Original Article

Access to Community-Based Health Planning and Services in the East MAMPRUSI Municipality, North-East Region, Ghana

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Abstract: The Community-Based Health Planning and Services (CHPS) Program is a government funded project with the mission of refocusing and relocating essential medical care from sub-district medical institutions to readily available neighborhood locations. The study examined the availability, affordability, and acceptability of CHPS compounds in the East MAMPRUSI Municipality. A cross-sectional mixed design and a sample of 376 respondents from five selected communities in the East MAMPRUSI Municipality were considered for the study. The communities include: Gbangu, Nagboo, Wunduwa, Namangu and Tuuni. All the CHPS compounds have health personnel actively working in all five communities, and Nagboo had the highest number (133) of personnel. However, Namangu, Tuuni, and Wunduwa had reports of inadequate health personnel. The services offered at the CHPS property were preferred by a sizeable number of respondents (104) in Nagboo as compared to conventional or herbal health treatments. All the communities in the municipality have an average travel time of one hour or eight kilometers to the nearest CHPS facility. Community members largely prefer to walk to the various health facilities, with few using motorcycles. Medical and basic equipment shortages were reported in all the study communities. In addition, malaria and fever were the most frequently reported illnesses in CHPS compounds. Some CHPS compounds reported cases of understaffed in the municipality. Notwithstanding, respondents across the community preferred the services provided at the CHPS compounds. Ghana Health Services and the East MAMPRUSI Health Directorate should embark on training public health nurses and posting them fairly to affected communities who are understaffed, in addition to a regular supply of medications and supplies.

Keywords: community-based, health planning, services, medications, Ghana

1. INTRODUCTION

According to [1], CHPS is a strategy developed in Ghana that emphasizes community ownership, participation, and sustainability in order to improve access to essential medical care. At CHPS facilities, which are meant to be community-based and staffed by qualified community health officers, a range of fundamental healthcare services are provided, including preventive care, health promotion, and disease management. Access to community-based health planning and services is crucial to promoting equitable and effective healthcare delivery. In order to address the healthcare needs of local inhabitants, a number of projects, initiatives, programs, and instruments fall under the category of community-based health planning and services, according to [2]. Typically, community health centers, primary care offices, outreach programs, and other neighborhood-based organizations offer these services. Access to community-based health planning and services is a major issue because of its

potential impact on population health outcomes and health disparities. The ability of people to swiftly acquire and utilize the healthcare services they demand is referred to as access, according to the World Health Organization [WHO] (2010). It is influenced by a wide range of factors, including demographics, socioeconomic factors, geographic location, and the availability and design of services [3]. How many groups can access community-based health planning and services is influenced by contextual factors such as socioeconomic position, cultural norms, and the design of the health system [4]. Numerous studies [5] have shown a correlation between socioeconomic statuses—which includes income, education, and occupation—and access to healthcare services. Cultural norms and beliefs, according to [6], also affect how people act when seeking medical care and the kind of care they favor. Supply-side factors, such as the accessibility and structure of services, have a significant impact on community-based health planning and services. A number of variables, including personnel availability, service capacity, the presence and location of healthcare facilities, and quality assurance methods, have an impact on the accessibility and capacity of services within communities [7]. It may be challenging to obtain essential care due to poor service accessibility, particularly in underprivileged locations [8]. Variables at the individual level, such as health literacy, awareness of and comfort with available resources, and cultural views, might have an impact on the demand for community-based health planning and services. Low health literacy can make it challenging for individuals to understand what services are offered, what their medical needs are, as well as how to use the health care system [9]. Authors [10] assert that social norms and beliefs may affect how people perceive their need for services and readiness to accept assistance. Intermediary elements that affect access to community-based health planning and services include transportation accessibility, health insurance coverage, communication and language barriers, and social support networks [11]. Lack of insurance or insufficient coverage may make it more difficult to obtain affordable care [12]. Transportation problems, especially in remote or rural areas, may make it more difficult for people to get healthcare services. Due to language and communication issues, healthcare professionals and patients with limited English proficiency may find it challenging to communicate successfully [13]. Furthermore, by providing assistance and guidance, social support networks can enhance people's access to care [14]. Access to community-based health planning and services can have positive effects on many different aspects of health, including individual health outcomes, community health outcomes, and health inequalities, patterns of healthcare utilization, cost-effectiveness, and overall health system performance [15]. Accessibility can lead to better health outcomes, reduced health inequities, increased use of preventative treatment, and more efficient use of healthcare resources [16]. Given the significance of CHPS in improving community health outcomes, it is imperative to look into the factors that influence access to these services and develop strategies to improve access. The goal of the thesis is to close these knowledge gaps and contribute to the development of evidence-based recommendations and policies that can overcome barriers and improve access to community-based health planning and services. According to the World Health Organization (WHO), having access to high-quality healthcare is a basic human right and is required for both the general welfare of individuals and communities. However, despite significant advancements in healthcare systems, there are still a lot of problems, particularly when trying to access community-based health planning and services. In many instances, differences in health outcomes and pre-existing social and economic inequalities are made worse by unequal access to community-based health planning and services. These inequalities are especially noticeable in marginalized populations, like low-income individuals, persons who identify as a racial or ethnic minority, and residents of rural areas [17]. Community-based health planning and services are not more broadly accessible for a variety of reasons. One major factor is the dearth of primary care physicians, nurses, and other allied health workers in community settings [4]. The deficit typically results from maldistribution since healthcare workers are disproportionately concentrated in metropolitan areas rather than assisting rural and underserved communities [8]. Financial limitations severely restrict

access to community-based health planning and services. Due to insufficient health insurance coverage, many people find it challenging to pay for essential medical procedures [14]. The issue is made worse by the absence of affordable transportation options and easily accessible healthcare facilities, especially in rural and isolated areas. The population is also restricted in their access due to a shortage of healthcare services that are linguistically and culturally responsive [10]. Language barriers, cultural disparities, and biases within the healthcare industry can negatively impact medical results through poor communication, erroneous diagnosis, and inadequate care [16]. In conclusion, access to community-based health planning and services is a critical problem because gaps still persist in poor communities and marginalized people. The problem is made worse by a dearth of trained medical professionals, budgetary limitations, a shoddy healthcare system, and linguistic and cultural barriers. It is critical to address these issues in order to encourage equal access to community-based health planning and services, which would eventually enhance health outcomes and reduce health disparities. How accessible are CHPS Compounds to people living in the East MAMPRUSI Municipality in Ghana's northeast?

2. MATERIALS AND METHODS

The East MAMPRUSI District is located in the northernmost part of the region.

Table 01: Health Facilities

Organization Unit	CHPS zones	Clinic	District Hospital	Health Centre	Total
Gambaga Sub-District	5	0	0	1	6
Gbintiri Sub-District	2	0	0	1	3
Langbinsi Sub-District	5	1	0	0	6
Nalerigu Sub-District	11	0	1	0	12
Sakogu Sub-District	7	0	0	1	8
East Mamprusi	30	1	1	3	35

Table 02: Most Common Diseases

2015		2016		2017	
Disease/condition	%	Disease / Condition	%	Disease / Condition	%
Malaria	17.7	Malaria	13.6	ARI	16.5
ARTI	10.7	ARTI	12.3	Malaria	14.8
Diarrhea	7.0	Hypertension	0.5	Diarrhea	10.4
Rheumatism	2.4	AUTI	0.6	Rheum. & joint pains	3.8
Skin diseases	1.9	STI	0.7	Skin diseases	3.0
Anemia	1.6	Eye infection	1.0	Anemia	2.7
Hypertension	1.5	Anemia	1.8	Ulcers	1.6
Ulcer	1.2	Skin diseases	2.8	Hypertension	1.3
AUTI	0.9	Rheumatism	3.9	UTI	1.0
Eye infection	0.8	Diarrhea	9.1	Acute eye inf.	0.8
Total	45.7	Total	46.3	Total	55.9

Table 03: Top Ten Causes of Consultation

2015		2016		2017	
Disease/condition	%	Disease/condition	%	Disease/condition	%

Malaria	17.7	Malaria	13.6	ARI	16.5
ARTI	10.7	ARTI	12.3	Malaria	14.8
Diarrhea	7.0	Hypertension	0.5	Diarrhea	10.4
Rheumatism	2.4	AUTI	0.6	Rheum. & joint pains	3.8
Skin diseases	1.9	STI	0.7	Skin diseases	3.0
Anemia	1.6	Eye infection	1.0	Anemia	2.7
Hypertension	1.5	Anemia	1.8	Ulcers	1.6
Ulcer	1.2	Skin diseases	2.8	Hypertension	1.3
AUTI	0.9	Rheumatism	3.9	UTI	1.0
Eye infection	0.8	Diarrhea	9.1	Acute eye inf.	0.8
Total	45.7	Total	46.3	Total	55.9

The study used is explanatory-sequential technique or design, with the goal of correlating qualitative information with the quantitative findings. The results of the quantitative analysis of the data were later explained and understood using the qualitative data. A generic qual design was frequently used in explanatory methods in the study because the QUAN design was the focus. Data collection refers to obtaining relevant information regarding the major ideas of the hypothesis or research questions for the purpose of answering them [18]. The study employed both primary and secondary sources of data collection. Both quantitative and qualitative methodologies were used in the main data sources. Regarding the dimensions of access to CHPS compounds, qualitative information was gathered through observation and interviews with locals and CHPS personnel. Structurally designed questionnaires were used to gather quantitative data. It concentrated on the distribution of questionnaires and interviews that assist in gathering pertinent data for the study. For the study, 370 questionnaires were distributed throughout the municipality. Each question addresses one or more facets of the research issue or study purpose. The questionnaires were administered to community inhabitants in the five CHPS areas. These questionnaires were used to collect quantitative data on the dimensions of access to CHPS compounds. Any person who can offer thorough information and opinion based on his or her understanding of a certain topic or subject of investigation is referred to as a key informant. In-depth qualitative information that can be described and cross-examined with quantitative data is sought after in a key informant interview. Triangulation was used to accomplish that. In the situation, the interviewer must maintain objectivity and refrain from asking subject matter-specific or prejudicial questions. The allocated health center personnel with an official from the Municipal office were engaged in a personal interaction with the aid of structured interviewed questions. The tool collected qualitative data and it helped to verify and also clarify the information derived from the inhabitants in relation to access of CHPS Compounds provision using the questionnaire. These categories of people were engaged because they have adequate knowledge and experience in respect to the operation of CHPS. An approach to gathering data called observation uses vision as its primary tool. The secondary data was received from the MOH Annual Report from the Municipal Assembly, documents and information from the District Health Service, books, journals, and data from Municipal CHPS Compounds.

Table 04: Population of communities under study

S/N	COMMUNITY NAME	POPULATION
1	Nagboo	6,072
2	Gbangu	3453
3	Wunduwa	3444
4	Namangu	1197

5	Tuuni	1875
	Total	16,041

The Municipal Hospital and a hub for referrals to other healthcare institutions at the national and community levels is the Baptish Medical Centre, which is situated in the Regional Capital (Nalerigu). The Municipality has four (4) health centers and thirty (30) CHPs that are operational. The required sample size was calculated by taking into account the population size and the level of precision that was sought (within 5%, 3%, or 1% at the 95% confidence level), as well as the sample size needed to carry out the study based on a sample size of the five (5) CHPS zone communities and a sampling error of 5% with a 95% confidence level. The study's sample size was determined to be 376 respondents. The sample size was calculated using the below equation:

$$nj = \left(\frac{Nj}{N}\right) \times n$$

where:

- nj is the sample size for each community j
- Nj is the population for each community j
- N is the total population size
- n is the total sample size.

Table 05: Community sample size based on the population and sex of respondents.

S/N	Community Name	Population N (%)	Sub Sample	Male N (%)	Sub Sample	Female N (%)	Sub Sample
1	Nagboo	6,072	140	2,977	69	3,095	71
2	Gbangu	3453	80	1,706	40	1,747	40
3	Wunduwa	3444	79	1,647	38	1,797	41
4	Namangu	1197	28	574	13	623	15
5	Tuuni	1875	43	946	22	929	21
	Total	16,041	370	7,850	182	8,191	188

In sampling, a subset of the population is chosen to represent the total population. Both probability and non-probability sampling methods were used in the investigation. Simple random sampling and stratified proportionate sampling were used for probability sampling, and purposive sampling was utilized for non-probability sampling. Descriptive statistics for quantitative data and descriptive analysis for qualitative data were used in the study to evaluate community access to CHPS Compounds. A computer was used to input and analyze the quantitative information from the surveys using SPSS and Microsoft Office Excel. The participants in the study—opinion leaders, chiefs, and other stakeholders—were sought for their permission.

3. RESULTS AND DISCUSSION

Table 06: Distribution of socio-demographic characteristics

Characteristics	N (%)	Community									
		Gbangu		Nagboo		Namangu		Tuuni		Wunduwa	
		N	%	N	%	N	%	N	%	N	%

Sex Male	182(49%)	40	50	69	49	13	46	22	51	38	48
Female	188(51)	40	50	71	51	15	54	21	49	41	52
Age 12-25	96(26%)	22	27.5	30	21	7	25	12	28	25	32
26-40	227(61%)	48	60	103	74	16	57	23	53	37	47
41-60 and above	47(13%)	10	12.5	7	5	5	18	8	19	17	21
Marital Status: Never Married	57(15.4%)	9	11	40	29	1	4	6	14	1	1
Married	290(78.4%)	70	88	83	59	27	96	35	81	75	95
Separated / Divorce	23(6.2%)	1	1	17	12	-	-	2	5	3	4
Educational Level: Primary/JHS/Middle	106(29%)	25	31	39	28	9	32	16	37	17	22
Secondary/ Voc/Tec Education	61(16%)	11	14	33	24	7	25	2	5	8	10
Tertiary Education	32(9%)	5	6	22	16	2	7	2	5	1	1
No Education	171(46%)	39	49	46	33	10	36	23	53	53	67
Employment Status Yes	152(41%)	42	52.5	56	40	6	21	19	44	29	37
No	218(59%)	38	47.5	84	60	22	79	24	56	50	63
Religion Christianity	50(14%)	17	21	23	16	6	21	4	9	-	-
Islamic	267(72%)	58	73	84	60	18	64	29	67	78	99
Traditionalist	53(14%)	5	6	33	24	4	14	10	23	1	1
Ethnicity Mamprusi	279(75%)	75	94	98	70	27	96	34	79	45	57
Bimoba	4(1%)	1	1	3	2	-	-	-	-	-	-
Konkomba	13(4%)	1	1	10	7		-	2	5		0
Moshi	43(12%)	3	4	13	9	1	4	7	16	19	24
Others	31(8%)	-	-	16	11	-	-	-	-	15	19
Occupation Farming	260(70%)	59	74	97	69	21	75	29	67	54	68
Self-employed/Others	85(23%)	21	26	32	23	4	14	12	28	16	20
Artisan	14(4%)	-	-	7	5	1	4	1	2	5	6
Service/Industry	11(3%)	-	-	4	3	2	7	1	2	4	5
Size of Household One	20(6%)	16	20	-	-	-	-	3	7	1	1
Two	55(15%)	21	26	8	6	2	7	21	49	3	4
Three	67(18%)	11	14	26	18	7	25	8	18.6	15	19
Four	46(12%)	7	9	14	10	8	29	6	14	11	14
Five and above	182(49%)	25	31	92	66	11	39	5	11.6	49	62
Residency Status Permanent	353(95%)	78	97.5	130	93	28	100	40	93	77	98
Seasonal	11(3%)	2	2.5	6	4	-	-	2	5	1	1
Occasional	6(2%)	-	-	4	3	-	-	1	2	1	1

The study revealed a relatively balanced gender distribution, with 51% female and 49% male respondents. The finding aligns with previous studies conducted in similar communities [19]. The equal representation of genders suggests that both men and women have a presence and active participation

within these communities. The majority of respondents (46%) reported having no formal education, highlighting a potential challenge in accessing educational opportunities in their communities. The finding is consistent with earlier studies that have identified limited educational infrastructure and resources in rural areas [20]. It underscores the need for targeted interventions to improve access to education and promote literacy among community members. Farming emerged as the dominant occupation, with 70% of respondents engaged in agricultural activities. Studies have demonstrated that individuals with higher income levels tend to have better access to healthcare services and are more likely to utilize them compared to those with lower incomes [21]. Additionally, research has indicated that self-employed individuals may face unique challenges in accessing healthcare due to limited employer-based health insurance coverage [22]. The prevalence of Islam as the dominant religion among the respondents (72%) corresponds with the historical and cultural context of the region. The finding is consistent with previous studies highlighting the influence of Islam in communities [23].

Table 07: Availability of CHPS compound systems

Aspects of Dimensions	n	%
Presence of health professionals in the health facility		
Yes	341	92
No	29	8
How the CHPS compound gets health personnel		
Posting from Government	363	98
Volunteers from the community	3	1
Youth Employment Agency	4	1
Preferences for health facilities		
Orthodox	311	84
Traditional	59	16
Duration of visit to CHPS compound		
Weekly	23	6
Monthly	130	35
Annually	167	45
Others	50	14
Distance from home to nearest CHPS compound		
1 -100m	117	32
101 -200m	70	19
201- 300m	76	20
301-400m	44	12
401-500m	29	8
Above 500m	34	9
Means of transport to CHPS compound		
Walking	263	71
Motor	89	24
Vehicle	18	5
Physical accessibility of CHPS compound		
Yes	353	95
No	17	5
Illnesses presented at CHPS		
Malaria & Fever	176	33
Stomach pains & Ulcer	125	24

Headache & Body Pain	111	21
Others	114	22
Type of services received from CHPS compound		
Anti-natal services,	15	4
Delivery services	7	2
Post-natal services	10	3
Immunization services	45	12
Clinical services	290	78
Maintenance and promotion (nutrition)	3	1
Usage of services provided at CHPS compound		
Yes	347	94
No	23	6
Travel out of CHPS zone for health care		
Yes	350	95
No	20	5

Table 08: How the CHPS compounds get health personnel by community

How the CHPS compounds get health personnel	n (%)	Gbangu	Nagboo	Namangu	Tuuni	Wunduwa
		n (%)	n (%)	n (%)	n (%)	n (%)
Posting from Government	363(98)	80(100)	133(95)	28(100)	43(100)	79(100)
Volunteers from the community	3(1)	-	3(2)	-	-	-
Youth Employment Agency	4(1)	-	4(3)	-	-	-
Total	370(100)	80	140	28	43	79

Table 09: Health facility/services patronized by respondents

Heath Services	n (%)	Gbangu n (%)	Nagboo n (%)	Namangu n (%)	Tuuni n (%)	Wunduwa n (%)
Orthodox	311(84)	72(90)	105(75)	21(75)	37(86)	76(96)
Traditional	59(16)	8(10)	35(25)	7(25)	6(14)	3(4)
Total	370(100)	40(100)	140(100)	28(100)	43(100)	79(100)

A study by [24] conducted in rural Ghana explored health-seeking behavior and preference for healthcare facilities among community members. The findings revealed a similar pattern, with a significant preference for orthodox health services over traditional medicine. The preference was attributed to factors such as perceived effectiveness, availability of modern healthcare infrastructure, and the influence of Western medicine in the region. In a study conducted by [25] in the Upper East Region of Ghana, the preference for orthodox health services was also observed. The authors highlighted the influence of educational attainment and socioeconomic status on health facility preferences, with individuals with higher education and socioeconomic status more likely to choose orthodox health services. These referenced studies support the findings of the current study, indicating a preference for orthodox health services over traditional medicine in various regions of Ghana. The factors influencing these preferences include awareness, accessibility, perceived effectiveness, cultural beliefs, education level, and socioeconomic status.

Table 10: Average Distance from home to the nearest healthcare facility

Distance - Decay	n (%)	Gbangu	Nagboo	Namangu	Tuuni	Wunduwa
1 -100m	117 (32)	13	45	9	14	25
101 -200m	70 (19)	8	27	5	8	15
201- 300m	76 (20)	8	28	6	9	16
301-400m	44 (12)	5	17	3	5	10
401 500m	29 (8)	3	11	2	3	6
Above 500m	34 (9)	3	12	3	4	7
Total	370(100)	40(100)	140(100)	28(100)	43(100)	79(100)

An author [26] discusses the distance-decay effect of geographical epidemiology, emphasizing the role of healthcare facility accessibility in the spatial distribution of diseases. They highlight that as the distance from healthcare facilities increases, individuals are less likely to seek timely medical attention, resulting in a higher burden of disease in areas with limited access.

Table 11: Means of Transport for CHPS compounds

Means/Community	n (%)	Gbangu n (%)	Nagboo n (%)	Namangu n (%)	Tuuni n (%)	Wunduwa n (%)
Walking	263(71)	55(69)	105(75)	28(100)	41(95)	34(43)
Motor	89(24)	19(24)	30(21)	-	2(5)	38(48)
Vehicle	18(5)	6(7)	5(4)	-	-	7(9)
Total	370(100)	40(100)	140(100)	28(100)	43(100)	79(100)

An author [27] conducted an analysis of national survey data to examine the means of transport used by community members across different regions of the country. The study identified a shift in transportation patterns over time, with a gradual increase in motor vehicle usage. The change was attributed to improvements in road infrastructure, rising income levels, and changes in societal norms [28]. However, walking still remains a significant means of transport, particularly in rural and economically disadvantaged communities.

Table 12: Health facilities physically/geographically accessible

Physical Accessibility	n (%)	Gbangu n (%)	Nagboo n (%)	Namangu n (%)	Tuuni n (%)	Wunduwa n (%)
YES	353(95)	67(84)	136(97)	28(100)	43(100)	79(100)
NO	17(5)	13(16)	4(3)	-	-	-
Total	370(100)	80(100)	140(100)	28(100)	42(100)	79(100)

A study by [29] in Ghana to assess the accessibility of CHPS compounds in rural communities. The study found that the physical accessibility of CHPS compounds varied across different communities. Factors such as distance to the facility, availability of transportation, and road conditions influenced the perception of accessibility among community members. The finding aligns with the present study, which also identifies geographical accessibility as an important consideration for local residents.

Table 13: Facilities/equipment available at CHPS

COMMUNITY	FACILITIES/EQUIPMENT
Gbangu	Salter Scale, Sphygmonometre, Thermometer, Weighing scale, Hand washing Apparatus, Registers, Vaccine Carriers, BP Apparatus, MUC Type, Fetoscope, Tape measure
Namamgu	Weighing Scales, Thermometer, Dressing Instruments, BP Apparatus, Vaccines, Examination bed, Refrigerator
Tuuni	Weighing scale, delivery bed, palpation bed
Wunduwa	Delivery set, Dressing set, Delivery bed, Thermometer, BP Apparatus, Vaccine Fridge, Vaccine Carrier,
Nagboo	RCH, BP Apparatus, RDT's, Auto Clave, Weighing Scale, Sphygmomanometer, Thermometer, Tables, Chairs, Syringes, Drugs, Claim forms

Table 14: Illnesses community members sent to CHPS compounds

Illnesses presented at CHPS	n (%)	Gbangu n (%)	Nagboo n (%)	Namangu n (%)	Tuuni n (%)	Wunduwa n (%)
Malaria & Fever	176(33)	38(40)	58(37)	20(47)	14(33)	46(24)
Stomach & Ulcer	125(24)	27(29)	21(14)	10(23)	13(31)	54(28)
Headache & Body Pain	111(21)	14(15)	33(21)	9(21)	4(10)	51(27)
Others	114(22)	15(16)	44(28)	4(9)	11(26)	40(21)
Total	526(100)	94(100)	156(100)	43(100)	42(100)	191(100)

In the Navrongo experiment, which resulted in CHPS, CHOs offered immunization services, family planning, delivery supervision, prenatal and postnatal care, treatment of minor illnesses, and health education [30]. The Commune Health Center (CHC) services offered at that level in Vietnam's lowest known health care level were "family planning, prenatal care, STI diagnosis or treatment excluding HIV, services for TB, services for malaria, NCDs management, and minor surgery." [31]. These analyses are consistent with data obtained from the numerous CHPS officers in local towns and municipal offices.

Table 15: Accessing other healthcare facilities

Other facilities	n (%)	Gbangu n (%)	Nagboo n (%)	Namangu n (%)	Tuuni n (%)	Wunduwa n (%)
YES	350(95)	76(95)	139(99)	24(87)	40(93)	71(90)
NO	20(5)	4(5)	1(1)	4(13)	3(7)	8(10)
Total	370(100)	80(100)	140(100)	28(100)	42(100)	79(100)

Table 16: Health service selection and socio-demographic factors.

Characteristics	Health Service		
	Orthodox n (%)	Traditional n (%)	X^2 (p-value)
Sex			
Male	154	28	0.084(0.772)
Female	157	31	
Marital Status			
Never Married	47	10	9.170(0.0570
Married	248	42	

Separated / Divorce	16	7	
Educational Level			
Primary /JHS /Middle Education	93	13	11.915(0.018)
Secondary / Voc/Tec Education	57	4	
Tertiary Education	22	10	
No Education	139	32	
Employment Status			
Yes	129	23	0.128(0.721)
No	182	36	
Religion			
Christianity	44	6	15.897(0.001)
Islamic	232	35	
Traditionalist	35	18	
Ethnicity			
Mamprusi	231	48	9.506(0.050)
Bimoba	4	0	
Konkomba	8	5	
Moshi	39	4	
Others	29	2	
Size of Household			
One	19	1	4.164(0.384)
Two	49	6	
Three	53	14	
Four	38	8	
Five and above	152	30	

In a study conducted in rural Nigeria, it was discovered that the cost of accessing health services per person rose linearly with distance. Another study in rural Nigeria found that in order to lower their transportation costs and the difficulty of accessing far-off healthcare services, rural residents tended to rely on self-medication and local traditional medicine [32].

Table 17: Availability indicators and socio-demographic characteristics.

	Availability Indicators						
Socio-demographic	Means of Transport				Physical Accessibility		
	Walking	Motor	Vehicle	X^2 (p-value)	Yes	No	X^2 (p-value)
Sex							
Male	128	45	9		168	14	7.841(0.005)
Female	135	44	9	0.100(0.951)	185	3	
Marital Status							
Never Married	50	6	1		55	2	3.763(0.439)
Married	199	79	12		276	14	
Separated / Divorce	14	4	5	34.668(0.000)	22	1	
Educational Level							
Primary/JHS/Middle Education	89	15	2		101	5	5.689(0.224)

Secondary/ Voc /Tec Education	43	16	2	17.114(0.029)	58	3	
Tertiary Education	20	8	4		28	4	
No Education	111	50	10		166	5	
Religion							
Christianity	38	8	4	4.056(0.669)	46	4	2.224(0.527)
Islamic	185	70	12		255	12	
Traditionalist	40	11	2		52	1	

Table 18: Availability indicators and socio-demographic characteristics.

	Availability Indicators	
Socio-demographic	Means of Transport: X^2 (p-value)	Physical Accessibility: X^2 (p-value)
Gbangu		
Sex	11.652(0.003)	11.114(0.001)
Marital Status	1.614(0.806)	0.445(0.801)
Educational Level	4.137(0.658)	3.390(0.335)
Religion	8.881(0.064)	1.655(0.437)
Nagboo		
Sex	14.821(0.001)	0.001(0.977)
Marital Status	35.505(0.000)	8.797(0.066)
Educational Level	15.261(0.018)	4.308(0.230)
Religion	9.215(0.056)	0.834(0.659)
Namangu		
Sex	-	-
Marital Status	-	-
Educational Level	-	-
Religion	-	-
Tuuni		
Sex	0.001(0.973)	-
Marital Status	9.821(0.007)	-
Educational Level	20.451(0.000)	-
Religion	1.013(0.603)	-
Wunduwa		
Sex	28.064(0.000)	-
Marital Status	5.576(0.472)	-
Educational Level	9.833(0.132)	-
Religion	1.340(0.512)	-

Table 19: Obtaining a National Health Insurance (NHIS) card.

Community	NHIS	Frequency	Percentage
Gbangu	Yes	72	90
	No	8	10
Namangu	Yes	28	100
	No	0	0
Tuuni	Yes	40	93
	No	3	7

Wunduwa	Yes	73	92
	No	6	8
Nagboo	Yes	120	86
	No	20	14

Table 20: National Health Insurance card status.

Community	NHIS Active	Frequency	Percentage
Gbangu	Yes	65	81
	No	15	19
Namangu	Yes	28	100
	No	0	0
Tuuni	Yes	35	81
	No	8	19
Wunduwa	Yes	71	90
	No	8	10
Nagboo	Yes	110	79
	No	30	21

Table 21: Community members using NHI cards.

Community	Using a card	Frequency	Percentage
Gbangu	Yes	65	81
	No	15	19
Namangu	Yes	28	100
	No	0	0
Tuuni	Yes	34	79
	No	9	21
Wunduwa	Yes	61	77
	No	18	23
Nagboo	Yes	114	81
	No	26	19

Table 22: Respondents charged for facilitating CHPS healthcare access.

COMMUNITY	RESPONDENTS	
	YES n (%)	NO n (%)
Gbangu	14(34)	26(66)
Namangu	1(4)	27(96)
Tuuni	1(2)	42(98)
Wunduwa	4(5)	75(95)
Nagboo	7(5)	133(95)

Table 23: Recipients' sources of CHPS funds for health services.

Community	Income (%)	Saving (%)	Borrowing or Loans (%)	Others (%)
Gbangu	13 (16%)	50(63%)	11(14%)	6(7%)
Namangu	14(50)	13(46%)	1(4%)	-

Tuuni	20(46)	11(26%)	12(28%)	-
Wunduwa	12(15%)	47(60)	20(25%)	-
Nagboo	65(46%)	34(24%)	22(16%)	19(14%)

Table 24: Factors restricting respondents to pay for health services

Community	Poverty (%)	social Isolation (%)	Indebtedness (%)	Others (%)
Gbangu	70(88%)	2(2%)	8(10%)	-
Namangu	27(96%)	1(4%)	-	-
Tuuni	30(70%)	6(14%)	6(14%)	1(2%)
Wunduwa	66(84%)	5(6%)	8(10%)	-
Nagboo	126(90%)	3(2%)	10(7%)	1(1%)

Table 25: Sex of CHPS compound nurses.

Sex of Nurses	All males n (%)	All females n (%)	Mixed with both Males & females n (%)	Majority are females n (%)
Gbangu	2(3)	4(5)	74(93)	-
Namangu	-	-	28(100)	-
Tuuni	2(5)	-	41(95)	-
Wunduwa	1(1)	-	75(95)	3(4)
Nagboo	2(1.4)	2(1.4)	129(92)	7(5)

One study by [33, 34] examined the impact of gender diversity in nursing on patient outcomes. The study found that a more diverse nursing staff, in terms of gender, was associated with improved patient outcomes, including reduced mortality rates and increased patient satisfaction. The aligns with the findings in the current study, which suggest that CHPS compounds with mixed-gender nursing staff are gender-responsive and may contribute positively to patient care. On the other hand, there may be studies that present different perspectives. For instance, a study by [35] explored the challenges and barriers faced by male nurses in the healthcare profession. The study highlighted issues related to gender stereotypes, discrimination, and workplace dynamics that can affect male nurses' experiences. While not directly aligned with the current study, it provides valuable insights into the gender dynamics within the nursing profession.

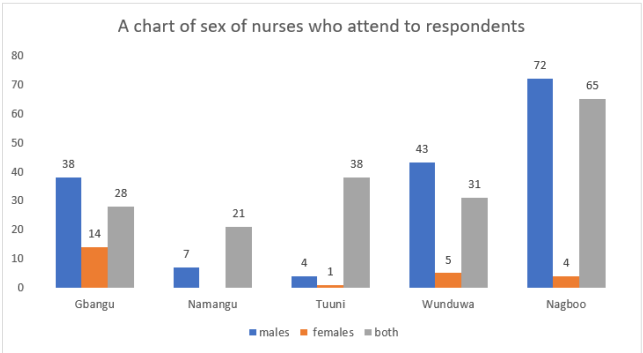

Figure 01: Nurses' sex during CHPS compound visits.

Table 26: Respondents comfortability with medical professionals' sex

Community	Respondents Answering Yes	Percentage	Respondents Answering No	Percentage

Gbangu	77	96	3	4
Namangu	28	100	-	-
Tuuni	41	95	2	5
Wunduwa	76	96	3	4
Nagboo	129	92	12	8

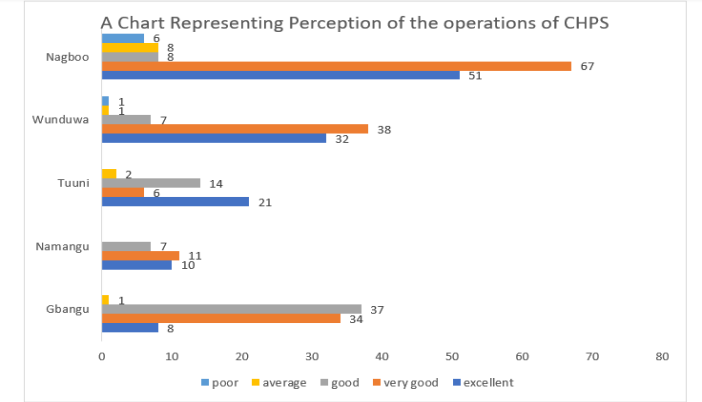

Figure 02: Perception of the operations of CHPS

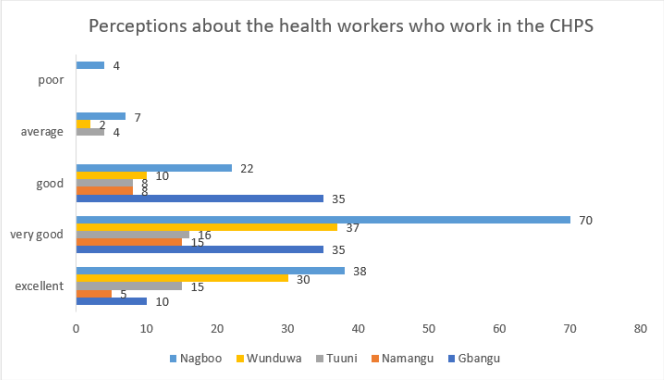

Figure 03: Perceptions of CHPS compound health workers.

A study conducted by [36] investigated community perceptions of health workers in rural areas of a developing country. The findings indicated that the majority of participants held positive views towards the health workers, emphasizing their dedication and competence in providing healthcare services.

Table 27: Alternatives places where people get medical care.

Community	Indicators	Response	Percentage
	Herbalists	13	16 percent
	Over-the-counter chemical sellers	55	69 percent
	Traditional Birth Attendance (TBAs)	10	12.50 percent
	Spiritual healers	2	2.50 percent
Gbangu	Others	0	-
	Herbalists	9	32 percent
	Over-the-counter chemical sellers	17	61 percent
	Traditional Birth Attendance (TBAs)	-	-
	Spiritual healers	2	Seven percent
Namangu	Others	-	-

	Herbalists	18	42 percent
	Over-the-counter chemical sellers	17	40 percent
	Traditional Birth Attendance (TBAs)	7	16 percent
	Spiritual healers	-	-
Tuuni	Others	1	Two percent
	Herbalists	30	38 percent
	Over-the-counter chemical sellers	42	53 percent
	Traditional Birth Attendance (TBAs)	4	Five percent
	Spiritual healers	3	Four percent
Wunduwa	Others	-	-
	Herbalists	25	18 percent
	Over-the-counter chemical sellers	109	77 percent
	Traditional Birth Attendance (TBAs)	2	One percent
	Spiritual healers	5	Four percent
Nagboo	Others	-	-

Table 28: Local customs and limitations on CHPS health service usage.

Community	Respondents	
	YES	NO
Gbangu	3	77
Namangu	-	28
Tuuni	1	42
Wunduwa	1	78
Nagboo	3	138

In their study on the utilization of health services in rural communities, [36] examined the influence of cultural beliefs on healthcare access. The findings revealed that deeply rooted cultural practices and beliefs can hinder individuals from seeking healthcare services. The aligns with the results obtained from the discussed work, where a small percentage of respondents in Gbangu and Nagboo acknowledged that traditional or cultural customs impose restrictions on utilizing specific CHPS health services.

Table 29: Reasons community members' reluctance to attend CHPS compounds.

Community	Reasons community members are unwilling to attend CHPS compounds
Gbangu	Shortage of drugs leading to clients buying outside, poverty
Namangu	Poverty and attitude of staff
Tuuni	Lack of knowledge about the importance of services provided, high illiteracy level and personal reasons
Wunduwa	Lack of logistics like drugs, staff attitude towards work and clients, distance to the facility, rainy season
Nagboo	Financial instabilities, use of traditional medicine at home, long distance

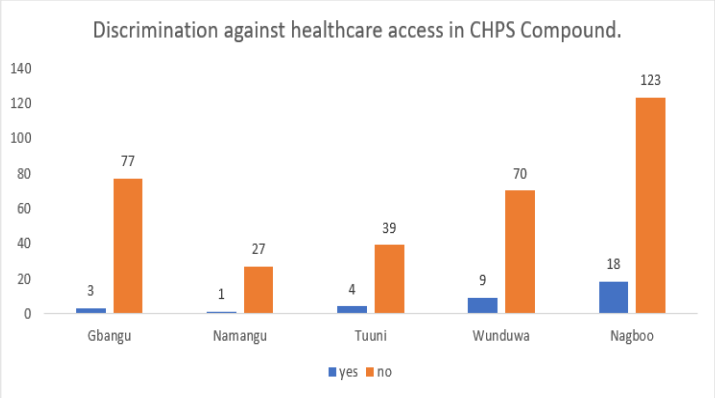

Figure 04: Discrimination against Healthcare Access in CHPS Compound.

A study conducted by [37] explored healthcare disparities among marginalized communities and emphasized the need for improved access to equitable healthcare services. Their research highlighted the role of discrimination as a barrier to healthcare access, often resulting from socioeconomic, racial, or cultural factors. These findings support our study's conclusion that discrimination in healthcare access remains a prevalent issue in certain communities, such as Gbangu and Namangu.

4. CONCLUSION

The communities of Gbangu, Nagboo, Namangu, Tuuni, and Wunduwa have better access to healthcare and better health outcomes as a result of the work of health professionals. The population's general health in these locations appears to be significantly improved by the presence of trained healthcare workers. The survey's findings show that 92% of respondents in these communities recognize the value of healthcare infrastructure, which highlights the requirement for a well-resourced and established healthcare system to adequately handle the population's health needs. The fact that 84 percent of the communities surveyed preferred orthodox health care to conventional medicine shows that the majority of people in these locations embrace and trust modern medical procedures. It's crucial to note that traditional medicine is still widely used in Nagboo and Namangu, probably as a result of the local traditionalist population and influence in those areas. The significance of cultural values and practices in influencing healthcare preferences and actions is highlighted in the study. Designing efficient healthcare services requires a thorough understanding of community preferences and health-seeking practices. To win the trust and support of the community, every healthcare effort or program should be culturally aware and respectful of local customs and beliefs. The report emphasizes the difficulties that populations in Gbangu, Nagboo, Namangu, Tuuni, and Wunduwa have accessing healthcare because of the distances they must travel to reach CHPS Compounds. Designing efficient ways to address healthcare access gaps in these communities necessitates a thorough understanding of mobility variations and the factors driving transportation choices. To guarantee that all inhabitants have fair access to healthcare, focused efforts must be made to enhance mobility choices and bring healthcare services closer to neglected communities. CHPS facilities have improved access to healthcare in rural regions, however individuals' behavior in seeking healthcare is still influenced by distance and their unique healthcare needs. In order to get specialist care, residents are prepared to travel to adjacent facilities. In order to improve healthcare services and make sure that the demands of the rural population are sufficiently satisfied, it is crucial to understand community preferences and healthcare use patterns. The data can be used by policymakers and healthcare professionals to develop targeted initiatives and enhance regional healthcare services. In the investigated communities, unofficial fees have a detrimental effect on healthcare access and affordability, with Gbangu having the

largest percentage of respondents reporting such payments. In order to promote equitable healthcare access and guarantee that all inhabitants can receive the necessary medical care without encountering financial obstacles, it is imperative to address the issue. The investigation into the sources of funding for healthcare access at CHPS compounds highlights the value of individual income, savings, borrowing, and family support in paying for healthcare services. The variety of funding sources emphasizes the difficulty of financing healthcare in the communities under study and the demand for efficient measures to guarantee inclusive and accessible healthcare, which would improve health outcomes. The potential for such approaches to be adopted globally could have significant effects on increasing healthcare access and affordability globally. According to the survey, factors like gender bias, poverty, debt, social isolation, and sexual conduct have a big impact on how affordable and available CHPS treatments are. Understanding these variables is essential for creating focused interventions that can enhance communities under the study's access to healthcare, solve issues with affordability, and foster improved health outcomes. The data can be used by healthcare professionals and policymakers to create more inclusive and successful healthcare programs that address the population's unique requirements. The study revealed variances in the split between male and female nurses caring for patients in various settings. While male nurses predominate in some regions, maternal services are primarily provided by female nurses. The more evenly distributed sexes in Namangu and Tuuni suggest a more inclusive approach to patient care. It is possible to improve gender equity in the healthcare workforce and guarantee that patient care is provided in a thorough and inclusive manner. The study's findings point to a trend in favor of gender equality in healthcare delivery in the Namangu, Gbangu, Tuuni, and Wunduwa villages. When respondents say they feel at ease among nurses of any gender, it shows that they support a diverse and inclusive healthcare staff. The encouraging development could increase access to healthcare, lessen gender bias, and provide a welcoming workplace for healthcare workers of all genders. The study reveals differences in how respondents view healthcare professionals working in the CHPS system in various communities. Some neighborhoods are given high quality ratings, but others receive lower ratings. These opinions are subjective and based on the experiences and perspectives of the respondents. Understanding these perceptions can help policymakers and healthcare professionals improve the quality of care and patient satisfaction in the CHPS system. According to the survey, herbalists are preferred in Tuuni and are particularly well-known in Namangu, while most communities choose over-the-counter drug vendors as alternative healthcare providers. The findings underscore the significance of conventional medical practices in these communities and the demand for acknowledging and respecting cultural beliefs in the delivery of healthcare. The populace can benefit from more inclusive and culturally sensitive healthcare services by recognizing and incorporating traditional healers. According to survey results, traditional practices in the five areas under study have little influence over how easily people can receive CHPS health services. Nevertheless, there are instances of discrimination in access to healthcare, with greater rates seen in Gbangu and Namangu. Improving overall health outcomes and creating inclusive healthcare services in these areas requires addressing discrimination and advancing fair access to healthcare. These findings can guide the creation of focused initiatives and policies to guarantee that healthcare services are available to all inhabitants, regardless of their background or cultural customs, and that they are responsive to their needs.

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