiness as it relates specifically to this feasibility study soughted to understand the perception of stakeholders on whether the necessary structures, support systems, and technical expertise required to launch, manage, and sustain a viable community-based health insurance scheme were in place. Interviewees shared insights on their perception about how readily the state is able to roll out and mobilise community ownership, participation, and

support for establishment and effective management of a successful pilot community health insurance scheme following a favourable feasibility study outcome. The respondents acknowledged the existence of functional health facilities across all 226 wards in the state that have collectively enrolled more than 116,000 enrollees into the Basic Healthcare Provision Fund (BHCPF)-supported health insurance, with Adamawa having the third largest enrolment nationally [12]. The respondent expressed the conviction that the state has also demonstrated the requisite capacity to mobilise the necessary financial and technical expertise needed to run a successful scheme. For example, a key informant expressed confidence that

"The state has the necessary ingredients, including state actors, a stand-alone health insurance agency, an active primary healthcare agency coordinating primary healthcare activities across all 226 wards, and the presence of the national health insurance authority."

Perception around the Existence of Political Will and Legal Framework

Perceptions around the existence of political will including the legal framework for establishing community-based health insurance was examined. High-level government health managers shared their perspectives. Two key informants affirmed the existence of a strong political will at the state and federal levels. They based this assertion on the various health interventions the state government had implemented, including the declaration of health as an emergency.

"There's political will, but more needs to be done. As I've mentioned from the beginning, we need more resources to be injected into the state's health agencies. They are implementing many medical programmes for the people, but they need resources to implement them."

Discussions

This study explored the feasibility of establishing a community-based health insurance scheme (CBHIS), including willingness and capacity to pay for a standard CBHI service package in 5 wards in Adamawa. Feasibility was hinged on how well the state met the following six preconditions for establishing CBHIs. The willingness and capacity to pay for the scheme in each of the five districts was also examined. Findings from this study have, to varying degrees, demonstrated the existence of these six preconditions in all five districts studied, consequently earning the state a favourable feasibility rating. Key findings include.

Preconditions for establishing CBHI

Findings from affordability, willingness to join, and willingness to pay assessments suggest the potential number of enrolees will be sufficiently high from the first year. A positive attitude towards the establishment and participation in community-based health insurance scheme was expressed by a cumulative 93.1% of the study population. At least 9 out of 10 respondents in Damare, Imburu, Mbilla and Sabon Pegi believed participating in health insurance was either 'a good idea' or 'a somewhat good idea'. The high willingness to pay for other household members observed was consistent with results reported by a cross-sectional study of seven communities in East and West Africa showed 54.7% were willing to pay for all household members [21]. Qualitative findings also showed a favourable disposition towards the establishment of community-based health insurance was observed among the majority of participants without objections.

All study locations demonstrated the existence of a culture of mutual aid and solidarity. This is evidenced by the presence of functional cooperative societies and the participation of a substantial proportion of the sampled population in cooperative schemes.

For example, proportions of members with current membership of mutual aid organisations are distributed as follows: 10.7% in Sabon Pegi; 15.5% in Imburu; 16.8% in Damare; 26.2% in Dumne; and 30.7% in Mbilla. Overall, an average of 14.1% of respondents in the entire study are currently members of cooperative societies. Across all locations, farmers' cooperatives had the highest proportions of membership. This is consistent with findings from studies showing occupations such as agriculture comprise the majority of membership of cooperative societies [22, 23]. There is a simple correlation between the proportion of rural dwellers among respondents and inclination towards solidarity. For example, Damare, with a relatively far lower rural population of 27.7%, had the lowest proportion of respondents inclined towards mutual aid engagement at 58.8%. In contrast, all the other four study sites with rural populations ranging from 88.2% to 99.8% had between 72% and 88.8% of their population inclined towards supporting others. Solidarity among members of cooperative organisations appears to be stronger in rural and mostly homogenous communities.

The existence of favourable trends in socio-economic development positively impacting the capacity to pay for health insurance has also been established. This key success factor, required for CBHIs to thrive, was influenced by the distribution of mean personal and household income levels in relation to out-of-pocket expense (OOP), the availability and state of small businesses, the employment rate, and the frequency of financial inflows observed from socio-demographic assessments. Findings from these assessments showed at least 3 out of every 5 respondents in 4 out of the 5 study sites are reportedly self-employed, with many engaged in small businesses that mostly attract financial inflows necessary for subsistence living.

Furthermore, the source of livelihood for study locations provided either "throughout the year" or "seasonal" income flow in at least 3 out of every 5 respondents in 4 out of the 5 study locations. This indicates an enhanced capacity to enrol and especially sustain enrolment on a periodic basis. This is consistent with evidence of the potential impact of socioeconomics on capacity and willingness to pay demonstrated by studies showing employment to be a key determinant of increased health insurance enrolment [24, 25]. Further evidence of the association between socio-economic factors in determining the success of community-based health insurance initiatives has also been documented in several other studies [25, 26]. Given that at the 50th percentile, even the N1,500 starting premium was 3.75% of the mean total personal monthly income of N40,000, the trend in socio-economic development favoured a health expenditure to income ratio that was well within the benchmark for affordability informed by studies which showed typical households spend between 2% and 5% of income on healthcare [27].

Results of clients' assessment of overall performance of healthcare service delivery offered at health facilities showed that on average, 70% of all respondents expressed satisfaction with service delivery. However, in line with conclusions from a related study, this relatively high satisfaction ratings were associated with identified limitations cum facility-related administrative challenges [28]. Findings indicate satisfaction levels ranged from 46.9% in Mbilla to 58.7% in Dumne, followed by 64.5% in Sabon Pegi, and then 86.7% and 89.4% in Imburu and Damare, respectively. Higher satisfaction ratings of 89% were documented by a cross-sectional observational study of enrollees of health insurance in Aba, Kano, Lagos and Onitsha, located in Nigeria [28]. However, far lower satisfaction ratings were documented among subscribers of state-sponsored health insurance schemes in Enugu, with 40.5%, and Cross River, where only 32.7% (16) satisfaction was documented. The same study documented

relatively high satisfaction rates of 78.3% and 77.7% for Taraba and Oyo states, respectively [29].

The degree of public confidence in the promoters of a potential CBHI scheme varied considerably across study sites. In the context of this research, current health systems managers, especially service providers, administrators and managers of primary and secondary health facilities, sufficed as scheme promoters. The proportion of respondents who rated the quality of doctors and nurses to be good was 87.3% and 82.5%, respectively. Consistent with this position were findings which showed that a lack of confidence in promoters and managers of CBHI has a negative impact on CBHI enrolment [30].

The existence of a priority need for protection against financial risk associated with sickness was demonstrated by observed trends in healthcare access and utilization challenges. Further indication of the presence of priority need for protection are findings which showed 3 out of 5 districts had out-of-pocket expenses that were catastrophic in nature since health expenses exceeded 40% of income left after spending on basic subsistence needs (discretionary income). For example, health expense as a percentage of discretionary income was 112% in Imburu, 45.7% in Mbilla, and 90.7% in Sabon Pegi. The same districts also had mean health expenses exceeding 10% of total income at 11% for Imburu, 12.7% in Mbilla, and 13.5% in Sabon Pegi. These values exceed the 5% health expenditure to income ratio regarded as a common benchmark of affordability [27]. Furthermore, the proportion of households who self-reported receiving treatment for a chronic condition was 14.8%, while 13% and 25.9% reported visiting a doctor for diabetes and high blood pressure within the last 6 months. These findings contrasted with a study in 22 rural communities in Ethiopia, which reported 42% had chronic illness, while 44% encountered some illness in the past 12 months [31]. This study's findings contrasted with those of another study which reported a household chronic condition prevalence rate of 16.5% [24]. Findings also showed overall, 25.9% and 13% of all respondents reported visiting a hospital for high blood pressure and diabetes treatment respectively. This indicates a significant percentage of households may be exposed to high out-of-pocket expenditures.

Findings from the assessment of the number of times respondents delayed seeking care due to unaffordability of care or lack of financial capacity showed those who have delayed care seeking comprise at least 2 out of every 5 respondents in Dumne, one half of respondents in Imburu, 3 out of every 10 in Mbilla, and 3 out of every 5 in Sabon Pegi. This is in line with findings showing financial barriers resulting from high out-of-pocket expenses predispose especially low-income earners to delaying and/or even forgoing needed medical care [32]. Even for the insured, a descriptive study comparing rates of underinsurance among low-income adults with private versus public insurance suggests deferring or delaying medical care has been associated with a high-deductible health plan coverage where insured individuals have to make significant out-of-pocket expenditures before access to healthcare commences [9]. These findings all point to the existence of a priority need for financial protection via health insurance and a key precondition for setting up a health insurance scheme.

Willingness to Pay

Willingness to pay assessments was anchored on an initial evaluation of attitude towards health insurance; willingness to pay a fee to join CBHI as an individual and as households; and a willingness to encourage a neighbour to join. Findings showed a favourable disposition (attitude) towards health insurance was expressed by 90.6% of all respondents. This is consistent with a study conducted in Osun and Porth Harcourt, where the proportion of respondents willing to pay for

a contributory social health insurance scheme was 82%, 87% and 89.7%, respectively [33,34]. A far lower willingness to pay of less than 40% was reported in an earlier study where 7% of rural communities sampled indicated they were willing to pay to join a scheme [35]. The marked difference in proportion may be due to differences in degree of satisfaction in health services, rising inflation, and socio-economic and geopolitical differences between the two study locations. When this study's observed rates for willingness to join (88.5%), and willing to pay a fee to join (85.3%) were compared with actual enrolment rates in state-supported health insurance schemes from six geopolitical zones in Nigeria, results showed enrolment rates was 15.1% in Oyo, 4.45% in Taraba, 2.8% in Sokoto, 2.4% in Cross River, and 1% in Enugu [29].

The proportion of respondents willing to pay the various monthly individual package prices comprised 97.3% for N600; 90.7% for N800; 49% for N1,000 (benchmark price – current BHCPF premium); 7.2% for N1,200; and 7.2% for N1,500. The most preferred willingness to pay amount for an individual package was N600, subscribed to by 97.3% of respondents, followed by the more realistic N800, chosen by 90.7% of respondents of the entire study. A previous feasibility study conducted by the Centre for Health Economics and Development (CHECOD) in 2017 assessed the feasibility of establishing CBHI in Adamawa. Findings revealed 89% of respondents were willing to contribute a fee to join the scheme. However, a far lower percentage, 45 percent, were willing to pay between N200 and N500 to join the scheme [36]. The difference in proportion of those who considered 1,000 affordable and those who were willing to pay N1000 decreased from 83% to 60.8% in Damare; 73.5% to 53.8% in Dumne; 64% to 45% in Imburu; 54.8% to 34.8% in Mbilla; and 63.4% to 49% in Sabon pegi. Another related 2019 study found the mean willingness to pay amount for individual service packages was N542 for rural households and N555.23 for urban households [9].

When the overall mean highest OOP expense is compared with the highest willingness to pay amount for the individual and family package under consideration, it is readily observed that for the individual service package, the mean individual OOP of N5,341 was far higher than the highest willingness to pay premium of N1,500 offered. A similar study found that a monthly premium of N500 (US$ 4.2) was also far less than 3% of households' monthly out-of-pocket health spending [37].

Rationalizing Willingness to Pay in Light of Out-of-Pocket Expense

Findings from focused group discussions (FGD) showed that participants who were presented with anecdotal evidence including reflections on the difference between their out-of-pocket expense, and the various willingness to pay premiums for CBHI service package, were more willing to not only join the scheme but also pay higher willingness to pay amounts offered. To nudge respondents into providing a more informed valuation of the CBHI service package and, in turn, provide a more realistic choice of willingness to pay amount, questions eliciting willingness to pay preferences were preceded by questions prompting respondents to recall and provide estimates of the highest monthly personal and household out-of-pocket expense incurred within the last 3 months. The result of this approach indicates some participants tended to increase their willingness to pay amount in FGDs where questioning moved from WTP preferences to OOP expense and then back to WTP amounts. This was compared to when OOP questions did not precede WTP questions.

Assuming we use N1,500 as a benchmark out-of-pocket expense (OOP) since this was the maximum willingness to pay amount under evaluation, results showed that at least 4 out of every 5 respondents in Dumne have at least this amount as the highest OOP expense within the

last 3 months in Dumne. Another 7 out of 10 have already spent this amount (N1,500) on personal OOP in Damare, Imburu, and Sabon Pegi. In line with this outcome, studies assessing willingness-to-pay for healthcare services in Greece showed that higher informal out-of-pocket payments increased the likelihood of both willingness to pay (WTP) and willingness to pay amounts for zero-cost insurance products [38].

It was readily observed from findings of this study that even at the 25th percentile, the mean out-of-pocket expense is equal to the highest monthly premium amount of N1,500 offered for the hypothetical CBHI package, and also far higher than the benchmark premium of N1,000 for BHCPF-supported health insurance. The proportion of respondents who expressed willingness to pay N1,000 compared to those who preferred to pay N800 increased dramatically from 50.8% to 93.4%. The more than 40 percentage point difference is too substantial to ignore. The implication is that either N800 or a middle ground between N800 and N1000 should be considered. During in-depth interviews, health managers have reiterated the inadequacy of the majority's preferred willingness to pay amount to adequately provide for services offered by the current BHCPF support service package. Thus, managers of healthcare facilities recommended a far higher willingness to pay amount, ranging between N2,000 and N3,000 per individual, compared to the currently BHCPF-adopted premium of N1,000 and capitation of N570 given to health facilities by ACHMA.

To address this concern, it is envisaged that the financial viability of this scheme is contingent upon subsidization. So, the final premium to be adopted should be a product of several considerations, especially where the main aim is to target as much as possible, the informal sector population, who comprise more than 70% of the state's population. The need to factor in majority interest when setting up insurance premiums was suggested in a study that highlighted how representatives of communities are involved during the price-setting and adjustment process [17]. A similar consideration should be factored following premiums informed by actuarial studies.

Capacity to Pay

The relationship between the mean personal income left after spending on basic necessities and personal monthly income expressed as percentages of personal income provided insights into respondents' capacity to pay proposed willingness to pay amounts. The link between capacity to pay, willingness to pay, and feasibility of establishing CBHI in a given location has been demonstrated by studies asserting a linear relationship between higher income, greater capacity to pay, and a higher willingness to pay. A similar link is observed between education, awareness, capacity to pay, and willingness to pay [21, 39]. Results from this study's appraisal of trends in respondents' capacity to pay for health insurance showed the mean score for estimated total personal and household monthly income is N53,140 (SD 48,508) and N74,147 (SD 72,064), respectively. The distribution of personal and household income ranged from N0 to N330,000 and 0 to 410,000, respectively.

The mean personal monthly income left after expenses on basic necessities listed above ranged from N4,302 in Imburu to 35,033 in Damare. These values are thus higher than the highest premium offered for the hypothetical CBHI health service package. This implied that a significant percentage of respondents in each of the 5 study sites were forecasted to be able to afford premiums for a standard service package starting at N1,500. However, the opportunity cost of paying this premium may make the same premium unaffordable, considering that certain household needs may have been sacrificed in the process [40]. These findings are comparable to those of a Tanzanian study which found 75% of all households examined spent more than the recommended 10% threshold of their income

on purchasing health insurance packages, thus subjecting these households to catastrophic health expenditure [41]. Therefore, the income left after spending on basic necessities, also known as discretionary income, is considered a critical factor in determining a person's capacity to pay for insurance products.

Expressing the mean personal income left after spending on basic necessities as a percentage of mean personal monthly income in each district yielded 56.2%, 22.52%, 9.94%, 27.7% and 14.9% for Damare, Dumne, Imburu, Mbilla, and Sabon Pegi, respectively, while the average for all 5 locations is 26.25%. Thus, these percentages translate into the following amounts: N35,033 in Damare (with a predominantly urban population); N14,429 in Dumne (with the highest rural population of 99.3%); N4,302 in Imburu; N10,349 in Mbilla; and N8,674 in Sabon pegi. Given that N35,033 and N14,429, recorded in Damare and Dumne, are at least 5 times and 2 times the highest family willingness to pay premium of N7,000, respectively, these two LGAs, on average, appear to have the highest capacity to pay. The least capacity to pay was observed in Imburu, Mbilla and Sabon pegi. Despite being in the same LGA, Sabon Pegi's capacity to pay appears to be two times higher in Sabon pegi. This is despite having a similar proportion of respondents with at least tertiary education.

As much as 20 percent of households face catastrophic health expenditure, based on a study assessing the effect of community-based health insurance on catastrophic health expenditure in Northeast Ethiopia. A related 2011 study reported 28.7% of households incurred catastrophic health expenditure using a 40% benchmark for household non-food expenditure [42]. Other studies have also shown that high out-of-pocket expenditures of a magnitude characterised as catastrophic in nature have been reported in 20%, 18%, and 30% of respondents examined [43].

Conclusion

Given the complementarity of findings from both qualitative and quantitative assessments, this study has demonstrated not only the feasibility but also the viability of establishing community-based health insurance scheme, an alternative health financing mechanism that, amongst other benefits, is able to promote increased and equitable access to quality care while offering protection from the catastrophic impact of high out-of-pocket expenses for the largely uninsured informal sector. Fundamentally, the existence of six preconditions for setting up viable CBHI schemes in all five study locations has also been demonstrated.

While findings from institutional readiness and capacity and willingness to pay studies favourably dispose study locations to a positive feasibility rating, the likelihood that a substantial number of enrollees will join the scheme from the first year will depend on the implementation of institutionalised mechanisms for mobilising subsidies and fostering a whole-of-society engagement.

There exists, to a substantial degree, the presence of a priority need for protection against financial risk associated with sickness. This is illustrated by the findings from the assessment of prevalences of chronic conditions within the study population; limited levels of access and utilization of healthcare services; the trends in out-of-pocket expenses in health; and the frequency of delays in seeking healthcare due to cost-related factors. Overall, findings across each study location suggested both rural and urban study populations were in dire need of protection against the risk of financial loss associated with sickness. This is arguably one of the most critical preconditions observed in this study.

Findings from qualitative studies have aided understanding of contextual factors that have impacted results of quantitative studies in a way that aligns with Poletti *et al.*'s (2007) assertion that feasibility should be systematically

examined while accounting for contextual constraints and enablers. For example, qualitative findings provided insights about differences in perspectives between the health provider's perception of marginal costs of care and the preferred willingness to pay amount selected by the majority of respondents of FGDs, in-depth interviews, and household-based surveys. A rich blend of diverse perspectives arising from the vantage point of human, and ultimately community-centredness, was synthesised during results analysis.

The following therefore sums up findings from this study: for institutional readiness, the structures, support systems, and technical expertise required to roll out pilot community-based health insurance schemes (CBHI) in Adamawa are well in place. The study concludes by highlighting the potential of a well-marketed community-based health insurance scheme to mobilise financing for informal sector micro-health insurance coverage to the tune of a speculative N4.3 billion annually. This projection is hinged on the assumption that a community-led effort driven by a diverse array of stakeholders, including traditional leaders, can jointly mobilise an average of 2,000 individuals in each of the 226 wards in the state to subscribe to a scheme costing between N800 and N1000 for a basic minimum package of healthcare services. This projection is also founded on the assumption that when presented with both anecdotal and statistical evidence of the high out-of-pocket expenses experienced by community members, the average person is likely to embrace financial risk protection associated with enrolment into health insurance schemes.

Suggested Recommendations

1. Prioritise the development of a legislative framework that fosters the promotion of defined standards for quality of care; the integration of CBHI principles into broader health policy; the strengthening of administrative and managerial capacity of CBHI promoters; and the promotion of quality assurance procedures that are hinged on total quality management principle.
2. Establish a steering committee charged with the mandate of reviewing findings from this feasibility study; engage a development consulting firm to provide technical support for development of pilot CBHI strategy and implementation plan, including the development for whole of society engagement.
3. Traditional leaders' deep-rooted connections to tradition, cultural values and community relations can be effectively exploited to drive substantial community participation in community-based health insurance schemes. These leaders should be tasked to lead community efforts towards CBHI awareness and enrolment drives.
4. Consideration should be given to the introduction of a range of complementary value-added services that appeals to low-risk individuals, including young adults who consider health insurance as a poor value proposition. To increase overall satisfaction and retention of young adults, the adopted range of add-on services should be informed by wider consultations with young adults. Stakeholders can come together to deliberate on both funding mechanisms and the sustainability framework.

Suggestions for Future Research Include

1. Conduct studies assessing public perception of quality of healthcare services delivered by all health facilities earmarked to participate in potential pilot CBHI scheme establishment in Adamawa.
2. Systematic reviews to identify factors contributing to why CBHI schemes have struggled to achieve large scale sustainable success in some countries, while

succeeding in others like Rwanda where CBHIs alone accounted for 81.6% of national health insurance enrollment between 2015/2016. In effect, studies should strive to identify the potential barriers and determinants of CBHI success in Adamawa.

3. A randomized controlled trial (RCT) study around the impact of value-added services on mitigating adverse selection, and sustaining enrolment into health insurance scheme is recommended.
4. Also suggested, is further research around determining the potential impact of deploying human-centered design (HCD) and related behavioural economics principles to identify and address individual and social characteristics potentially influencing capacity and willingness to pay for community-based health insurance premiums against the backdrop of rising inflation and the new tax policy in Nigeria set to take effect in January 2026.

Study Limitations

Findings from willingness to pay should be interpreted in light of the following limitations: Assessment of "willingness to pay" for CBHI is based on a hypothetical health care package, hence, it does not accurately represent real-world circumstances. A second limitation is born out of the assumption that measured willingness to pay reflects the true valuation of households. But in reality, measured willingness to pay may not accurately reflect the true utility gain of a choice. This is informed by the concern that owing to information constraints, households may not fully understand the full extent of the value or benefits derivable from a choice. This may in turn result in households erroneously forecasting their willingness to pay for a product or service [44] Furthermore, responses to out-of-pocket expense, personal and household income, and health seeking behavior may be subject to recall and or social desirability bias.

The assumption that the limited amount of time available to enumerators to describe a hypothetical CBHI scheme and service package will be enough to elicit respondents' understanding necessary to inform a valid choice is a limitation. This time may be insufficient especially in households where respondents have little or no prior knowledge, and or experience of community-based health insurance or even health insurance. Therefore, the large degree of trust needed to buy an insurance product may also be lacking owing to this time constraint [44].

Moreso, this study's use of convenience sampling, a non-probability sampling method, is susceptible to selection bias as only participants who were available and accessible at the time of the research, and that met the survey inclusion criteria were considered in the sample. Hence, the influence of confounding factors may have negatively impacted the validity of the findings of this research to an undetermined extent necessitating a cautious consideration of the observed associations.

Acknowledgement

The authors wish to gratefully acknowledge all those who participated in this research as data collectors, survey participants, and key informants. Thanks also go to key officials of the State Primary Healthcare Development Agency, the State Contributory Health Management Agency, and State Ministry of Health in Adamawa who participated during in-depth interviews, instrument validation, and facilitated community entry. Thanks also go to academic team and mentors at Texila American University who provided encouragement.

Funding

No financial support was received to conduct this study.

Data Availability

Quantitative data sets without sensitive personal identifiers, and contextual data are available on reasonable request made to the corresponding author. Qualitative data sets including audio recorded and transcribed information from Focused Group Discussion (FGD) and In-depth/Key Informant Interviews are not publicly available due to the need to uphold confidentiality, and privacy agreement.

Conflict of Interest

The authors declare no conflict of interest.

Ethical Clearance

Ethical clearance was provided by the Adamawa State Ministry of Health. Verbal informed consent from the study participants was obtained before commencement of the study.

Author's Contributions

I.C.U: Conceptualization, design, methodology, research instrument development, validation, investigation, data collection, data analysis, result interpretation, data curation, and abstract and manuscript writing. E.O.D: Review of entire manuscript and thesis supervision. A.L: Critical revision of all sections of entire manuscript and thesis supervision (thesis co-guide). All authors read and approved the final version forwarded to Texila International Journal.

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