T.R.

ANKARA YILDIRIM BEYAZIT UNIVERSITY

PUBLIC HEALTH INSTITUTE

UTILIZATION OF PRIMARY HEALTHCARE SERVICES AMONG ADULTS IN URBAN AND RURAL MARGIBI COUNTY LIBERIA, THE POPULATION AND PROVIDER PERSPECTIVES

MASTER'S THESIS

AYOUBA A FOFANA

HEALTH POLICY AND GLOBAL HEALTH

ANKARA 2022

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Ayouba A FOFANA

Master's Thesis

12.12.2022

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I certify that this thesis meets all the requirements for a Master's Degree.

DECLARATION

I declare that this thesis and the work presented therein are mine. It was generated by me as a result of my original research. All previously published materials in this thesis are acknowledged according to standard referencing guidelines. It has not been presented before for any degree or non-degree program.

12/12/ 2022

Ayouba A FOFANA

ACKNOWLEDGMENT

Many people contributed to making this educational journey a success and without whom my travel won't be materialized, first of all, I thank Almighty Allah for his grace upon me including the opportunity for this master's study.

This study was also made possible by the Islamic Development Bank Scholarship (ISDB). I am extremely thankful to the ISDB for the commitment to building human resource capacity without which this achievement would not have been possible.

A special thanks to my Supervisor Assoc. Prof. Dr. Nimetcan Mehmet YAĞMA for his advice, guidance, and support throughout this thesis process and beyond. He served as more than a supervisor to me, always responding whenever needed. He helped take away my worries, making me relaxed during my stay in Türkiye.

I am also indebted to other professors for their contributions as well, Prof. Dr. Salih MOLLAHALILOGLU, Dr. Fahad AHMED and Dr. Egemen ÜNAL.I am extremely grateful to my beloved wife Mayavee M SHERIFF for her patience and emotional support. Not forgetting about my late father Abdulrahmane FOFANA may Allah grant him Jannah. He laid the foundation of my education. I am thankful to my mother Mabientou SWARAY for her unconditional upkeep. I am indebted to my older brother Dr. Ibraham A. FOFANA who took the position of my father in providing whatever he has as his support towards my education. My gratitude goes to all the siblings and family members for their direct and indirect support.

In the end, history will judge me if I do not express my profound gratitude to my colleague Elham Murad RIDWAN. Thank you for your continued technical support throughout the thesis preparation process. Thank you for your positive consultative role throughout the study process in Türkiye. I am also grateful to my friend Hamda Mohamed MOUHOUMED for her support.

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ABSTRACT

UTILIZATION OF PRIMARY HEALTH CARE SERVICES AMONG ADULTS IN URBAN AND RURAL MARGIBI COUNTY LIBERIA, THE POPULATION AND PROVIDER PERSPECTIVES

Primary Health Care is the point of first contact with the health service of a country. It enables entry to the rest of the health system. In developing countries such as Liberia, the burden of chronic diseases is increasing on top of unresolved epidemics. There are limited PHC facilities in Liberia with unequal access and utilization between urban and rural populations. Information on factors that influence utilization is lacking. Hence this study aimed to identify urban-rural disparities in accessing PHC, the satisfaction level of the users, and the barriers that impede utilization in Margibi County.

A mixed (qualitative and quantitative) method was used to achieve the study objectives. The findings of the study indicate that primary healthcare utilization was higher in the urban regions (79.6%) compared to rural (62.5%). The satisfaction level of the users generally was high (82.5%). However, both urban and rural users were dissatisfied with two domains: getting all prescribed medications and payment for service. Health workers' engagement in the community, creating awareness, and their weekend services at the facilities were identified as enabling factors of Primary Health Care utilization in the County. It was also found that the Significant population of Margibi (29%) was not utilizing. Consumption of Primary Health Care was significantly associated with Socio-demographic characteristics such as residential area ($p=0.001$), age ($p=0.003$), employment status ($p=0.009$), income ($p=0.001$), media exposure ($P=0.001$), level of education ($p=0.001$). Freedom to seek health care ($p=0.011$) was also associated with Primary Health Care consumption. Furthermore, distance, laboratory, drug unavailability, financial and referral issues were identified as barriers.

Keywords: Primary health care, Utilization, Urban, Rural, Liberia.

ÖZET

LİBERYA'NIN MARGİBİ İLÇESİNDEKİ KENTSEL VE KIRSALDAKİ YETİŞKİNLER ARASINDA TEMEL SAĞLIK HİZMETLERİNİN KULLANIMI: NÜFUS VE SAĞLAYICI PERSPEKTİFLERİ

Temel sağlık hizmetleri, bir ülkenin sağlık hizmeti ile ilk temas noktasıdır. Sağlık sisteminin geri kalanına girişi sağlar. Liberya gibi gelişmekte olan ülkelerde, kronik hastalıkların yükü, çözülmemiş salgınlara ek olarak artıyor. Liberya'da kentsel ve kırsal nüfus arasında eşit olmayan erişim ve kullanıma sahip sınırlı BBSH tesisleri bulunmaktadır. Kullanımı etkileyen faktörler hakkında bilgi eksiktir. Dolayısıyla bu çalışma, Margibi İlçesinde birinci basamak sağlık hizmetine erişimde kır-kent eşitsizliklerini, kullanıcıların memnuniyet düzeylerini ve kullanımı engelleyen engelleri belirlemeyi amaçlamıştır.

Çalışma hedeflerine ulaşmak için karma (nitel ve nicel) bir yöntem kullanılmıştır. Araştırmanın bulguları, genel birinci basamak sağlık hizmeti kullanımının yüksek olduğunu (%71), kentsel (%79,6) ve kırsal (%62,5) kullanım farkı olduğunu göstermektedir. Kullanıcıların genel olarak memnuniyet düzeyi (%82,5) yüksektir. Ancak hem kentsel hem de kırsal kesimdeki kullanıcılar iki alandan memnun değildi: tüm reçeteli ilaçları almak ve hizmet için ödeme yapmak. Sağlık çalışanlarının topluma dahil olması, farkındalık yaratması ve hafta sonu BBSH tesislerinde kalmalarının, ilçede BBSH kullanımının artmasına katkıda bulunduğu tespit edilmiştir. Margibi'nin önemli bir popülasyonunun (%29) birinci basamak sağlık hizmeti kullanmadığı da bulundu. ASM erişimini ve engelleri etkileyen boşluklar tespit edildi. ASM kullanımı, yerleşim yeri, yaş, cinsiyet, istihdam durumu ve gelir, medya maruziyeti, mesafe ve yol durumu gibi Sosyo-demografik özelliklerle önemli ölçüde ilişkilendirildi. Ayrıca, laboratuvar ve ilaç bulunamaması, mali sorunlar ve sevk sorunları da engeller olarak belirlendi.

Anahtar Sözcükler: Birinci basamak sağlık hizmeti, Yararlanma, Kentsel, Kırsal, Liberya.

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LIST OF ABBREVIATIONS

GOL:	Government of Liberia
GDP:	Gross Domestic Product
NGO:	Nongovernmental Organization
NHPP:	National Health Policy and Plan
MOH:	Ministry of Health
M&E:	Monitoring and Evaluation
CHT:	County Health Team
EPHS:	Essential Package of Health Service
PHC:	Primary Health Care
SPHC:	Selective Primary Healthcare
CPHC:	Comprehensive Primary Health Care
DHO:	District Health Officer
PFP:	Private for Profit
NFP:	Not for Profit
AIDS:	Acquired Immunodeficiency Syndrome
TB:	Tuberculosis
ARI:	Acute Respiratory Infection
PNC:	Post-natal Care
SPSS:	Statistical Package for Social Sciences
LD:	Liberian Dollar
CI:	Confidence Interval

AOR: Adjusted Odd Ratio

ACS: American Colonization Society

CHB: County Health Board

HIV: Human Immunodeficiency Virus

LISGIS: Liberia Institute of Statistics and Geo information Service

RDT: Rapid Diagnostic Test

MRDT: Malaria Rapid Diagnostic Test

PA: Physician Assistant

TTM: Trained Traditional Midwife

OIC: Officer in Charge

MCH: Mother and Child Health

CHA: Community Health Assistant

CHSS: Community Health Service Supervisor

1. INTRODUCTION

1.1. Background

Everyone has the fundamental right to be in good health, which is a state of total physical, mental, and social well-being rather than just the absence of disease and infirmity [1]. A major global societal goal is to achieve the best possible level of health, and in order to achieve this goal, many other social and economic sectors must work together with the health sector [2]. Nevertheless, there remains a huge inequality in health care delivery and health status between the haves and not within countries as well as developed and underdeveloped countries. The current stark disparity in people's health status, particularly between developed and developing countries as well as within countries, is politically, socially, and economically unacceptable and is, therefore, of common concern to all countries, according to the Alma Ata International Conference on Primary Health Care on the12th of September 1978 [2].

The first point of contact with healthcare services is primary healthcare. It makes access to the rest of the healthcare system easier. Primary Health Care addresses the health needs of all patients in the community by integrating care, prevention education, and promotion. It improves population health and access as well as Health System performance while lowering overall health care spending [3,4]. Additionally the first line of defense against communicable diseases, which are also the leading causes of death in pregnant women, babies, children, and adults, is primary healthcare [5]. The goals of primary healthcare are similar to those of universal health coverage, which are to ensure that everyone has access to basic medical care that is both safe and cheap [4]. 90% of all health needs, according to the World Bank, may be satisfied through primary healthcare. As a result, its strengthening is crucial to a country's whole healthcare system [5].

According to a research of health outcomes in 102 low and middle-income countries, a strong primary health system is associated with more equitable health outcomes for persons of diverse socioeconomic classes. It was discovered that greater primary health care access was linked to increased life expectancy and decreased baby and under-five mortality [5]. Still, there are Health equity gaps and limited access to primary health care in many countries due to Vulnerability and social disadvantage [6]. As a result, People of all age groups die from preventable illnesses.

In developing nations, the weight of unsolved infectious epidemics is being quickly supplemented by the burden of chronic illnesses [6]. One in every forty-one women dies from a maternal cause in low-income countries compared with one in Three thousand three hundred in high-income countries. The ratio of nursing and midwifery personnel to the people is 1000 in low-income Countries [7]. Diseases that are manageable and preventable are still causing death among people in resource-limited countries [8]. Utilizing primary healthcare significantly contributes to the decline in these morbidities and all-cause mortality [9].

The requirements of women in Africa's healthcare system have not been effectively satisfied. Maternal mortality in the sub-Saharan region has remained unacceptably high, with approximately 510 cases per 100,000 live births [10].

The availability of prophylactic medications, improvement and strengthening of primary healthcare usage in sub-Saharan Africa, are crucial to reducing maternal mortality and Communicable diseases such as Tuberculosis (TB) Acquired Immune Deficiency Syndrome (AIDS).

Basic health services are underutilized in Liberia, especially in rural regions, where only 32.5% of 2-year-olds received all necessary vaccines and only 25.5% of rural mothers give birth with a health professional. To reduce clinical Burden, health care expenditure, and need for unnecessary interventions; Preventive health care must be utilized that will prevent exposure to diseases, and encourage early diagnosis and effective clinical management.

1.2. Problem Statement

Liberia ranks 162 out of 169 nations on the Human Development Index, a metric that takes into account life expectancy, income, and educational achievements [11]. Its maternal mortality rate is among the highest in the world. For every 100,000 live births, there were 1,072 maternal fatalities, according to a 2017 United Nations Women report. In Liberia, seven women die during pregnancy, childbirth, or within the first 42 days of being pregnant from causes other than accidents or violence, for every 1000 live births [12]. Infrastructure and methods for facilitating services in clinics are sometimes insufficient in distant areas. Without electricity, midwives and medical professionals deliver infants at midnight. In Liberia, there were 49.752 infant deaths for every 1000

live births in 2021 [13]. Food insecurity and malnutrition are widespread problems throughout the nation. The top causes of mortality and morbidity for adults and children are still preventable diseases like malaria, acute respiratory infections (ARI), and diarrhea [14]. In Liberia, every two in ten households make use of an unimproved latrine. In comparison to 16% of urban homes, 63% of rural households do not have access to a toilet. In Liberia, a small percentage of pregnant women give delivery in medical facilities. This is a result of the poor quality of health services and the restricted access to basic healthcare. Only five out of ten pregnant women received assistance during childbirth at a health facility, according to the Annual Health Sector Performance Report 2015/2016, with Bong County (81.9%), Nimba County (75.9%), Bomi County (70.8%), and Lofa County (67.7%) achieving above 50% [15]. Below 50% was recorded in Margibi County. Rural Liberians still have limited access to life-saving medical care, despite improvements in basic service provision [16].

Every new mother and her baby need to undergo postnatal care (PNC) within 24 hours after the birth and within 42 days after that. As studies has revealed, a sizable number of mothers and their newborns perished during this period, this component plays a vital role in the decrease of maternal and neonatal morbidity and death. The regions of Bong, Grand Cape Mount, and Grand Gedeh, respectively, have the largest proportion of women receiving PNC. Margibi, where just one in ten women receive PNC, is followed by Sinoe, Gparpolu, and Nimba, where two out of every three newborn moms receive postnatal care. Margibi County also has a dearth of facilities for primary healthcare. Margibi County contains thirteen public primary health care institutions, according to the 2012 report from the Liberia Institute of Statistics and Geo Information Service.

Primary Health Care (PHC) aims to completely resolve these issues, however the majority of the population, especially rural populations, has insufficient and unequal access to basic health facilities. Patients seek treatment from traditional healers, herbalists and black baggers that usually worsen their situations. At certain level they prefer the tertiary hospitals which in turn overburden the already congested Tertiary facilities.

1.3. Justification of the Study

People in countries with extreme poverty, like Liberia, are worried that they lack access to essential services and a safe environment. The gap between the rich and the poor is widening as economic development raises wages and living standards in many emerging nations, and this is related to unequal access to healthcare services [17] .

Major barriers to establishing universal health coverage include a weak supply chain, a lack of health facilities, personnel shortages, and bad care that undermines community trust. Consequently, it is essential to enhance and expand primary healthcare [18].

Due to a confluence of poor living conditions and inadequate access to high-quality healthcare, Liberia's population has high rates of illness and mortality. One of the main causes of poor health and lost productivity is infectious disease [19]. This study aims to identify rural-urban disparities in access to PHC, user satisfaction levels, and barriers to utilization. This could pave the way for policymakers to develop strategies for potential planning and improvements to the PHC delivery system with the goal of reducing access inequalities. Furthermore, the research will add to the existing body of knowledge.

1.4. Objective

1.4.1. General Objective

To explore the barriers, satisfaction, as well as prevalence of Primary Health Care Utilization among Urban and Rural adults in Margibi County, Liberia, from the population and provider's Perspective

1.4.2. Specific objective

- To detect self-perceived health status and health-seeking behaviors in urban and rural Margibi County
- To determine the prevalence of PHC utilization among rural and urban residents of Margibi County
- To identify barriers among urban-rural communities that influence PHC utilization
- To determine the satisfaction level of PHC utilizers in Margibi County

- To ascertain barriers in utilizing PHC from service providers' perspective

1.5. Hypothesis

H1: There is an urban-rural difference in PHC utilization and people's perceived health status and health-seeking behavior

H2: In Margibi County, the prevalence of PHC utilization among adults is low in rural areas as compared to urban communities.

H3: People in higher socioeconomic groups are more likely to use PHC services than those in lower socioeconomic groups.

H4: Primary Health care users are not satisfied with PHC services in Margibi County

2. GENERAL INFORMATION

2.1. Liberia and the health care system

2.1.1. Country context

Liberia, also known as the "Land of the Free," is a tropical country in West Africa with an incredible coast line to the north of the Atlantic Ocean. Liberia was once known as the Pepper Coast, and later as the Grain Coast. It has a land area of approximately 111,369 square kilometers and is located at latitude 6^0 30 north of the equator and longitude 9^0 30 west of the Greenwich Meridian. It is bounded on the south by the Atlantic Ocean, on the north by Sierra Leone, on the west by Côte d'Ivoire, and on the east by Guinea. It has 350 miles of Atlantic coastline and three distinct topographic zones:

a. A 10 to 50-mile-long flat coastal plain with lagoons, creeks, and mangrove swamps
b. Area of broken forested hills with altitudes ranging from 600 to 1200 feet, which covers the majority of the country;
c. Northern highland mountains with elevations reaching 4,540 feet in the Nimba Mountains.

There are numerous rivers and lakes. The major ones are the rivers St. Paul, Mano, Cestos, St. John, Farmington, and Lofa, as well as the lakes Piso and Shepherd. Liberia has a tropical climate that is humid all year, with average temperatures ranging from 70 to 80 ^{o}F (21 ^{o}C). There are only minor differences between night and day and seasons. There are two seasons: rainy from May to October and dry from November to April [20].

Liberia was established in the early 1800s as a result of US foreign policy interests as well as domestic politics concerning slavery and race in the United States. The number of free black slaves in America was increasing as a result of the Transatlantic Slave Trade. To address this issue, a group of white Americans formed the American Colonization Society (ACS) in order to resettle free black slaves in Africa. In 1820, 88 free black settlers and three members of society sailed for Sierra Leone.

They found refuge on Schebro Island off Africa's west coast, but many of them died of malaria. The United States Navy began looking for a permanent settlement location in what is now Liberia. The society purchased a plot of land from the local leaders. The Schebro group relocated

to this new location, where they were joined by other blacks from America. Liberia declared independence from the American Colonization Society in 1847 in order to establish a sovereign state and develop its own commercial laws. Liberia is a multiparty republic with a democratic constitution. In 1984, political parties were legalized, and civilian rule was established in 1986.

Liberia's government is structured similarly to that of the United States, with three branches: executive, legislative, and judicial. Executive (made up of the President, Vice President and the Cabinet) Legislative (which consists of two houses, the Senate and the House of Representatives) and Judiciary (which includes a Supreme Court and other lesser courts in the country) [21]. Liberia's legal system is dual in nature, with statutory law for the modern sector based on Anglo-American common law and customary law for the indigenous people based on unwritten customary practices. The nation Constitution, legislation, statutes, customary law, and court procedures are the primary sources of law [21].

As a political subdivision, Liberia is divided into fifteen counties. It is divided into five regions: North Western, North Central, South Central, Southeastern A, and Southeastern B [20]. Counties are subdivided into 90 districts, districts into chiefdoms, chiefdoms into clans, and clans into towns and villages. Since the beginning of the civil war, each county's government has been led by a Superintendent who is appointed by the president. The President appoints District Commissioners as well [21]. The administrative map of Liberia is shown in Figure 2.1.



Figure 2. 1. Administrative Map of Liberia [22]

2.1.2. Population

Liberia's population is growing at a rate of 2.44% per year, with 4.35 children born per woman. Liberia's population was estimated to be 5,057,681 in 2020, with a population density of 53 people per square kilometer [20]. Women make up 51% of the population, while men make up 49%. Males have a life expectancy at birth as 62.86 years, while females have a life expectancy of 67.4. Monrovia is home to the majority of Liberians. Urban areas house 47% of the population, with those aged 15 and up accounting for 58.1%, those aged 5-14 years accounting for 26.5%, and those aged 0-4 years accounting for 15.4%. In the counties, the settlement shape in the south eastern part of Liberia is more dispersed than in the northwestern and central parts of the country. The communities are almost entirely native in rural areas and fairly mixed in townships and cities [20].There are at least sixteen ethnic groups in Liberia, each belongs to one of three major language groupings: The southern Kru, Mande and Mel group.

2.1.3. Economy

Liberia is a country endowed with abundant mineral resources and a favorable climate for agriculture. Agriculture productivity has a significant impact on its exports. Liberia's main exports are rubber, diamonds, gold, timber, iron ore, coffee, crude oil, and cocoa. Liberia's economy has been in decline since the 1970s due to social and political unrest. On a large scale, civil war destroyed productive capacity and physical infrastructure. As a result, the economy has suffered and national poverty has worsened. Liberia's GDP in 2018 before the covid-19 was 677 USD, expected to be 583.27 USD in 2020. Three-quarters of the Liberian population lives in poverty, earning less than $1 per day. The majority of the population is employed in agriculture and subsistence farming or the informal economy in trading and small scale production [20].

2.1.4. Education

Liberia's educational system faces a complex set of challenges, including rebuilding and recovery from civil war, inadequate infrastructure, strained national finances, and Ebola and covid-19 outbreaks. Poor learning outcomes, a large number of out-of-school children, overage enrollment, and a large number of untrained teachers are among the challenges [23]. There is a significant rural-urban disparity in education, as well as a gender disparity. 16% of women and 27% of men between the ages of 15 and 49 have completed a senior or higher level of education. In terms of literacy, 52% of women and 75% of men aged 15 to 49 are literate. Rural Liberians have lower educational attainment rates than their urban counterparts. Only 61% of rural men and 84% of urban men are literate, while 84% of urban men and 63% of urban women are literate, while only 61% of rural men and 34% of rural women are literate [24].

2.2. Health Care System

The aftermath of Liberia's 14-year conflict and Ebola outbreak had an impact on the health system, resulting in the demolition of health facilities, the loss of health professionals, and a shortage of qualified health personnel. Since then, the Liberian government has worked to rebuild the basic health system with the assistance of donor agencies and nongovernmental organizations (NGOs) through the National Health Policy and Plan (NHPP) [14]. Prior to the civil war, the public health sector employed 3,526 people. By 1998, the number of health professionals had dropped to

1396, with only 89 physicians and 329 nurses remaining. Throughout the 1980s, as insecurity increased and the economy declined, highly qualified professionals continued to leave the country, leaving large gaps in the health system at all levels. By 1990, the majority of medical specialists had left Liberia, leaving only general practitioners. As government business partners left the country, so did specialists, non-governmental organizations (NGOs), and emergency aid organizations. Médecins Sans Frontières (MSF) was the first to arrive, they first arrived in 1989. It began an NGO-centric health care system in which health facilities were reliant on external aid to function. Liberia had 420 facilities as of 2003. (32 public health centers, 12 public hospitals, 189 public clinics, 10 private hospitals, 10 private health centers, 167 private clinics). Non-governmental Organizations and Faith Based organizations managed 45% of these facilities. Civil war resulted in badly damaged and incapable health system [25]

2.2.1. Organization and governance

The Ministry of Health coordinates and directs Liberia's health system. In 2015, an Act was passed to establish the Ministry of Health (MOH) as a separate and distinct ministry from the Social Welfare, with the goal of making the healthcare sector more capable and responsive. The MOH's mandate is to reform and manage the health sector in order to effectively and efficiently deliver comprehensive quality health services that are equitable, accessible, and sustainable for all Liberians. The ministry is structured as follows: the Minister's office, the Department of Policy Planning and Monitoring and Evaluation (M&E), the Department of Health Services, and the Department of Administration. Each department is led by a deputy minister who reports to the minister. The president appoints a medical doctor as chief medical officer, also known as the Deputy Minister for Health Services, with the consent of the Senate. One of his responsibilities is to effectively supervise county health services. The president appoints assistant ministers to assist the minister and deputy ministers in running the ministry effectively [26]. Liberia's national healthcare system, in accordance with national health policy, is divided into three levels of care: primary, secondary, and tertiary. This is provided by four health care sub-systems: Community health System, District Health System, County Health system, National Health system [20].

County health teams (CHT) at the subnational level are structured as part of the decentralization effort in effective service delivery. In each of the 15 counties, the county health officer oversees the county health team. CHT has a chief medical officer who oversees all health

sector activities and reports to the County Health Officer. The County Health Board, led by the county Superintendent, advises on county-level policy and planning, assists with resource mobilization and coordination, and monitors the CHT's performance. A district Health Officer manages and coordinates services in district-level facilities [14]. Figures 2.2 and 2.3 depict the National Ministry of Health Structure as well as the County level County Health team Structure.

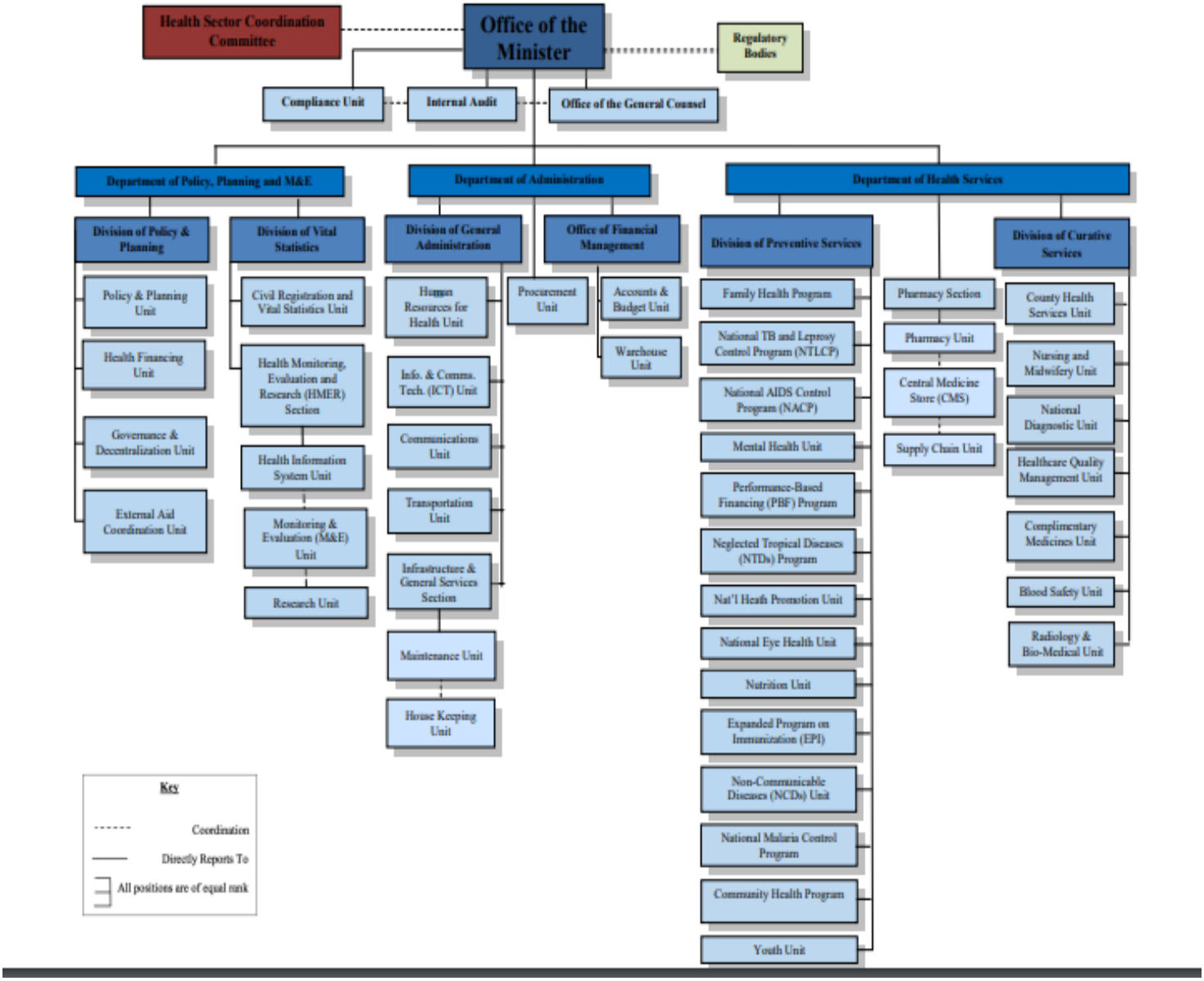


Figure 2. 2. Liberia ministry of Health organogram [14]

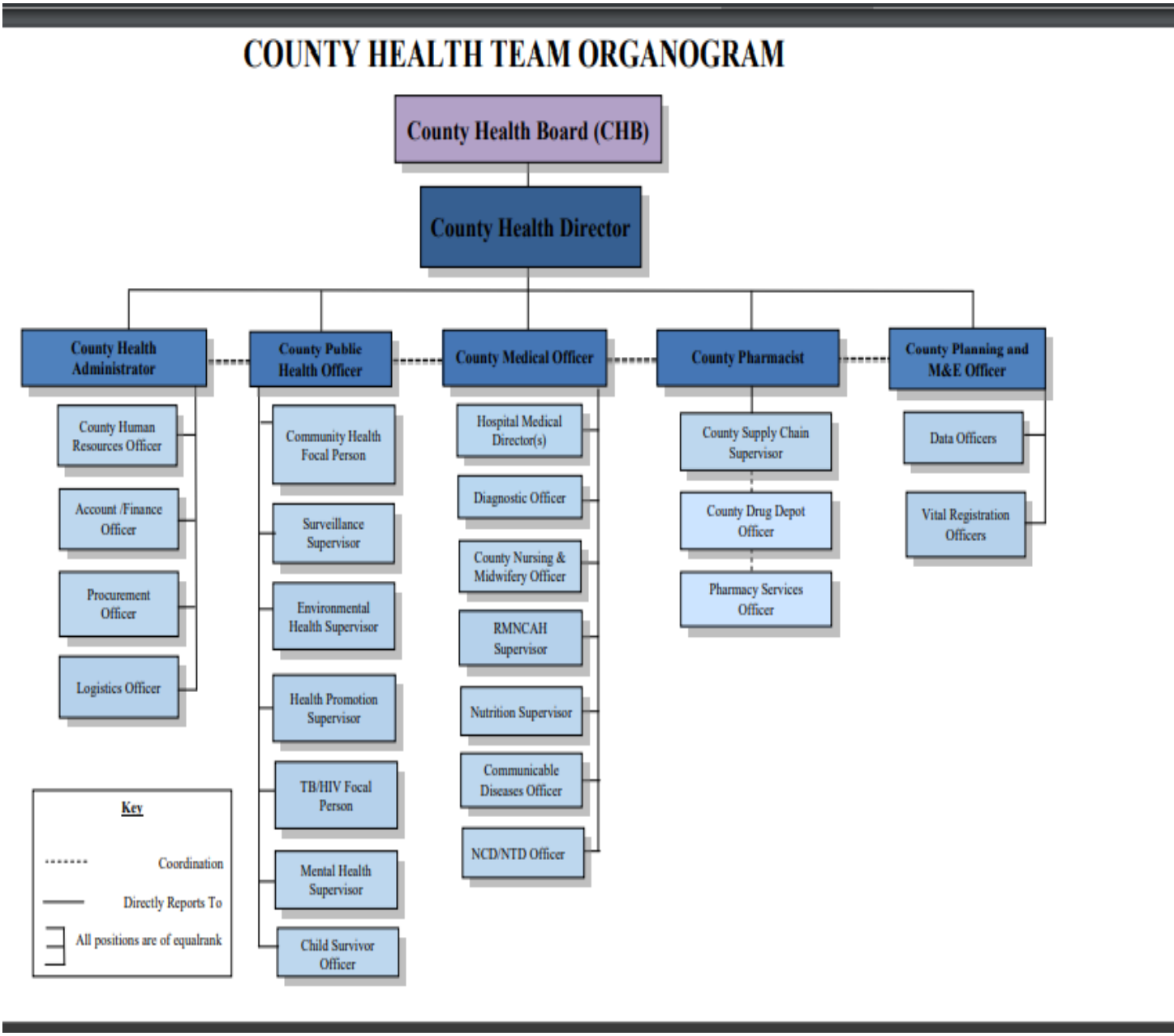


Figure 2. 3. *County Health Team organogram* [14]

2.2.2. Health care financing

Generally, both public and private health systems in Liberia are reliant on donor and multi-lateral partners. The population contribute through out-of-pocket payment as well as payment of

taxes and insurance (Public and private). In most instances, poor and less privileged Liberians utilize the public health facilities that are free of charge while rich Liberians pay out of pocket at private facilities. Out-of-pocket expenditure constitutes 51% of health spending in Liberia [27]. In Fiscal Year 2016/17 the government's domestic health spending as a share of public expenditure was 10.5%. Liberia's total per capita health expenditure is USD $65. Liberia has yet to meet the Abuja target of allocating at least 15% of its annual budget to health [28].

2.2.3. Physical and human resource

A qualified human resource within an active health system aids in the achievement of better health outcomes [29]. Shortage of health workforce is a serious issue in many developing countries; in Liberia, the situation is exacerbated by the impact of the civil war. There were fewer than 20 physicians, compared to 237 before the war, and nurses made up the majority of the country's remaining workforce[14].The total public sector health workforce in June 2016 was 10,672. The country is yet to meet up with at least 50% of WHO global target for health workers density which is 23 per 10,000 population. The current density of health workers per 10,000 population is 11.7, with variations across counties; however, misdistribution remains a significant challenge in the health workforce, with the majority concentrated in urban areas, leaving rural areas underserved. Health workers migrate to cities in search of better job opportunities, better living conditions, and opportunities for professional development [15].

Almost one-third of the Liberian population lives more than an hour's walk from a facility [15].This indicates that there is a need to improve physical access to health facility. According to Joint Annual Health Sector Review Report 2016 Liberia has 437 public health facilities providing basic health services. Though these facilities are functional most of them do not have observation and in- patient beds and sanitation facilities. Furthermore, some do not have operational incinerators, primary power source for emergency lighting. These issues limit facilities' ability to provide the health services required by the Essential Package of Health Services (EPHS) [27].

2.2.4. Service Delivery

Specific health interventions define Liberia's essential package of health services (EPHS). It was built on the previous Basic Package of Health Services implemented by the country to strengthen the delivery of basic health services. EPHS prioritizes maternal and child health, adolescent health, emergency services, and communicable disease control [30].In Liberia, the EPHS is delivered through four subsystems: the community health system, the district health system, the county health system, and the national health system.

The community health system provides primary care through community-level services and primary health care clinics (levels 1&2). This level of service is delivered by household health promoters, trained traditional midwives, and general community health volunteers. Due to the lack of salary for these community health workers from the government, they provide only narrow components of the primary level of services. Primary Health Clinics vary in size and features, but they must always provide the appropriate EPHS level, including curative care, maternal and child care with immunization, and delivery attendance. The District Health System, which includes health centers and district hospitals, provides secondary care. Health centers are present in some densely populated areas with limited access to county hospitals [30].

The county health System, which includes county hospitals, provides extended secondary care services 24 hours a day, seven days a week, including general surgery, pediatrics, general medicine, obstetrics and gynecologic services (including emergency), intensive care, laboratory services, and basic radiology services. The national health system level includes tertiary care hospitals, regional hospitals (covering 3-5 counties), and the privately owned John F. Kennedy Medical Center [30].

Although Government provides services in the public sector, Formal private health providers are also available in Liberia. Faith-based organizations operate hospitals and clinics. Private businesses own pharmacies, medicine stores, and clinics. Private not-for-profit, as well as non-governmental organizations, are also providers of health service. As for the informal setting: traditional healers, black baggers (traveling medicine) religious healers all provide services in the Liberian community.

2.2.5. Health Service Utilization

In Liberia, there is little evidence of healthcare-seeking behavior. However, according to the latest Service availability Readiness and assessment survey, there are as few as 1.4 outpatient visits per year, whereas the World Health Organization (WHO) recommends 5 visits per year. This low utilization is primarily due to a consistent shortage of medicines and supplies, as well as high absenteeism among health workers. Care seeking is much more prevalent in urban areas, as is the use of emergency services by wealthier and urban households. Expenditure on public health is vastly unequal, with hospitals receiving a larger share of government subsidies, making them pro-rich [15].

2.3. Literature review

2.3.1. Historical development of PHC from 1978 to 2018

In 1978, all member states of the WHO agreed on the PHC proposal which brought ideas that made governments to rethink their views on attaining and sustaining good health.The declaration of Alma-Ata dedicated the members to put in place actions that will accomplish WHO health definition which is a complete state of well-being not mere absence of disase [31]. Obtaining a health status that will enable the world a social and economic productive life by year 2000 was the target. Significant role primary health care play in realizing this target was emphasized [32].

Primary Health Care was founded on the principles of equitable access to health care and the right of individuals to participate in healthcare decisions [33]. Concept of health moved from being limited to biomedical related resacrches that are moreadvanced technologically, medical elitism to a wider focus incorporating social determinants of health [34].

The pledge to implement PHC about a year following Alma-Ata declaration to address the needs of the disadvantaged was defficult owing to emergence of different interpretations of PHC. The Declaration slogan“Health for all by 2000” was criticized for being too broad and unrealistic, Health professionals began publishing articles arguing that PHC can be approached realistically by addressing controllable and prevalent diseases in developing countries while also considering people's inclusion in their health care. The concept of selective primary health care (SPHC) was proposed to target diseases with higher prevalence and morbidity, a higher risk of death, and more control options in terms of cost effectiveness.

Selective Primary Health Care focuses on specific interventions known as GOBI (Growth Monitoring, Oral Rehydration, Breastfeeding, Immunization). SPHC focuses primarily on maternal and child health, excluding the wider population, including men.

This concept rejected health interpretation as holistic and reflective of social justice and social determinants, diverting attention away from fundamental health and socioeconomic development. It challenged comprehesive primary health care approach which ensures involvement of community and intersectoral cooperation [35]. To translate PHC into action there was regular

debate over SPHC and Comprehensive Primary Health care (CPHC) which approach should be taken. Should programs focus on priority diseases (vertical approach) or a broader set of conditions and activities (horizontal approach)? Epidemiological priorities (the most common, severe, easily preventable, or curable conditions) should be prioritized or health priorities perceived by the general public [31].

Despite of significant progress, 40 years since the declaration of Alma-Ata with the goal of health for all, people around the world suffer inequality in health. Meeting health needs is a challenge for many especially the poor and the vulnerable population. Noticing these challenges led to global conference on primary health care in Astana 2018. State leaders, Government ministers and state representatives attended this conference to reaffirm their commitment to the Alma-Ata Declaration's goals of universal health coverage and sustainable development. The Astana Declaration recognized PHC as the foundation for a sustainable health system and sustainable health goals. It committed to making promotional, preventive, rehabilitative, curative, and palliative care services available to all. Furthermore, the commitment addressed the burden of noncommunicable diseases (NCDs), climate change issues, and community empowerment [32].

2.3.2. Definition of PHC

The first definition of PHC was adopted in 1978 at the International Conference on Primary Health Care in Alma-Ata. "Primary health care: is essential health care that is made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination" [2].

The definition adopted in Alma-Ata is a straight-forward definition that addresses health-care quality, equal access, community participation, and social and economic development. To provide primary health care to the standard described in the Alma-Ata definition, adequate funding is required to ensure quality, equitable coverage, and the elimination of out-of-pocket costs through free point-of-use services [36].

2.3.3. Elements of Primary Health Care

The functions of primary health care are essential health services designed to be provided to every community [36]. They are as follows:

1. Sufficient and safe water supply, as well as basic sanitation
2. Health Concerns Education and how to avoid and control them
3. Creation of an adequate food supply and nutrition
4. Maternal and child healthcare, including family planning
5. Correct treatment of common diseases and injuries.
6. Vaccination against major infectious diseases.
7. Local endemic disease control and prevention
8. Provision of necessary drugs

Therefore, primary care was seen as a comprehensive, sustainable and relatively inexpensive approach to promoting and maintaining the health of a population compared to specialty and inpatient care, as well as a tool for social and economic development [37].

2.3.4. Primary Health Care in the context of developing world

The economic and social growth of any country is directly related to its health index. The increase burden of diseases is inversely related to economic development particularly in developing countries [37]. It was reported in Zambia that two third of families whose house hold head died related to HIV/AIDS experienced a drop of 80% in monthly income. To achieve the goal of universal Health for all with in any geographical area, Alma-Ata declaration stressed on Universal access to health For every individual [37].

Additionally, socio economic status, and limitation in essential health services affordability, accessibility and availability have caused huge inequities in health between the high and low income communities, which indicates that universal health goal attainment remains a high vision for resource constraint countries [37]. In Uganda PHC financing is largely contributed through out of pocket private funding [38].

In Africa the referral system suffers inadequate communication which affects its organized functioning. Additionally owing to personnel shortage and limitation in scope of services provided at the primary care level, many users bypass the referral system [39]. Primary health care services in developing countries are delivered unplanned with high complexity regarding integration and coordination , especially at the rural level [37]. Countries with limited resources cannot afford universal health insurance like developed countries, therefore the use of well-established PHC facilities can be maximized to improve the health quality of their population. For example, Japan has good quality of health , mainly because a large portion of its population is covered by health insurance[37].Therefore the implementation of PHC following the Declaration of Alma-Ata to provide essential health services was significant especially for developing countries [37].

After the Alma-Ata Conference, when aid organizations and politicians in developed countries refused to accept the core PHC principle, Primary Health Care came under fire. As a result, a new concept - Selective Primary Health Care - was reintroduced (SPHC). This new concept transferred decision-making and control of PHC from communities to recipients, establishing a relationship between recipients and funding organizations. This approach has weakened the PHC structure within developing countries [40]. In addition Primary Health Care facilities focus has been diverted from populations health need to specific diseases in which donors have interest [37]. Although SPHC is a cost-effective practice, it is an impediment to achieving Universal Health Coverage. Contextualization of this practice within the context of developing-country community health needs is critical [37].

2.3.5. Access and utilization of healthcare services

Access to health care is a multidimensional process that includes quality of care, geographic accessibility, availability of the appropriate type of care for those that are in need, affordability and acceptability of service [41]. It describes the ability of an individual to place oneself in a position to receive healthcare services [42].

Utilization of Health service is associated to the availability, quality and cost of the service, as well as the socio-economic structure and personal characteristics of users [43]. In developing Countries like Liberia the underutilization of health services has been a serious universal

phenomenon [44]. Concepts of Access and Utilization of health care are separate though they are related. This concept serve as a focus for health policy and quality improvement [42].

2.3.6. Anderson Model

Modified Anderson behavioral model of health services is used to better comprehend the way in which people utilize health service and the reason making them to do such. It evaluates discrepancy in access to health care service [45]. This study was built upon this Anderson framework. The model gather elements that impact health behavior into predisposing (such as age gender), enabling (such as income and region of residence) and need factors (such as severity of illness and total days in bed). Figure2.4 is Anderson model that was used in this Study. It give an overview of factors that affect Health seeking behavior.

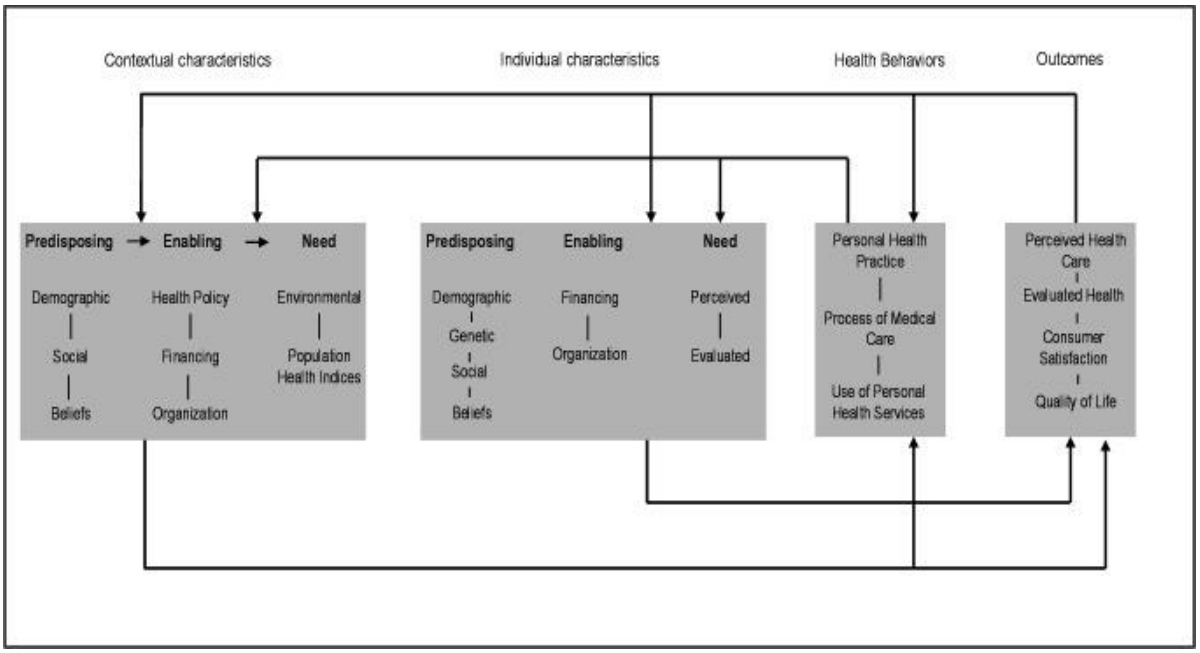


Figure 2. 4. Phase five of Andersen's model of health services utilizations [46]

2.3.7. Conceptual frame work

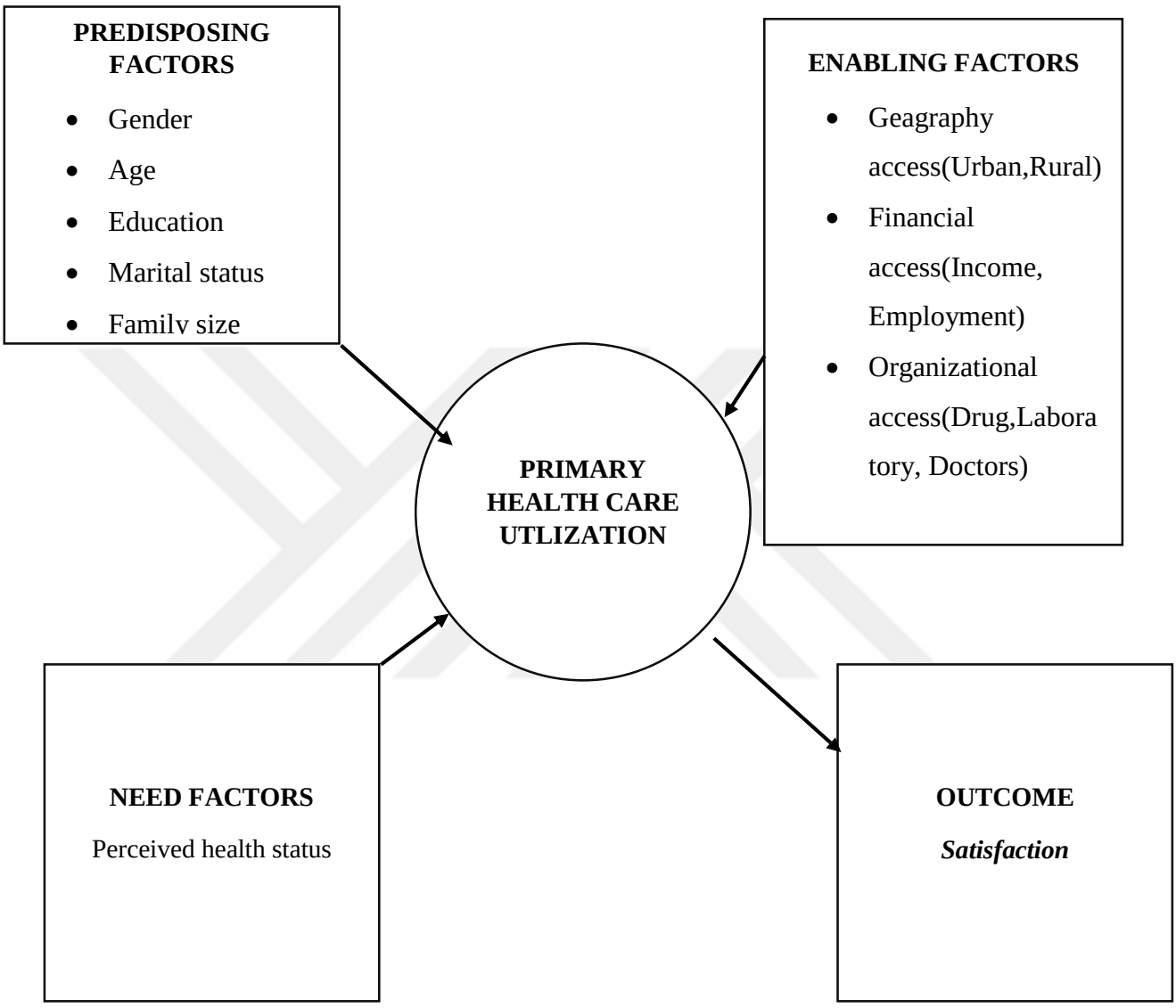


Figure 2. 5. Diagram of the conceptual framework

2.3.8. Factors affecting access and utilization

The Anderson Model of health care utilization was used in this study to investigate factors influencing access and utilization. The model assumes that individual determinants of health care utilization are predisposing, enabling, and need factors. Anderson claims that Predisposing factors are characteristics that exist prior to the onset of illness and describe an individual's proclivity to

use health care services. Secondly Individuals' access to health services is enabled by enabling factors. Third, the need for care describes the severity of the illness. Health service utilization is typically triggered by need factors, as predisposing and enabling factors alone are insufficient to do so but are still required for health service utilization [47].

Predisposing factors in this study include gender, age, education, marital status, employment status, and health-care seeking behavior. Travel time to PHC, economic status (household income, source of income), and geographic access are enabling factors (urban, rural). Self-perceived health and illness experience are need factors.

3. METHODOLOGY

3.1. Study design

Both qualitative, and quantitative Cross-sectional Survey designs were used to gain an in-depth understanding of PHC service utilization and its barriers in urban and rural towns of Margibi County. Through this type of combination research, the study problem can be thoroughly examined from various perspectives. At the community level, a household survey was conducted, and at the facility level, a qualitative one-on-one interview method was used. For the purpose of evaluating the factors influencing PHC utilization both the population and provider's perspectives were investigated.

3.2. Study Setting

This research was carried out in the Liberian county of Margibi in the country's south central region. As a political subdivision, Liberia is divided into fifteen counties.It has Five regions namely, North Western region, north central, South Central, Southeastern A, and Southeastern B, each region comprises of three counties: North Western Region comprises of Gparpolu, Bomi, and Grand Cape mount Counties, North Central: Bong, Nimba, Lofa counties, South Central: Grand Bassa, Margibi, Montserrado, Southern A: Sinoe, Grand Gedeh, River Cess, Southeastern B Grand Kru, River Gee, Mary land counties [24]. The county is divided into districts, which are further divided into clans, which are further divided into towns and villages. Figure 3.1 depicts a map of Liberia and its regions.



Figure 3. 1. *Regions of Liberia* [48]

According to National Population and Housing Census 2008, Margibi County comprises of four districts: Kakata, Firestone Gibi, and Mamba Kaba, Margibi is located on Liberia's north to central coast. It is bounded on the west by Montserrado County, on the east by Grand Bassa County, and on the north by Bong County. The southern portion is located on the Atlantic Ocean [49]. Margibi County population according to 2008 census is: 199, 689 male: 99, 900 and females: 99,

789, area measures 2, 616 square kilometers, average household is 4.8. It has a dense population concentration which falls between 100 and199 persons per square mile. Kakata District has: 88, 130 population, male: 44, 327 female: 43, 803. Firestone District population males: 28, 757 females: 28, 494 and total population: 57, 251. Gibi District population males: 6, 696 females: 6, 536 and total population: 13, 232. Mamba Kaba District males: 20,120 females: 20, 956 total population: 41, 076.

The County capital is Kakata [50]. Kakata city has: 33, 945 population, males: 16 501, females: 17,444. Harbel area also has a large population in Margibi, males: 11,875, females: 11, 527 and total population 23,402. According to 2008 population and Housing census, settlement in Liberia is considered Urban when its population is 2000 and above. An area is also regarded as major urban when it has 5000 population and above [51]. Refer to the four districts of Margibi County in Figure 3.2



Figure 3. 2. *Margibi county Districts*

3.3. Study population

Individuals aged 18 and up living within the geographical boundaries of Margibi County were included in the quantitative process. The qualitative study's population consisted of service providers from the selected PHC facilities.

3.4. Sample size determination

The sample size was calculated by comparing two population proportion formula as follows:

n = (Zα + Zβ)2 ((p1 q1)+(p2 q2))/ (p1 – p2)2 in each group [9] **.**

Where n is the required sample size, Zα is the standard normal deviation, and P is the proportion of the population who uses the PHC.

q1= (1-p1)

q2 = (1-p2)

P1 and P2 are the proportions of the population who use PHC in urban and rural areas, respectively.

Z_α = 1.96 for 95% confidence level,

Z_β = 0.84 for 80% power

To compare the utilization of PHC by urban and rural populations, a 10% difference was assumed between the two regions (60% for the urban population and 50% for the rural population), with 80% power and a 5% level of significance. The calculations are as follows:

n = $(1.96 + 0.84)^2$[(0.60) (0.40) + (0.50) (0.50)]/ (0.60-0.50)2=**384** in both urban and rural areas

With a 17% non-response rate, the sample size was adjusted to **450** subjects from each group summing up to **900** from both urban and rural areas.

3.5. Sampling and sample technique

The population under study was drawn from urban and rural areas in Margibi County. Participants were selected using a cluster sampling technique, because it is most economical and practicable sampling technique. Cluster sampling, according to Levy and Lemeshow, has advantages in surveys of human populations over large geographical areas without sacrificing population representation characteristics [52]. In the quantitative study, a sample of adults from a representative population was chosen using a two-stage cluster sampling technique.

Initially, the county was divided into urban and rural areas. Margibi has four districts. Only two districts (Firestone and Kakata) had urban cities as per LISGIS 2008 population criteria for urban settlement. The two urban cities are: Harbel and Kakata. In the second stage the Urban (Harbel and Kakata) were divided into communities, and a sample was drawn from each selected community. Probability proportionate (PPS) to size sampling used is presented in Table 3.1.

Table 3. 1. Probability Proportional to Size approach used for sampling urban (N=450)

Urban	**Population**	**proportion sampled**
Kakata	33,945	266
Harbel	23,402	184
Total	57,347	450

For the rural region, a sample was collected from each of the four districts within the county. They were divided into two village areas . Health-care facility areas and villages without a health-care facility. After obtaining the list of villages from LISGIS, a sampling frame of forty villages was created, with sixteen villages, four from each district, chosen.Table 2 illustrates the sampled rural households in the four districts.

Table 3. 2. Number of sampled rural households in the four districts of Margibi County (N=450)

District	Village with health facility	Sampled household	Village without health facility	Sampled household
Kakata	Yarwullie	50	siaffa	50
Kakata	Wolola	50	Konola vai town	49
Firestone	Division 28	40	Gaye	19
Firestone	Duside Village	50	Division 34	20
Gibi	Worhn	10	Lowor	5
Gibi	Peter	10	James Boto Town	5
Mambah kaba	Dorzon	30	Karfah	20
Mambah kaba	Schiefflin	30	Whowein	12
Total	---	270	---	180

In the qualitative process. One PHC facility from each of the two urban areas was selected and five PHC from the rural areas were selected. Purposive sampling was used to recruit Service providers: community health workers, midwives, and registered nurses

In Margibi County there are two hospitals, Four Health Centers and twenty one Clinics. In Liberia Primary Health Care is provided at community and Clinic level by Multipurpose Health workers such as Registered Nurses, Community health workers, Physician Assistants, Registered Nurse Midwifes and Midwives. There are eleven private Facilities and sixteen public Health facilities. There are thirteen Public Primary Health Care facilities. Refer to Table 3.3 for health facilities in Margibi County.

Table 3. 3. Health facilities in Margibi County by district and ownership [53]

District	Number of Health Facilities	Ownership
Kakata	16	GOL and private
Firestone	3	Private
Gibi	1	NGO
Mambah Kaba	7	GOL and Private
Total	27	---------

3.5.1. Inclusion and exclusion criteria

3.5.1.1. Inclusion criteria

- Population age 18years and above living in Margibi County
- Those agreed to be part of the Survey
- Those adults residing in the area of study permanently or live therein for at least 2 years.

3.5.1.2. Exclusion criteria

- People that do have severe mental condition that would impede them from giving informed consent
- very old people were excluded
- Children due to consent issues and inability to decide on health care seeking behavior

3.6. Data collection tool

The questionnaire that was used in this study was a structured questionnaire that have been used by Syed Azizur, to asses Primary Health Care utilization in Rural Bangladesh [54]. Hamda

from Somaliland also adapted this questionnaire and used it in the context of Somaliland [41]. Researcher obtained a permission from Hamda and adapted the questionnaire to be used in the Liberian context. The questionnaire best suits the study objective which made it relevant for this study. Furthermore, it allowed an investigation of Andersen's predisposing, enabling, and need factors, and thus is a close fit to the study's conceptual framework. Those questions that were not necessary were discarded.

The questionnaire was made of four sections: First section was Sociodemographic and socioeconomic background, this section ask questions on: residential area, gender, age education level, marital status, employment, income, source of income, family size, media exposure, years of residency, source of drinking water, purification method, time to obtain water, latrine availability, hygiene practice after toileting, electricity, household type. Second section: Perception of Health and Disease and health seeking behavior. This section ask questions on : perception on health condition, chronic condition, type of chronic condition, stage of illness to seek care, consultation on seeking care, deciding on where to seek health care, treatment place of minor illnesses, stopping medication because of unaffordability, nearest health facility by walking, transportation, sickness in the last six months and treatment place. Section three Primary Health care utilization this section ask questions on: awareness of PHC existence, mode of transport, duration and cost, PHC visit in the last 6months, reasons of visit, reasons for not visiting, going to PHC before hospital. Section four assess the satisfaction level of Primary health care users, the questions used as indicators were: Involvement in decision making about treatment, explanation of side effects by health care providers, consequence of not completing medication dose, seeing health care provider during the weekend, being served by the same health care provider, giving enough time to listen, payment for service, health care worker suggesting physical exercise, getting all prescribed medications.

3.6.1. Pilot study

Pilot study was conducted among 20 persons to test comprehensiveness of the questionnaire. The result of which gave a reliability of Cronbach's alpha (α 0.735). English is the official language of the country. However some academic wordings in the questionnaire were simplified for the purpose of comprehension by the respondents.

3.6.2. Data collection time

Quantitative data was collected from March 1st to May 31st 2022 and qualitative data was collected in June 2022. Data was collected by researcher himself assisted by four trained research assistants (2 males and 2 females).They were trained intensively for at least one weak on the content of the questionnaires and techniques for data collection. Three were high school graduates and one was a nurse. Taking the demography of Margibi into consideration there are two largest tribes in the county kpelleh and Bassa. Two recruitees were from kpelleh tribe and the other two were from Bassa tribes. This helped to clarify some questions that might have not been understood by some rural people.

3.7. Data collection method

3.7.1. Quantitative data collection method

A face to face interview administered questionnaire was used to collect data at the household level. In quantitative phase data was collected from households within 20communities of the two urban areas. Ten communities from each. As stated above the two urban areas were in two different districts. To obtain a sample of each urban area, the probability proportionate to size method was used. A list of communities was obtained, and the communities in each were chosen using simple random sampling. In choosing the communities, Urban communities` names were written on pieces of paper and were put in a closed box and shaken thoroughly, during which a neutral individual was appointed to select ten communities from each Urban city one after another. The first selected community was marked number one; the second selected community was also marked number two in that order until all the communities were marked. In rural areas, a list of villages of Margibi was obtained from the Liberia institute of Statistics and Geo-informationion Service (LISGIS) and was clustered into two,village areas with health facilites and those without health facilities. A sample of 16 villages (4 from each district of Margibi county) was selected from the total list of 40 villages .

To select the household , researcher began data collection from the town chief or the community chairman house within that community. In the case where there is no community chief or chairman, the starting point was an influential person’s house (religious head). The next house

was selected southward from the starting point until there were no more houses in that direction, at which point the houses were selected westward, then eastward in a zigzag pattern. Houses were visited in this order until the required number of respondents were obtained. One eligible household member was chosen and interviewed in each household. In a situation where there were multiple eligible candidates, only one was chosen at random for an interview.

3.7.2. Qualitative data collection method

Two-stage cluster sampling method was used in the qualitative phase. Margibi County has thirteen PHC facilities. Two urban PHC facilities and five rural PHC facilities were specifically chosen. Ten one-on-one interviews were conducted with health care providers at PHC facilities in both urban and rural areas. The interviews were recorded using audio recording equipment (a phone) with the participants' permission.

Purpose of the study was explained to all the participants of the study and were given a choice to discontinue or skip question at any time they wanted. The interview participants were given a consent form, verbal consent was also taken.

3.8. Variables

3.8.1. Dependent variable

A visit to PHC by an individual in the past six months was the main variable of this study. This attempts to get probability elements of primary heath access. Utilization of PHC was measured by the visit during the past six months.Which is consistent with other utilization research studies ,[56]. Aditionally this limit was taken due to recall bias consideration.

3.8.2. Independent Variables

Factors that influence primary Health Services usage and satisfaction of users in Margibi County were evaluated in this study. A review of the literature from various studies and settings

reveals the recurrence of a number of factors that appear to have some influence on utilization. Some of these factors were chosen for the research.

Literature review from several studies and settings finds the recurrence of a number of factors which seem to have some influence on utilization. Some of these factors were chosen for investigation.

Supposed Health State and health seeking behavior

- Perceived Health status(Poor,Excellent, Fair)
- Chronic disease (Yes, No)
- Transportation to the health facility(It is difficult, It is easy to find)
- Dcision to choose health care (self ,husband, others)
- Health worker visit (Yes, No)

Sociodemographic factors included

- Residential area (urban, rural)
- Gender (male and female)
- Age (18-28.29-38,39-48,49 and above)
- Literacy (illiterate, primary, junior secondary, senior secondary, undergraduate and postgraduate)
- Marital status(single, married, cohabitating , divorced)
- Employment (formally employed, not employed, student)
- Income (< 4500LD, > 4500 LD)
- Source of income (formal work, casual work, business, farming)
- Family size
- Years of residency
- Media access (Radio, Internet, Television,& Newspaper, Nothing)
- Nearest health care facility by walking in minutes (<20, 21-40, > 40, I do not know),

Organizational factors

- Drug unavailability
- Doctor unavailability

- Delay
- Low quality
- Laboratory unavailability

Satisfaction with PHC services

- Involves you in decision making (Yes, No)
- Tells you about side-effect (Yes, No)
- Explains consequences of not taking medicine (Yes, No)
- Seeing health provider during weekend (Yes, No)
- Being served by the same healthcare provider each time (Yes, No)
- Enough time to listen (Yes, No)
- Payment for service (Yes, No)
- Suggests you physical exercises, healthy diet control weight (Yes, No)
- You get all the prescribed medications you want (Yes, No)
- Sufficient time allocation (Yes, No)

3.9. Data analysis

Total 900 responses from urban and rural areas were entered into Statistical Package for Social Sciences (SPSS) version 20 for analysis. Results were described in terms of frequencies, using descriptive statistics, Cross tabulation was also used. Bivariate analysis at $p\text{-}value<0.05$was conducted to assess the correlation between the Sociodemographic variables and the dependent variable. The differences in utilizing PHC between individuals living in rural and urban areas in Margibi County were further investigated using multivariate logistic regression analysis. Odd ratio significance was assessed considering 95% confidence interval level. Additionally, Bloom`s cut-off standard was used to measure the overall satisfaction level of PHC utilizers in both urban and rural areas [57].Ten questions were used as indicators for the satisfaction level. Responses were categorized into satisfied and dissatisfied. Overall, those respondents scored between 1 and 5 were categorized as dissatisfied and those with scores above 5 were categorized as satisfied.

In qualitative analysis, transcripts (recordings) were transcribed from the audio recording. Themes from the responses were coded and categorized after thorough reading. Responses were categorized under one of each of the three questions asked during the interview.

3.10. Strength and limitation

3.10.1. Strength

As far as my knowledge is concerned, this research was the first of its kind to analyze PHC utilization and its barriers among urban and rural population in Liberia.The study integrated perspectives of both service providers and users pertaining to PHC utilization and the barriers.Both qualitative and quantitative research methodologies were combined hence complementing each other which gave detail information availing rich data from different perceptions.

3.10.2. Limitations

As every research done has a limitation this resaerch was not an exception. Data was a main challenge. There was shortage of urban communities' population data. Participants were randomly selected from the communities untill the target sample size was reached.Margibi as a county was the study setting, therefore the result might not be representative of the entire counties of the country.

3.11. Ethical consideration

To conduct this study Ethical approval was obtained from Ankara Yildirim Beyazit University and Margibi County Health Team which represents Ministry of health in the County

4. RESULTS

4.1. Quantitative study findings

4.1.1. Descriptive Statistics

In this study, a total of 900 subjects responded to the questionnaire. Of which, 447 (49.7%) were from urban and 453 (50.3%) were from rural area.47% of the participants were Females while 53% were males. Some differences were observed for males and females regarding the residential zone. In the urban area, 59.3% of the respondents were males compared to 46.8% in the rural area. While 40.7% of the participants in the urban were females compared to 53.2% in the rural.

Regarding the age of the participants,the total mean age was 35.2 ± 7.5 ranging from 18 to 75 years old. The illiteracy rate in both urban and rural areas was 33.6% with great variation between urban 19.0% and rural 47.9%. The urban-rural disparity in illiteracy is further observed in gender. More than half of rural females 52.3% were illiterate while less than half 42.9% of males were illiterate. Regarding education background, most of the respondents 27.2% stopped at the senior secondary level, majority of which comes from urban. Only few of the participants ascended to higher education (undergraduate and graduate) levels respectively. More than half of the participants were not married, with a small percentage 1.4 being divorced.

The unemployment rate was high 76.1% in both regions with a difference between urban 64.9% and rural 87.2%. Only 16.8% of the entire respondents were employed, of which 12.8% were from rural areas. Females employed from rural area constituted 10% compared to males 11.5%. The monthly income level of the vast respondents was low. 75.4% earn < 4500LD (Liberian Dollar) = ($30USD) translated as a daily income less than a dollar. living below an international poverty line which is a dollar per day is considered an extreme poverty [58] . Only 16.6% made more than 4500LD, the majority of which live in the urban area. This reveals that it is safe to say 75% of respondents lived in a household classified as poor.

The source of income was usually petit business and farming. Most of the rural dwellers 62.5% practiced farming to make their daily living. In both rural and urban setting, 23.8% of respondents have irregular income from casual labor, only 9.8% reported regular income.

Majority in both rural and urban areas had household size ranged 1-5, only 4.3% had larger family size range of 11 and above. More than 80% of respondents use radio as source of information.Television and newspaper was used by few 1.1%. Significant portion of the respondents 10.2% reported not using any source of information, 92% of which were from rural setting. Tables 4.1 and 4.2 show the socio-demographic characteristics of households and the living conditions of individuals included in the household survey.

Table 4. 1. Distribution of the socio-demographic characteristics of the participants (N=900) (continued) ...

Variable	**Categories**	**Area of Residency**				**Total**	
		Urban		**Rural**			
		N	%	N	%	N	%
Gender	Male	265	59.3	212	46.8	477	53.0
	Female	182	40.7	241	53.2	423	47.0
Age	18-28	144	32.2	25	5.5	169	18.8
	29-38	197	44.1	243	53.6	440	48.9
	39-48	58	13.0	127	28.0	185	20.6
	49 and above	48	10.7	58	12.8	106	11.8
Literacy	Illiterate	85	19.0	217	47.9	302	33.6
	Literate/Primary	39	8.7	35	7.7	74	8.2
	Junior secondary	128	28.6	98	21.6	226	25.1
	Senior Secondary	150	33.6	95	21.0	245	27.2
	Undergrad and Postgrad	45	10.1	8	1.8	53	5.9
Marital Status	Single	263	58.8	212	46.8	475	52.8
	Married	104	23.3	153	33.8	257	28.6
	Cohabitating	75	16.8	80	17.7	155	17.2
	Divorced	5	1.1	8	1.8	13	1.4

Table 4. 1. Distribution of the socio-demographic characteristics of the participants (N=900) (continued)

Variable	Categories	Area of Residency				Total	
		Urban		Rural			
		N	%	N	%	N	%
Employment	Formally employed	93	20.8	58	12.8	151	16.8
	Not Employed	293	65.5	395	87.2	688	76.4
	Student	61	13.6	---	---	61	6.8
Income	Less than 4500 L D	287	64.2	392	86.5	679	75.4
	More than 4500LD	42	9.4	31	6.8	149	16.6
	No income	42	9.4	30	6.6	72	8.0
Source of income	Formal work	68	15.2	20	4.4	88	9.8
	Casual work	110	24.6	104	23.0	214	23.8
	Business	223	49.9	38	8.4	261	29.0
	farming	37	8.3	283	62.5	320	35.5
	Other(carpenter mechanics)	9	2.0	8	1.8	17	1.9
Family Size	1 to 5	344	77.0	348	76.8	692	76.9
	6 to 10	76	17.0	93	20.5	169	18.8
	11 and above	27	6.0	12	2.6	39	4.3
Media Exposure	Radio	365	81.7	367	81.0	732	81.3
	Internet	60	13.4	6	1.3	66	7.3
	TV&Newspaper	8	1.8	2	0.4	10	1.1
	Nothing	14	3.1	78	17.2	92	10.2

NOTE: 1 $ USD=150LD (Liberian dollar)

Majority of the respondents, 38.4% resided in the study setting for more than 11 years. Well is the source of drinking water for most of the respondents. Tap was a water source for only 15.7% of the participants majority of which live in the urban. In rural area 16.8% get their water from creek or river. Most of the households used chlorine for water purification, only 1.9% used boiling method and majority of them live in rural settlements. More than a quarter of respondents spend less than thirty minutes obtaining water. More than half of the respondents had shared toilet.14.4% of the total participants had no build toilet they used open defecation. Hand washing practice is famous in Liberia due to constant outbreaks. The majority of respondents practiced hand hygiene with only water after using the toilet, 1.7 % did not use any hygiene method. The majority of rural and urban households lack access to electricity, with huge disparity between the urban 54.8% and rural 95.6%. Concrete house is the most prominent household type and the least is zinc round house 1.9%. Additionally, nearly half of the participants reported more than 40 minutes walking distance to the nearest health facility 74% of which were rural residents. Few respondents 7.2% reported less than 20 minutes, most of which were from urban areas.

Table 4. 2. Distribution of living conditions of the participants (N=900) (continued) …

Variable	**Categories**	**Area of Residency**				**Total**	
		Urban		**Rural**			
		N	%	N	%	N	%
Years of residency	1 to 5 years	129	28.9	129	28.5	258	28.7
	6 to 10 years	150	33.6	146	32.2	296	32.9
	11years and above	168	37.6	178	39.3	346	38.4
Water source	Tap water	138	30.9	3	0.7	141	15.7
	Well	307	68.7	301	66.4	608	67.6
	Creek/River	2	0.4	149	32.9	151	16.8
Purification Method	Boiling	7	1.6	10	2.2	17	1.9
	Chlorine	305	68.2	360	79.5	665	73.9
	Filter	2	0.4	23	5.1	25	2.8
	Nothing	133	29.6	60	13.2	193	21.4

Table 4. 2. Distribution of living conditions of the participants (N=900) (continued)

Variable	Categories	Area of Residency				Total	
		Urban		Rural			
		N	%	N	%	N	%
Time to obtain water (round trip)	Less than 30 minutes	392	87.7	336	74.2	728	80.9
	More than 30 minutes	55	12.3	117	25.8	172	19.1
Latrine Availability	Pit Latrine	185	41.4	75	16.6	260	28.9
	Shared Toilet	253	56.6	257	56.7	510	56.7
	Open defecation	9	2.0	121	26.7	130	14.4
Hand washing practice	Soap	100	22.4	17	3.8	117	13.0
	Water only	340	76.1	428	94.5	768	85.3
	Nothing	7	1.6	8	1.8	15	1.7
Electricity	Yes	202	45.2	20	4.4	222	24.7
	No	245	54.8	433	95.6	678	75.3
Household Type	Concrete House	425	95.1	339	74.8	764	84.9
	Traditional Liberian Hut (roof Thatch)	9	2.0	110	24.3	119	13.2
	Zinc Round House	13	2.9	4	0.9	17	1.9
Nearest healthcare facility (by walk	<20	55	12.3	10	2.2	65	7.2
	21-40	280	62.6	77	17.0	357	39.7
	>40	108	24.2	336	74.2	444	49.3
	I do not know	4	0.9	30	6.6	34	3.8

With regard to the individual's perceived health status, more than half 52.8% reported being excellent, while 4.0% reported having poor health status. Majority of the participants reported not having chronic condition 67% of which live in the rural area. Of the 38% respondents with at least one chronic disease majority 66% had Hypertension. With regard to seeking care after being sick, most of the participants 54.0% stated that after few days of sickness they seek care .Only less than

10% seek care after getting sick immediately. Nearly half of the respondents consulted relatives in regard to their illness as head of household. Most Individuals 79.7% chose health facility for treatment by themselves. Considering place of treatment for minor ailments, almost all of the respondents 85% preferred Drug store and traditional healers. More than half of the rural respondents went to traditional healers, and more than half respondents from the urban went to drugstore which indicates that Utilization of traditional healers' service is more widely practiced in rural setting than urban ones. Few 1.9% preferred county hospital. 22.8% of the participants discontinued their medication within the six months period of study because of unaffordability 25% of which from urban region. Pertaining to health facility transportation , more than half of the respondents stated that it was difficult. Majority of them 90.7% were from rural area. When respondents were being asked about their sickness in the last 6 months. Nearly half responded yes, of which 55.8% from rural and 45.2 % from urban. Majority of participants that sought treatment for their most current sickness went to PHC, only 1.8% went to religious healer. more than half of the respondents 75.3% were being visited by health care providers. Self- perceived health status and health care seeking behavior of the participants is presented in Table 4.3.

Table 4. 3. Self-Perceived Health Status and Health Care Seeking Practice (N=900) (continued) …

Self-perceived health status							
Variable	**Categories**	**Area of Residency**				**Total**	
		Urban		**Rural**			
		N	%	N	%	N	%
Perceived Health Status	Excellent	251	56.2	224	49.4	475	52.8
	Fair	175	39.1	214	47.2	389	43.2
	Poor	21	4.7	15	3.3	36	4.0
Chronic disease	Yes at least one	203	45.4	147	32.5	350	38.9
	No	244	54.6	306	67.5	550	61.1
Type of chronic Condition	Diabetes	72	35.4	36	24.4	108	30.8
	High Blood Pressure	122	60.0	109	74.1	231	66.0
	Other(Stroke)	9	4.4	2	1.3	11	3.1
Health Care Seeking Practice							
Stage of illness to seek care	İmmediately	52	11.6	17	3.8	69	7.7
	After few day	248	55.5	238	52.5	486	54.0

Table 4. 3. Self-Perceived Health Status and Health Care Seeking Practice (N=900) (continued)

	Until it affects daily work	147	32.9	198	43.7	345	38.3
Consult with	No one	130	29.1	178	39.3	308	34.2
	Relatives	217	48.5	222	49.0	439	48.8
	Husband	27	6.0	31	6.8	58	6.4
	Neighbors	10	2.3	5	1.1	15	1.7
	Friends	63	14.1	17	3.8	80	8.9
Who chooses	Husband	44	9.8	46	10.2	90	10.0
	Myself	336	75.2	381	84.1	717	79.7
	Suggestion by others(Relatives	67	15.0	26	5.7	93	10.3
Minor Diseases	County Hospital	14	3.1	3	0.7	17	1.9
	Drug store / Pharmacy	244	54.6	142	31.3	386	42.9
	PHC	34	7.6	9	2.0	43	4.8
	Private Health Facilities	41	9.2	3	0.7	44	4.9
	Religious Healers	9	2.0	19	4.2	28	3.1
	Traditional Healers	105	23.5	277	61.1	382	42.4
Stopped medication	Yes	112	25.1	93	20.5	205	22.8
	No	330	73.8	357	78.8	687	76.3
	I have not needed any med	5	1.1	3	0.6	8	0.8
Transportation	It is easy to find	286	64.0	42	9.3	328	36.4
	It is difficult	161	36.0	411	90.7	572	63.6
Sickness in the last 6 months	Yes	245	54.8	200	44.2	445	49.4
	No	202	45.2	253	55.8	455	50.6
If yes, where treatment was sought	PHC	120	49.0	100	50.0	220	49.4
	Hospitals	15	6.1	3	1.5	18	4.0
	Drug store	39	15.9	16	8.0	55	12.4
	Pharmacy	40	16.3	23	11.5	63	14.2
	Religious Healer	8	3.3	---	---	8	1.8
	Traditional Healer	7	2.9	31	15.5	38	8.5
Health provider visit	Yes	329	73.6	349	77.0	678	75.3
	No	118	26.4	104	23.0	222	24.7

Concerning PHC visits in the last six months, the majority 71.0% visited out of the entire respondents with variation between urban and rural. Nearly (80%) of those visited were from urban and 62.5% from rural regions. The reason of the visit for the majority was treatment. Few visited for collecting bed nets and vaccination. As it regards to awareness of the existence of a PHC facility within the Health districts, most of the respondents 82.4% were aware. However, 17.6% were not aware, and the majority of those that did not know were from a rural region. Most of those that knew of PHC existence reported motorcycles as means of transport to the facility. only few respondents from the urban setting used public taxis 27.5% of respondents walked by land 41% of which from rural region. Regarding duration, most of the participants reported half an hour to one-hour period. Only 8.8% reported more than an hour duration, all of whom were from rural region. The cost of transport for the majority was less than 150 LD (1$). Nearly half of the participants preferred going to PHC when they have health problem before going to hospital. Distribution of PHC usage is presented in Table 4.4.

Table 4. 4. Prevalence of PHC Utilization (N=900) (continued)…

Variable	**Categories**	**Area of Residency**				**Total**	
		Urban		**Rural**			
		N	%	N	%	N	%
PHC visit (last 6month)	Yes	356	79.6	283	62.5	639	71.0
	No	91	20.4	170	37.5	261	29.0
Reason of visit	treatment	282	79.2	273	96.4	555	86.8
	checkup (Pregnancy)	56	15.7	10	3.5	66	10.3
	Other(Bed net, Vaccine)	18	5.0	---	---	18	2.8
Aware of PHC existence	Yes	398	89.0	344	75.9	742	82.4
	No	49	11.0	109	24.1	158	17.6
Mode of transport	Public Motorcycle	333	83.7	203	59.0	536	72.2

Table 4. 4. Prevalence of PHC Utilization (N=900) (continued)

	Public Taxi	2	0.5	---	---	2	0.3
	Foot	63	15.8	141	41.0	204	27.5
Time to reach	0- 30 minutes	330	82.9	59	17.2	389	52.4
	31-60 minutes	68	17.1	220	64.0	288	38.8
	more than one hour	---	---	65	18.9	65	8.8
Transport cost	less than 150 LD	376	94.5	211	61.3	587	79.1
	more than 150 LD	22	5.5	133	38.7	155	20.9
PHC before hospital	Yes	226	50.6	188	41.5	414	46.0
	No	221	49.4	265	58.5	486	54.0

There were numerous reasons stated by the 261 non-utilizers as barriers of primary health Care utilization.The most common barrier expressed by the majority of rural and urban residents was unavailability of drugs 34.5%, Followed by delay in the process of getting the service 20.7%. From all, 16.9% of rural residents reported Geographic distance as a major barrier. Additionally 13.4%of the participants were not utilizing PHC due to absence of money. Only few 1.1% of the respondents reported absence of resident doctor as a barrier. Unavailability of Laboratory accounted as a barrier for 10.7% of the respondents. Barriers to nonutilization of PHC by the 261 respondents are presented in Table 4.5.

Table 4. 5. Barriers to uutilizing PHC (N=261) (continued)…

Why not utilized PHC? **N= 261**	**Residency**				**Total**	
	Urban		**Rural**			
	N	%	N	%	N	%
No medicine there	21	18.2	69	47.2	90	34.5
No Doctor	2	1.7	1	0.6	3	1.1

Table 4. 5. Barriers to uutilizing PHC (N=261) (continued)

No money to go there	5	5.5	30	20.5	35	13.4
Low quality service	2	1.7	2	1.3	4	1.5
Distance	---	---	44	30.1	44	16.9
No Lab test	4	3.4	24	14.1	28	10.7
Delay	54	46.9	---	---	54	20.7
It is only for pregnant woman	1	0.8	---	---	1	0.1
No time	2	1.7	---	--	2	0.8

The 639 Primary health care utilizers' satisfaction level was evaluated. Overall, the majority 82.3% were satisfied. However, 98% of the utilizers had dissatisfaction with payment for service.The government policy is free for service health care,they felt exploited when asked for money to get a service. Nearly 90% from both rural and urban regions had dissatisfaction with getting all prescribed medications at the Primary Health care facility.Essential Drugs were usually unavailabe at the facilities. The evaluation of satisfaction level of the PHC users is presented in Table 4.6.

Table 4. 6. Satisfaction Level of PHC Users (N=639) (continued) …

Indicator	**Satisfaction**				**dissatisfaction**				**Total**	
	Urban		**Rural**		**Urban**		**Rural**			
	N	%	N	%	N	%	N	%	N	%
Involves you in decision making	345	96.9	262	92.5	11	3.1	21	7.4	639	100
Tells you about side-effect	346	97.1	263	92.9	10	2.8	20	7.1	639	100

Table 4. 6. Satisfaction Level of PHC Users (N=639) (continued)

Explains consequences of not taking medicine	330	92.6	269	95.0	26	7.3	14	4.9	639	100
Seeing health provider during weekend	149	41.8	141	49.8	207	58	142	50.1	639	100
Being served by the same healthcare provider each time	45	12.6	34	12.0	311	87.3	249	70.0	639	100
Enough time to listen	320	89.8	246	86.9	36	10.1	37	13.0	639	100
Payment for service	6	1.7	3	13	350	98.3	280	98.9	639	100
Suggests you physical exercises, healthy diet control weight	348	98.0	4	1.4	8	2.2	279	98.5	639	100
You get all the prescribed medications you want	41	11.5	30	10.6	315	88.4	253	89.3	639	100
Sufficient time allocation	322	90.4	271	96.0	34	9.6	12	4.0	639	100

4.1.2. Bivariate analysis

The association between dependent variable (PHC utilization in the last six month) and independent variables was determined by using the correlation Pearson chi-square test at *p-value* <0.05.The association between the self-perceived health status of participants, health-seeking behavior as independent variable, and dependent variable (PHC utilization in the last six months) was determined. There was no statistical significance found between self-perceived health status, having a chronic disease and PHC utilization. However, there was statistically significant difference between transportation (*P=0.001*) Decision taking in health-seeking practice (*p=0.011*)

and PHC utilization. Health worker visit was also statistically significantly associated with PHC utilization (*p=0.001*).

Table 4. 7. Association between Self-Perceived Health Status Health Care Seeking Practice and PHC utilization(N=900)

Self perceived healthstatus						
Variable	Categories	PHC VİSİT				*p – value*
		Yes		No		
		N	%	N	%	
Perceived Health status	Poor	27	4.2%	9	3.4%	0.807
	Excellent	334	52.3%	141	54.0%	
	Fair	278	43.5%	111	42.5%	
Chronic disease	Yes	257	40.2%	93	35.6%	0.200
	No	382	59.8%	168	64.4%	
Health Care Seeking Practice						
Transportation to the health facility	It is difficult	384	60.1	188	72.0	0.001*
	It is easy to find	255	39.9	73	28.0	
Who chooses	Husband	62	9.7	28	10.7	0.011*
	Myself	523	81.8	194	74.3	
	Suggestion by others(Relative)	54	8.5	39	14.9	
Health worker visit	Yes	527	82.5	151	57.9	0.001*
	No	112	17.5	110	42.1	

*Significant relationship, $p < 0.05$

The association between the dependent variable (PHC utilization in the last six month) and Sociodemographic variables was determined .by using the correlation Pearson chi-square test at *p-value* <0.05. There was a statistically significant difference between Urban and rural utilization of primary health care (*p=0.001*). PHC utilization decreased as the age increases and the differences were statistically significant (*p= 0.003*).

Considering literacy, As the level of education increases the utilization rate increases and the difference was statistically significant (*p=0.001*). Regarding marital status, the difference between

married and non-married respondents was statistically significant (*p=0.016*). Participants employment status was associated with PHC visits (*p=0.009*). The difference in PHC utilization between Participants that had relatively low income and those with relatively high income was statistically significant (*p=0.001*).There was dependence between source of income and the PHC visit (*p=0.001*). Household size was statistacally significaltly associated with PHC utilization (p=0.003) Participants usage of media for information was associated with PHC utilization (*p= 0.001).* There was no correlation found between PHC utilization in the previous 6 months and gender or years of residence. Chi-square analysis results are presented in Table 4.8.

Table 4. 8. The association between sociodemographic variables and PHC utilization (N=900) (continued) …

Variable	**Categories**	**PHC VİSİT**				***p – value***
		Yes		No		
		N	%	N	%	
Residency	Urban	356	55.7	91	34.9	0.001*
	Rural	283	44.3	170	65.1	
Gender	Male	334	52.3	143	54.8	0.492
	Female	305	47.7	118	45.2	
Age	18-28	137	21.4	32	12.3	0.005*
	29-38	295	46.2	145	55.6	
	39-48	136	21.3	49	18.8	
	49- and above	71	11.1	35	13.4	
Education level	İlliterate	178	27.9	124	47.5	0.001*
	Literate/Primary	45	7.0	29	11.1	
	Junior Secondary	165	25.8	61	23.4	
	Senior Secondary	207	32.4	38	14.6	
	Undergrad and Postgrad	44	6.9	9	3.4	

Table 4. 8. The association between sociodemographic variables and PHC utilization (N=900) (continued)

Marital Status	Single	341	53.4	134	51.3	0.016*
	Married	190	29.7	67	25.7	
	Cohabitating	96	15.0	59	22.6	
	Divorced	12	1.9%	1	0.4	
Employment	Employed	121	18.9	30	11.5	0.009*
	Not employed	471	73.7	217	83.1	
	Student	47	7.4	14	5.4	
Income	Less than 4500L D	464	72.6	215	82.4	0.001*
	More than 4500LD	131	20.5	18	6.9	
	No income	44	6.9	28	10.7	
Source of income	Formal Work	208	32.6	53	20.3	0.001*
	Casual work	150	23.5	64	24.5	
	Business	10	1.6	7	2.7	
	Farming	196	30.7	123	47.1	
	Other	10	1.6	7	2.7	
Family Size	1 to 5	472	73.9	220	84.3	0.003*
	6 to 10	134	21.0	35	13.4	
	11 and above	33	5.2	6	2.3	
Media Exposure	Nothing	17	2.7	75	28.7	0.001*
	Radio	556	87.0	176	67.4	
	TV& Newspaper	9	1.4	1	0.4	
	İnternet	57	8.9	9	3.4	
Years of residency	1 to 5 years	188	29.4	70	26.8	0.421
	6 to 10 years	214	33.5	82	31.4	
	11years and above	237	37.1	109	41.8	
Nearest healthcare facility (by walk)	< 20 min	45	7.0	20	7.7	0.001*
	21-40min	268	41.9	89	34.1	
	>40min	320	50.1	124	47.5	
	I don’t know	6	0.9	28	10.7	

Statistical significant association was found (*P=0.000*) between barriers mentioned by participants who did not use PHC and the utilization.

Table 4. 9. Association between barriers and PHC utilization (N =261)

Why not utilized PHC? N= 261	**Residency**				**Total**		***p-Value***
	Urban		**Rural**				
	N	%	N	%	N	%	
No medicine there	21	18.2	69	47.2	90	34.5	0.000*
No Doctor	2	1.7	1	0.6	3	1.1	
No money to go there	5	5.5	30	20.5	35	13.4	
Low quality service	2	1.7	2	1.3	4	1.5	
Distance	---	---	44	30.1	44	16.9	
No Lab test	4	3.4	24	14.1	28	10.7	
It is only for pregnant woman	1	0.8	---	---	1	0.1	
No time	2	1.7	---	--	2	0.8	
Delay	54	46.9	---	---	54	20.7	

*Significant relationship, $p < 0.05$

Regarding the association between satisfaction level and PHC utilization, explaining side effects of drugs , consequence of breaks in treatment, giving sufficient time to listen, and health provider advice on Physical exercise and nutrition were found to be statistically significantly associated with PHC utilization at (*p=0.004*), (*p=0.000*), (*p=0.000*), (*p=0.000*).

Table 4. 10. Association between satisfaction level and PHC utilization (N=639) (continued) …

Indicator	**Satisfaction**				**Dissatisfaction**				**Total**		***p-Value***
	Urban		**Rural**		**Urban**		**Rural**				
	N	%	N	%	N	%	N	%	N	%	
Involves you in decision making	345	96.9	262	92.5	11	3.1	21	7.4	639	100	0.956
Tells you about side-effect	346	97.1	263	92.9	10	2.8	20	7.1	639	100	0.004*

Table 4. 10. Association between satisfaction level and PHC utilization (N=639) (continued)

Explains consequences of not taking medicine	330	92.6	269	95.0	26	7.3	14	4.9	639	100	0.000*
Seeing health provider during weekend	149	41.8	141	49.8	207	58	142	50.1	639	100	0.960
Being served by the same healthcare provider each time	45	12.6	34	12.0	311	87.3	249	70.0	639	100	0.171
Enough time to listen	320	89.8	246	86.9	36	10.1	37	13.0	639	100	0.000*
Payment for service	6	1.7	3	13	350	98.3	280	98.9	639	100	0.178
Suggests you physical exercises, healthy diet control weight	348	98.0	4	1.4	8	2.2	279	98.5	639	100	0.003*
You get all the prescribed medications you want	41	11.5	30	10.6	315	88.4	253	89.3	639	100	0.065
Sufficient time allocation	322	90.4	271	96.0	34	9.6	12	4.0	639	100	0.187

**Significant relationship, $p < 0.05$*

4.1.3. Logistic Regression Analysis

Binary logistic regression analysis was performed, and variables that were identified as potential predictors of Primary Health Care service utilization and met the statistical criteria were chosen for the regression analysis. Participants that reported difficulty in transportation access were less likely to utilize PHC (AOR: 0.619CI: 0.447-0.856 *p=0.004*) compared to those that had easy access. Households visited by service providers in the last six months were 2.5 times more likely to utilize PHC compared to unvisited ones (AOR=2.599, CI=1.698-3.980, *p=0.001*).

Table 4. 11. Multivariate analyses of the association between Self-Perceived health status health care seeking Practice and PHC utilization (N=900) (continued) …

Variables	**Categories**	**AOR**	**95%Cİ**	***p- Value***
Transportation to the health facility	It is difficult	0.619	0.447-0.856	0.004*
	It is easy to find(Ref)			
Who chooses	Husband	1.349	0.711-2.560	0.359

Table 4. 11. Multivariate analyses of the association between Self-Perceived health status health care seeking Practice and PHC utilization (N=900) (continued)

	Myself	1.547	0.964-2.485	0.071
	Suggestion by others (Relative) (Ref)			
Health worker visit	Yes	2.599	1.698-3.980	0.001*
	No(Ref)			

**Significant relationship, p < 0.05*

Rural residents were less likely to use PHC, which was a significant factor. (OR=0.562, CI=0.323-0.978, *p=0.042*) compared to the urban residents. The age group 29-38 were less likely to use PHC as compared to others (AOR=0.447,CI=0.236-0.850, *P=0.014*).Considering Employment , those participants not employed had 2.9 times increased odd to use PHC compared with others (AOR=2.941,CI=1.074-8.058, *P=0.036*). Regarding income, Respondents who earn More than 4500 LD monthly which is relatively high were 3.017 times more likely to utilize PHC(OR=3.017,CI=1.332-6.834,*p=0.008*). As for media exposure, participants that did not use any sort of media were 90.8% times less likely to utilize PHC compared to those exposed (AOR= 0.092CI=0.032-0.264, *p=0.001*). Participants that reported nearly 40 minutes walking distance from health facility were less likely to utilize PHC compared to others. (AOR=,0.621CI=1.800-17.550, *p=0.003*). Regression analysis results are presented in Table 4.12.

Table 4. 12. Multivariate analyses of the association between sociodemograhic variables and PHC utilization (N=900) (continued) …

Variables	**Categories**	**AOR**	**95% CI**	***p- Value***
Residency	Rural	0.562	0.323-0.978	0.042*
	Urban (Ref)			
Age	18-28	0.869	0.394-1.916	0.727
	29-38	0.447	0.236-.850	0.014*
	39-48	0.733	0.364-1.476	0.384
	49- and above(Ref)			
Education level	İlliterate	0.834	0.326-2.133	0.705

Table 4. 12. Multivariate analyses of the association between sociodemograhic variables and PHC utilization (N=900) (continued)

	Literate/Primary	0.657	0.233-1.853	0.427
	Junior Secondary	0.806	0.318-2.045	0.650
	Senior Secondary	1.642	0.642-4.199	0.301
	Undergrad and Postgrad(Ref)			
Marital Status	Single	1.623	0.988-2.667	0.056
	Married	1.535	0.907-2.598	0.110
	Divorced	4.998	0.566-44.158	0.148
	Cohabitating(Ref)			
Employment	Employed	2.129	0.867-5.230	0.099
	Non-Employed	2.941	1.074-8.058	0.036*
	Student (Ref)			
Income	less than 4500L D	1.485	0.751-2.935	0.256
	More than 4500LD	3.017	1.332-6.834	0.008*
	No income (Ref)			
Source of income	Casual work	1.502	0.436-5.170	0.519
	Farming	1.019	0.298-3.491	0.976
	Formal Work	0.677	0.346-5.136	1.332
	Business	1.606	0.467-5.524	0.452
	Other(Ref)			
Family size	1 to 5	0.494	0.180-1.355	0.170
	6 to 10	0.976	0.335-2.844	0.964
	11 and above(Ref)			
Media Exposure	Radio	0.623	0.259-1.501	0.292
	TV&Newspaper	1.111	0.114-10.816	0.928
	Nothing	0.092	0.032-0.264	0.001*
	İnternet(Ref)			

***Significant relationship, $p < 0.05$**

Table 4. 12. Multivariate analyses of the association between sociodemograhic variables and PHC utilization (N=900) (continued)

Nearest healthcare facility (by walk)	<20min	3.401	0.944-12.245	0.061
	21-40min	0.621	1.800-17.550	0.003*
	>40min	8.583	2.788-26.425	0.101
	I don't know (Ref)			

Significant relationship, p < 0.05

Considering barriers reported by participants and PHC utilization. Unavailability of medecine, Absence of Doctor at the facility, not having money to go for treatment, and distance cover to get to the health facility were statistically significant at *p-value* of 0.05 in multiple regression analysis executed.

Those reported absence of drugs at the facilities were 98.7% less likely to utilize PHC (AOR=0.046CI=0.007-0.025, *P=0.000*). Respondents that stated Absence of doctor as a barrier were 95.8% less likely to utilize PHC (AOR=0.042, CI=0.004-0.466, *p=0.010*).Those mentioned not having money were 95.4% less likely to utilize (AOR=0.046,CI=0.025-0.084, *p=0.000*). Additionally participants that reported distance as barrier were 99.6% less likely to utilize PHC.(AOR=0.004, CI=0.002-0.011, *p=0.000*)

Table 4. 13. Multivariate analyses of the association between barriers and PHC utilization

Variable	**Categories**	**AOR**	**95% CI**	***p-Value***
Why not utilized PHC?	No medicine there	0.013	0.007-0.025	0.000*
	No Doctor	0.042	0.004-0.466	0.010*
	No money to go there	0.046	0.025-0.084	0.000*
	Low quality service	0.249	0.025-2.440	0.233
	Distance	0.004	0.002-0.011	0.000*
	No Lab test	0.000	1.556-0.528	0.999
	İt is only for pregnant woman	0.000	3.655-6.528	1.000
	No time	.000	1.166-1.528	0.999
	Delay (Ref)			

In multivariate analysis, only two variables were statistically significant at a p-value 0.05: explaining the consequence of not taking medicine and providing enough time to listen. Participants that were satisfied with health care providers' explaination on the consequence of breaking in treatment were more likely to utilize PHC than those that were dissatisfied (AOR=1.175, Cİ=0.050-.615, *p=0.007*). Furthermore, Participants that were satisfied with time given to them by health care provider were 2.3 times more likely to utilize PHC as compared to those that were not satisfied (AOR=2.359, CI=0.205-0.626, *p=0.000*)

Table 4. 14. Multivariate analyses of the association between satisfaction level and PHC utilization (N=639)

Vriables	**Categories**	**AOR**	**95%CI**	***p-Value***
Tells you about side-effect	Satisfied	0.550	0.156-1.936	0.351
	Dissatisfied (Ref)			
Explains consequences of not taking medicine	Satisfied	1.175	0.050-.615	0.007*
	Dissatisfied (Ref)			
Suggests you physical exercises, healthy diet control weight	Satisfied	2.327	0.088-1.220	0.096
	Dissatisfied (Ref)			
Enough time to listen	Satisfied	0.359	0.205-0.626	0.000*
	Dissatisfied (Ref)			

4.2. Qualitative study findings

Findings of the one-to-one interviews with PHC service providers in both rural and urban selected PHC facilities in Margibi County are presented in this chapter. The thematic approach of qualitative analysis was used to avail group of findings. The main themes emerging, are health care provider roles, accessibility, and the barriers to PHC usage in Margibi county at both patient and facility levels. Direct quotations were used in this section to narrate what the health care providers expressed. Identifiers were used to code the Health provider participants to uphold their privacy.

Ten health care providers from seven selected PHC facilities, two from urban and five from rural participated in this study five providers (50%) from Urban and five (50%) from rural. All of

them were above 30 years and most of them hold Bachelor's degrees. The majority were registered nurses, and only one was a community health worker (Table 4.15).

Table 4. 15. Sociodemographic characteristics of service providers in the selected PHC facilities (N=10)

Variable	Categories	Area of Residency				Total	
		Urban		Rural			
		N	%	N	%	N	%
Age	<40 years of age	4	80	4	80	8	80
	>40 years of age	1	20	1	20	2	20
Gender	Male	2	40	2	40	4	40
	Female	3	60	3	60	6	60
Education	High school or lower	1	20	---	---	1	10
	Associate degree	2	40	1	20	3	30
	Bachelor of Science degree)	2	40	4	80	6	60
Qualification	Registered Nurse	2	40	5	50	7	70
	Midwife	2	40	---	---	2	20
	Community Health worker	1	20	---	---	1	10
Working experience	<5 years	2	40	3	60	5	50
	>5years	3	60	2	40	5	50

Coding frame

PHC area (U/R) + Gender (F/M) + Job role (first letter) + Number of interviewees
Example: RFN1 (Rural, Female, Nurse, 1st interviewee)

Q1: What are the barriers to Primary Health care utilization in your facility?

Generally, Service providers in both rural and urban areas explained that there were limited resources in terms of the type of service available, lack of diagnostic facilities, and drugs.

Theme 1. Service availability

a. Laboratory

Most of the PHC facilities do not have a laboratory, which was a very important issue. Out of the ten Healthcare providers asked, only one from the urban area reported having Laboratory in the facility. All the other service providers from Rural and urban stated that there was no Laboratory. The presence of a laboratory at this level of care is a matter of must. However, it is lacking in many facilities. Owing to this, service providers usually do only basic investigations. As a result, most of the treatments are symptomatic based which may lead sometimes to misdiagnoses of cases.

" *There is no Laboratory in this facility, only RDT(Rapid Diagnostic test) for malaria we can do here.''* RFN2

"This facility does not have Laboratory, we do only MRDT and HİV." RMN4

" Our facility can do basic investigations like malaria, if the patient needs any further investigation, then we have to send them to the hospital because we do not have a Laboratory facility." RFN3

"We can just check malaria here, there is no laboratory available in this facility." UFM10

b. Drugs

The most common concern raised by all of the service providers' participants in both rural and urban was drug supply. They mentioned that it is the main issue serving as a hindrance to the community dwellers not coming for PHC. Service providers reported delay and irregularity in the supply of drugs. The following are some of the statements:

" Shortage of drug is the major challenge now that discouraging people from coming to the facility for treatment."UMN7

"*Drugs supply is a serious challenge in this facility, those Antimalaria drugs and Antibiotics are out of stock most of the time.''* RMN4

" *Unavailability of drugs is discouraging a lot of people in the community from coming to the facility.''* RFN3

*" Most of the time we can just do first stat treatment and tell the patient to go buy the rest of the drugs. The first stat treatment sometimes is available not all the time. In some cases, the patient will say: I do not have money to buy medicine so it is better to sit down at my house."*UFN4

*" lack of drugs is also a huge challenge in this facility, most of the time we can be out of drugs, which can make us give prescriptions to the patients for purchasing."*RMN5

Theme 2. Finances

Health care is affected by financial resources. The majority of Liberians live below the national poverty line. The government made health services free of charge. However, some Government facilities are requesting money from the service users. Two service providers from rural areas and one respondent from urban reported financial issues as a challenge.

"*Government said is free services but some of the Providers charge the people for Money, some time higher money for delivery.*" RFN1

"*One of the things that I think making the people not to come is the financial support because they do not have money to buy medication*." UFM9

"*One other woman gave birth and I told her husband to give me money and I carried her to the village ."*RFN3

Q2 . What do you think about the accessibility of this PHC facility?

Theme 3. Distance and road condition

Inaccessibility of care by some rural residents was recognized by the participants. The situation of the road is stopping some people in rural areas from accessing care. They feel insecure and unsafe due to road networks and loss of communication on the way. All the five rural service providers interviewed mentioned distance and road conditions as a challenge for the rural residents.

"The facilities are far from some communities, they take like two to three hours ." RFN1

"*Distance is also far some have to walk for 4 to 5 hours before they reach in the facility. People come from the nearby counties to the facility because it is close to them .The facility is surrounded*

by the river they have to cross a canoe to come to the facility, if the river is full they have to go back and wait ."RFN2

"*They walk from a far distance 3 to 5 hours. One other woman gave birth I carried her to her village we used a monkey bridge to cross the river."*RFN3

"*Sometimes you have to cross rivers, lagoons, streams and so it is really challenging when it comes to mobility*."RMN4. " The facility is a little bit far from other communities ."RMN5

Theme 3. Referral system

Health system referral in the rural areas suffers enormous challenges which have negative outcomes on services provided for the community dwellers. Four rural health providers expressed issues related to the referral as follows:

"*Ambulance service is a challenge to the referral pathway. Sometimes you will refer a patient and there is no ambulance service. You will call an ambulance and it is down, sometimes no fuel* .''RMN5

"*Always when you refer there is no money for the patients to go or ambulance is down or no fuel. I had a case with a pregnant woman bleeding, called an ambulance the Ambulance was down, I was forced to get on the motorbike to carry her to C.H Rennie hospital."* RFN2

Q3. How do service Providers contribute to the community utilization of PHC?

Theme 4. Community awareness

Reaching out to people with primary health care and health educating them on its importance increases the rate of service users. There are Nongovernmental organizations in Margibi County buttressing the efforts of the government by employing people in the various communities to provide services. Two respondents, one from an urban and the other from a rural part of Margibi stated this as followed:

"*Community Health Service Supervisor (CHSS) is attached to the facilities, paid by Plan International. They work with Community health service assistants to encourage people in the communities to make use of the PHC facilities. CHSS is a Nurse or Physician Assistant(PA) who go out for outreaches, in so doing they capture some of their patients that are defaulting on vaccines or ashamed of taking family planning. They can give their vaccines right there, give family planning right there*."RFN1

"*The Trained Traditional Midwives (TTMs) are closely looking after pregnant women motivating them to go to the facility that's making them to come to the facility."* UFM10

Theme 5. Working time and days

Most of the service providers consider the time and days of presence at the facility to be a factor encouraging people to utilize the service. During the weekend health care providers can be at the facility, especially in rural areas. This is because some health care providers have lodging very close to the facilities. Furthermore, international partners are also incentifying OICs (officers in charge) and midwives for working during the weekend. A rural respondent says :

"*It is a rural setting, we have specific days that the visit can be high most especially Mondays and Tuesdays. These are the two main days that they make use of primary care the most. All of the surrounding communities come here for PHC visits. It used to be from Mondays to Fridays but they have included Saturdays and Sundays. That means the OIC and the CM can sleep there. There is a Fixed Amount Reinbursement Agreement(FARA)supported by USAID responsible for weekends they can give incentives to all of the facilities that are under government for the weekend stay."*RMN4

5. DISCUSSION

The result of the quantitative and qualitative study was reported in the previous chapter. In this chapter, the study findings were discussed comparing and contrasting with that of the other studies in regard to the study objectives.

This study's findings show a significant difference in health-seeking behavior and PHC utilization, Though there was no statistical dfference between self -perceived healt status and PHC utilization.This study also found prevalance in PHC utilization among adults in urban and rural margibi county, barriers were established from non utilizers. Satisfaction of the users was identified to be high among margibi PHC utilizers.Furthermore,The study identified barriers to PHC utilization from service providers.

Factors that contribute to poor health care utilization are enormous.Belief and behaviours of individuals are prominent among them. Freedom given to people especially women in deciding on healthcare service impacts their utilization rate.The current study found that those participants who had autonomy to choose health facility on their own utilized PHC 81.8% more than the others who lacked this freedom. This finding is supported by a study conducted among women in India [59] which reported positive association between women's autonomy and antenatal utilization.This finding also established that rural residents 90.7% have more transportation defficulties in accessing PHC facility.

This study revealed that Community healthcare providers' visits in the various communities, making awareness on the importance of PHC utilization , encouraging defaulters and undecisive population to go to PHC as well as taking PHC services to them such as family planning increases PHC utilization rate.This finding is supported by a commentary written by A. Witmer et al on the health system of the United states [60] which states that community health workers, as well as primary care, play an important role in making the health system function efficiently. The finding of a reviewed of 26 studies done by Lassi et al revealed that community-based interventions decrease women and babies morbidity and mortality, it also improves care-related outcomes especially in low and middle-income countries [61]. Another study conducted in Afghanistan indicated that community health workers home visit intervention improves care seeking and health knowledge [62].

More than half of the participants self rated their health status being excellent, majority of which from urban area only 38.9% of all the respondents reported having at least one chronic disease. There was no difference found between an idividividual perceived health status and PHC utilization in this study. However a study conducted in Ghana among adults [63] and another study conducted in Jordan [55] reported significant greater PHC consumption associated with having chronic illness and poor individual rated health status.

This study revealed prevalence of primary health care utilization in margibi county. There were 71% of the respondents visited the PHC facility at least once in the last six months. There are a lot of factors contributing to this rate reported by healthcare providers as well. International partners help in strengthening primary healthcare services by hiring community workers to reach out to the population making awareness at their various localities. Furthermore, they encourage weekend stay at the facilities by incentifying service providers. Additionally there is a token for the trained traditional midwives that carry pregnant women to PHC facility for delivery .

The current study identified differences between the rural and urban regions in terms of PHC utilization, urban dwellers utilize more 80% than the rural 62.5%. This is in contrast to the study conducted in Ethiopia [64] which found narrow gap in rural-urban Mother and Child Health (MCH) health service utilization.This might be due to more physical accessibility in urban areas of margibi county compared to rural areas.

There is an association between socioeconomic factors and primary healthcare utilization as supported by a study conducted in Riyadh [65]. Variation in these factors yield discrepancies in PHC service. A study conducted in Uganda also indicated that demographic and socioeconomic characters affect maternal health services utilization [66].This study has found an association between sociodemographic charecteristics: Age, employment, income, media exposure and utilization of primary health care.

Our finding indicated that males were more likely to utilize primary health care 52.3% more than females 47.7%, though gender and PHC utilization association was not statistically significant.Study conducted in Saudiarabia [67] supports this finding. Nevertheless, it is in contrast to the studies conducted by Sanaullah et al 2020 [56] Bertaksi et al 2000, Zielinski & Halling, 2015[68]. Redondo-Sendino et al., 2006 [69] in which it was established that women use PHC

more than men. This might be due to slight difference in the higher number of males participating in this study compared to females partipiated.

The study established that younger adults age 29-38 was less likely to utilize Primary health care compared with older people. Elderly population have different demographic charateristics and most of them also have at least one chronic disease which demands more PHC service as compared to the youth.This finding is in line with a study conducted in Jordan that indicated high utilization rate of PHC services among older adults [55]. However it is in contrast to study conducted by Murphy and Heworth which reported decrease of PHC usage with age [56].

The current study suggests that unemployed population were 2.9 times more likely to consume PHC service as compared to their employed counter parts with narrow variation.This is supported by a study conducted in Gaza [70] which reported high use of PHC by unemployed participants compared to the employed. Most of the empoyees use Employers private health facilities through insurance , where they get all their prescribed drugs unlike government facilities that are out of drugs on regular basis.

This study support the assertion that people with high income utilize PHC more than those with low income.which implies that high socioeconomic status individuals consume PHC service due to their financial capability and aceesibility more than the people with lower socioeconomic status. This is consistent with the findings of the Gaza study [70] and Greece [71]which reported that those individuals having higher monthly income Utilize PHC more than those that have lower income.The study conducted in Pakistan [56] contradicts this finding which states that both Men and women with higher incomes are less likely to use PHC than their lower-income counterparts.

The current study suggests that not accessing media reduces the odd to utilze PHC, which entails that those accessing media utilize PHC more; because listening to radio and other media platforms increase literacy and information, especially on health through health education programs, which is noted as key determinant of maternal health utilization.This conforms to the studies conducted in Ethiopia [72] and Nigeria [73].

Organizational and financial Barriers were also established in this study. Inavailability of drugs was found to be a barrier from the population. Unavailability of drugs was reported

by34.5% nonutilizing participants as barrier . Many people go to health facilities to get treatment. If they can not get drugs they see going to health facility as waste of time. As a result they end up going to pharmacy and drugstore for treatment.Unfortunately almost all PHC facilities in Margibi are characterized by absence of this vital input in the PHC sevice delivery.Other studies have supported that absence of drugs in PHC facilities reduces utilization [74].

This study found association between presence of medical Doctor at PHC facilities and utilization. Though it is not required in Liberia PHC service provision, 1.1% of the participants attribute their non utilization to this factor.

Health care service cost also has influenced on health-seeking behaviour.This study found a link between people who do not use PHC and finance. 13.4 % reported financial issue as a barrier which is supported by the study [74]. Majority of nonutilizers especially from rural area reported dfficulty in undertaking the cost of drugs and services at PHC facilities which hold them back from consuming PHC.

The current study suggests 30.1% of the population reported distance as a barrier to PHC utilization. This is supported by research conducted in Ghana [75] which reports that distance has a negative effect on utilization. Another study conducted in NEW Papua Guinea in the rural health center [76] reported a decrease in attendance rate with distance from the health facility. Another study conducted in a rural area of Pakistan reported that both Men and women who lived more than three kilometers from the health unit were less likely to be frequent users of PHC than those who lived less than one kilometer away[56].

Most of the urban and rural PHC facilities do not have Laborarатory which is required in PHC . Additionally this current study identified laboratory absence as a hindrance to PHC utilization 10.7% of non utilizers reported it as a barrier. A study conducted in india [74] and malawi [77] reported positive association between Laboratory availability and PHC performannce at primary care level. Laboratory helps to reduce unnecessary referrals and overload in secondary and tertiary cares.

An important element that also affects the outcome of care is waiting time.This has been a major complaint of most of the non PHC utilizers.This study confirmed that lenghthened waiting

time is associated with low PHC utilization. 20.7% of non utilizers attributed it to delay in the process of getting PHC service. This is comfirmed by the study conducted in Dubai [78].

Quality of health care is measured by the satisfaction level of the users. This reflects in the increased utilization of PHC. Our finding identified a high satisfaction level with primary healthcare usage by utilizers in both urban and rural areas. Overall 82.3% were satisfied. This finding was similar to the findings of previous studies which stated that patient overall satisfaction with primary health care service was high. A study conducted by Mehmet Yağma in a rural area of Hadim county Türkiye, reported that the overall satisfaction level was 78.7% with primary health services in Gezlevi konya [79]. A study conducted by S. Yaya et al reported that the overall Satisfaction level was 57.1% with primary healthcare services in Ghana [80]. However, 98 % of both rural and urban respondents were not satisfied with the payment for service and not getting all prescribed medications due to the government policy of free-of-cost PHC service.

Our finding also identified that those participants satisfied with health care providers explaining the consequence of not completing the treatment were more likely to utilize PHC than those dissatisfied (AOR=1.175,CI=0.050-.615, *p=0.007*). Furthermore, participants who were satisfied with the amount of time they were given to be listened to were 2.3 times more likely to use PHC than those who were not (AOR=2.359,CI=0.205-0.626, *p=0.000*).

This study established factors that negatively and posotively affect PHC utilization from Health providers' perspective. All the health care providers participated from rural and urban areas conform to Unavailability of drugs and laboratory at the facilities as a barrier to PHC utilization. Distance was also reported as barrier by the rural health care providers.They mentioned that closer communities to the facilities were more users then those who lived further.

This finding also established from health care providers that referral system suffers enormous challenges which affects the health delivery process. Road condition,limited ambulance capacity and poor response are negatively affecting PHC referral system.

The presence of health care providers at the facility during the weekends and at night time contributed to the increased utilization rate according to this study.Population goes to PHC facility for health workers to asses them.If they meet the contrary during the weekdays or weekends this

might discourage them which may in turn hamper health service usage. Motivational token given to health workers by international partners for overwork is reflected in the communities PHC utilization. The association between inconvenient working hours and non utilization of PHC is reported in the study conduted by Khali etal in Saudi Arabia [67].

6. CONCLUSION AND RECOMMENDATION

6.1. Conclusion

From the results presented herein, Health seeking behavior has infuence on PHC utilization. Decision to choose health facility is positively associated with health service consumption.This autonomy especially for females increase their health care visit during ANC period and beyond.

Health workers community based intervention particularly in rural areas yielding greater influx to PHC facilities in margibi county.CHAS (community health assistants) and CHSS(Communnity health services supervisors) are attached to facilities.They are engaged in the communities making awareness on the importance of PHC service utilization.This positively impact their belief system in traditional healers and their actions.

Overall PHC utilization is higher in urbn (79.6%) compared to rural (62.5%) areas of Margibi county. International partners are supporting community hesalth program implementation in the county. Additionally they incentify health workers for overnight and weekend stay supporting more times of service.This encourages more facility delivery and PHC usage in the county. Neverteless, there is a descrepancy between the rural and urban regions in term of utilization rate. Rural dwellers were less likely to consume PHC compared to the urban areas.This may be due to avialability of lot of physical accesibility.

It was also found that Significant population of Margibi were not utilizing PHC.Gaps that affected the PHC access and barriers were recognized. Access to PHC was hampered by Socio demograhic characteristics such as age, employment status and income, media exposure, drug and laboratory Unavalability, distance and road condition. furthermore, financial and referral issues were identified as barriers. Sociodemograhic inequalities was also identified.

Younger adults age 29-38 years were less likely to consume PHC service compared to the eldery.They involve in more exercise activities and less likely to have chronic disease compared to the older people.

Those that are Unemployed were more likely to utilize PHC. Employed individuals have insurance which might enable them to make use of private health facilities owned by their employers as an alternative to government free PHC facilities that suffers irregular drug supply.

People with high socioeconomic status (high income) are more likely to utilize PHC than those with lower status (lower income).Their financial ability pave them a way to use both private and public PHC at their will.

Using media was positively associted with PHC consumption.Those that have access to media were more likely to utilize PHC than those that did not have.There are community radio programs that health educate the public which has had greater impact on the literacy of the listeners especilly in health.

Drug, Resident doctor and laboaratory inavailability at the facilities were reported as barriers by both urban and rural communities.f ee for service was also a constraint reported by the both communities. Distance and Road safety issues were main obstacles mentioned by rural communities that were negatively affecting PHC utilization.

Primry Health care users (639) overall satisfaction level was also high (82.3%), which implies that Liberia is encouraging an enabling environment to promote universal health coverage. Although both urban and rural communities were not satisfied with payment for service and essential drugs inavailability.This is due to their expectation of government free for cost health care policy.

Health service providers also reported Irregular supply of drugs, charging population for service,and absence of Diagnostic equipments at the facilities as barriers to PHC utilization in both urban and rural margibi county.They also stated distance and referral system were challenges faced by rural communities. Health providers contributed to the increased PHC utilization rate by making awareness and taking the services to the communitities as well as staying at the facilities during the wekend.

6.2. Recommendation

In view of the aforementioned findings following are recommended :

- Community health program in Liberia should be strenghthened by government to improve and expand access to quality PHC service in margibi county and the rest of other counties.
- In order for Ministry of Health of Liberia to meet its goal which is improving health of the population in equiatable basis,policy makers should take into consideration differences in population groups in terms of infrastructure and service delivery
- Needed laboratory equipment should be available at PHC facilities as per required
- Functional ambulances should be available and accesible especially for rural areas
- Essential drug supply should be effective at all time
- Margibi county health staff should be monitored to ensure free for service policy initiated by government is implemented
- Reasonable reduction in waiting time at the facilities should be observed
- Further sresearch should be conducted in other counties to asses PHC utilization rate as it is the cornerstone for health service and system
- Investigation of Primary Health care utilization among children is also adviced for the focus of this reseach was adults.

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8. APPENDIXES

8.1. Appendix 1: Household survey questionnaire

Urban ☐

Rural ☐

Section 1. Socio demographic Background (continued)…

No	Variables	Categories
1	Gender	a. Male ( ) b. Female ( )
2	How old are you	_____ years old
3	What is your education background	a. Literate ( ) b. Illiterate ( ) c. Primary School d. Secondary education ( ) e. High School level ( ) f. Undergraduate (Diploma,University ( ) g. Postgraduate (Master, PHD) ( )
4	Marital Status	a. Single ( ) b. Married ( ) c. Widowed ( ) d. Divorced ( ) e. Cohabitating( )
5	Employment Status	a) Employed ( ) b) Not Employed ( ) c) Retired ( ) d) Student ( )

Section 1. Socio demographic Background (continued)

6	Average income of your family	_____ LRD
7	What is the major source of income in your family	a. Casual work ( ) b. Farming ( ) c. Formal Work ( ) d. Business ( ) e. Other Specify------
8	Family size	_____
9	Media exposure	a. Radio ( ) b. TV ( ) c. Internet ( ) d. Newspaper ( ) e. Nothing ( )
10	How long you have been living here	_____ years
11	What is the source of drinking water in your family	a. Tap ( ) b. Well ( ) c. Creek/River ( )
12	How long does it take	_____
13	What method do you use to purify water before drinking	a. Boiling ( ) b. Chlorine ( ) c. Filter ( ) d. Nothing ( ) e. Other_____
14	What is the type of Latrine used by family member	a. Pit Latrine ( ) b. Shared Latrine ( ) c. None ( )

Section 1. Socio demographic Background (continued)

15	With what do you wash your hand after toileting	a. Soap ( ) b. Mud/ Soil ( ) c. Water only ( ) d. None ( )
16	Is there any electrıcıty in the area	a. Yes ( ) b. No ( )
17	Household Type(Record the construction material of the main dwelling House	a. Zinc Round House ( ) b. Concrete House ( ) c. Other_____
18	Do you have electricity in your house	a. Yes ( ) b. No ( )
19	Nearest Health facility by walking	a. Less than 20 min ( ) b. 21-40 min ( ) c. 41-60min ( ) d. More than one hour ( ) e. I do not know ( )

Sectıon 2: Perceptıon of Health and Disease and Health seeking behavior (continued) …

No	Variable	Categories
1	What do you think about your Health Status	a. Excellent ( ) b. Fair ( ) c. Poor ( )
2	Chronic Condition	a. Yes ( ) b. No ( )
3	Type of Condition	_____
4	Usually at what stage of Illness do you go for treatment	a. Immedıately ( ) b. After few day ( ) c. Until ıt affects daily work ( )
5	Whom did you consult before seeking medical treatment in case of illness/delivery/Immunization	a. Nobody ( ) b. Friends ( ) c. Relatives ( ) d. Neighbors ( ) e. Mother – ınlaw ( ) f. Husband ( ) g. Others Specify _____
6	Who make a decisıon to seek care at a certain or specified place of care	a. Husband ( ) b. Yourself ( ) c. Suggestion by others ( )

Sectıon 2: Perceptıon of Health and Disease and Health seeking behavior (continued)

7	Where did you usually go for the treatment of minor ailments such as fever stomach ache, tooth ache eye diseases	a. Religious Healers( ) b. Traditional Healer ( ) c. PHC( ) d. County Hospital( )
8	For the past six months have you stopped taking medication because you could not afford	a. Yes ( ) b. No ( ) c. I have not needed any medication ( ) d. I do not Know ( )
9	How is transportation system when you need a healthcare	a. It is easy to find ( ) b. It is difficult ( )
10	Did you become ill during the last six months	a. Yes ( ) b. No ( )
11	If yes, where treatment was sought	a. PHC ( ) b. Hospitals( ) c. Drug store ( ) d. Pharmacy( ) e. Traditional healer( ) f. Religious healer( )
12	Did any Health worker visit your home last six months	a. Yes ( ) b. No ( )

Sectıon 3: Primary Health care utilization (continued) …

No	Variable	Categories
1	Do you know where is the primary Health care facility in Your area	a. Yes ( ) b. No ( )
2	Type of Transport	a. Foot ( ) b. Public Motorcycle ( ) c. Public Taxi( ) d. Other ( )
3	Time to reach	a. 30 minutes ( ) b. 31-60 minutes ( ) c. more than one hour ( )
4	Transportation cost	a. less than 150 LD ( ) b. more than 150 LD ( )
5	In the last six months have you visited PHC(Clinics) facility?	a. Yes ( ) b. No ( )
6	If yes what was the reason	_____

Sectıon 3: Primary Health care utilization (continued)

7	Why have you not gone to the PHC for treatment.	a. It is only for pregnant woman ( ) b. No time ( ) c. No medicine ( ) d. No Doctor ( ) e. No Lab test ( ) f. Medicine is not effective ( ) g. No money to go there ( ) h. Low quality service ( ) i. Other specify _____
8	When you have a new health problem do you go to PHC institutions before going to secondary or Tertiary hospitals	a. Yes ( ) b. No ( )

Sectıon 4: Satisfaction of PHC utilizers (continued) …

No	Variable	Categories
1	When makıng decision about your treatment dd the doctor or other health care worker ask about your opinions?	a. Yes ( ) b. No ( )
2	Did the Health Care worker (Nurse, Midwife, PA) tell you about side-effects you might get from Prescribed medicine	a. Yes ( ) b. No ( )
3	How often did the Health Care worker (Nurse, Midwife, PA) tell you the consequence if you did not take the medicine	a. Yes ( ) b. No ( )
4	During the weekend or public holiday can you see Health care workers (Nurse, Midwife, PA) in PHC institutions (Clinics) when you need them	a. Yes ( ) b. No ( )

Sectıon 4: Satisfaction of PHC utilizers (continued)

5	When you visit PHC institution are you served by the same Health Care worker(Nurse, Midwife, PA) each time	a. Yes ( ) b. No ( )
6	Does your Health Care Worker (Nurse, Midwife, PA) gıve you enough time to listen	a. Yes ( ) b. No ( )
7	Did you pay for any service at the PHC facility	a. Yes ( ) b. No ( )
8	Did the Health care Worker (Nurse, Midwife, PA) suggest you to do more physical exercise, have healthy diet and control weight	a. Yes ( ) b. No ( )
9	Can you normally get all medications you need in PHC institutions	a. Yes ( ) b. No ( )
10	Does it happen that health care worker allocate more time in assessing you	a. Yes ( ) b. No ( )

8.2. Appendix 2 : Qualitative questionnaire for PHC providers.

Background Information

Urban

Rural

Age in years: _____

Gender: _____

Education: _____

Qualification: _____

Work years: _____

Questıon 1. What is your role /service in this Facility?

Question 2. What are the barriers to the Primary Health Care utilization in your facility if any?

Question 3. **.** What do you think about the accessibility of This PHC facility?

Question 4. How do service provided in this Facility contribute to the community utilization of PHC?

8.3. Appendıx 3: Ethıcal approval of Ankara Yıldırım Beyazıt Unıversıty

MG

ANKARA YILDIRIM BEYAZIT ÜNİVERSİTESİ (AYBÜ)
SOSYAL VE BEŞERİ BİLİMLER ETİK KURULU
PROJE ONAY BELGESİ

Ankara Yıldırım Beyazıt Üniversitesi **Health Policy and Global Health** Fakültesi/Enstitüsü **Public Health Institute** bölümü akademisyenlerinden / öğrencilerinden **Ayouba A. Fofana**'adlı araştırması değerlendirilmiştir.*(Bu kısım başvuru sahibi tarafından doldurulmalıdır)*

Proje etik açısından uygun bulunmuştur.	X
Proje etik açısından geliştirilmesi gerekmektedir.	
Proje etik açısından uygun bulunmamıştır.	

AYBÜ SOSYAL VE BEŞERİ BİLİMLER ETİK KURULU KARARI (Etik Kurul tarafından doldurulacaktır)	
Araştırma kodu (Yıl – Araştırma sıra no)	2022 - 671
Başvuru formunun Etik Kurula ulaştığı tarih	28.01.2022
Etik Kurul Karar toplantı tarihi ve karar no	08.02.2022 - 02.
Yer	Yıldırım Beyazıt Üniversitesi, Esenboğa Külliyesi
Katılımcılar	Formda imzası bulunan üyelerimiz toplantıya katılmıştır.

KURUL BAŞKANI VE ÜYELER

Prof. Dr. Hakkı ODABAŞ	Başkan
Prof. Dr. Mehmet Ali ZENGİN	Üye
Doç. Dr. Behlül TOKUR	Üye
Doç. Dr. Özge GÖKBULUT ÖZDEMİR	Üye
Doç. Dr. Ali POLAT	Üye
Doç. Dr. Musa ÖZTÜRK	Üye
Doç. Dr. Ömer ASLAN	Üye
Dr. Öğr. Üyesi Recep YORULMAZ	Üye
Dr. Öğr. Üyesi Semih CEYHAN	Üye
Dr. Öğr. Üyesi Keziban Büşra KAYNAK EKİCİ	Üye
Dr. Öğr. Üyesi Gülay YAZICI	Üye

8.4. Appendix 4:Margıbı county Health team permission Letter

8.5. Appendix 5. Curriculum Vitae

Personal Information

Name: Ayouba A FOFANA

Gender:

Date of Birth:

Place of Birth: Gbarnga

Residential address:

Mobile:

E-mail:

LinkedIn:

OBJECTIVE:

Global health and Health Policy Specialist, Energetic Nursing Professional. Capable of working in high-stress Situations as well as in Dynamic Environments. Devoted to Public access to health care, profound aptitude to work independently and in a team. Strong organizational, communication, and teamwork skills, Critical thinking skills, and analytical capabilities. Interesting in areas of Global Health, Health system, and policy, Public Health, Mental Health, Curative medicine, Research, and Teaching.

PROFESSIONAL/WORKİNG EXPERIENCE

Organization **Ministry of Health/Margibi County Health Team**

Kakata, Margibi County

Jan 1 –Dec 31, 2020 **Emergency Room Nurse**-C.H Rennie Hospital,

- Screened, Diagnosed, and managed Emergency cases with the Doctor
- Referred to the National Referral Hospital as appropriate
- Stabilized patients and sent them to the wards and units as Required

- Controlling emergency cases was achieved and a proper referral pathway was put in place.

Organization **Carter Center**, Monrovia, Liberia

June 1 - Dec 31, 2019 **Mental Health Supervısor** -Supporting Psychosocial Health and Resilience in Liberia (project)

- Oversee five health facilities in Margibi County
- Coached Mental Health trainees, trained them in the Referral pathway
- Provided Counselling and organized community dialogue
- Wrote monthly Reports on activities and submitted them to the Coordinator
- Health facility trainees were well guided in controlling mental Health cases.

Organization **Ministry of Health/Margibi County Health Team**
Kakata, Margibi County

Jan 4 -Dec 1, 2018 **Mental Health Clinician-** C.H Rennie Hospital

- Assessed diagnosed and treated Mental, Neurological, and Substance abuse disorders
- Provided Psychosocial counseling and psychological First aid
- Prevalence of mental illness was reduced in the county

Organization **a) United Nations Office on Drug and Crimes (UNODC)**

Monrovia, Liberia

Feb10-20, 2018 **Research Assistant**

- Conducted research on Substance use amongst students In Montserrado and Bong Counties

Jul 10-20, 2017 **b) OXFAM Liberia**, Montserrado County, Liberia

- Evaluated eighteen (18) communities in Margibi Township on the OXFAM water supply project
- Conducted Key informant interviews, Focus group Discussions, and Surveys

Jun 5-18, 2017 **c) Colombia University Mailman School of Public Health In collaboration with Open Society Initiative of West Africa (OSIWA),** Monrovia, Liberia

- Evaluated BIG Belly Business Program project in Montserrado and Bong counties

Organization **Ministry of Health/Margibi county Health team**

Kakata, Margibi County

Oct1-Dec 31, 2016 **Scrub Nurse-**C.H Rennie Hospital

- Assisted Surgeon in Surgery, Performed dressing for surgical patients

Institution **Madina Training School**, Kakata, Margibi County

Sept 8, 2014-Jun30, 2016 **Secondary School teacher**

- Taught secondary students in both art and science Subjects
- Planned lessons and presented to students

Organization **The MENTOR Initiative**

Lot # 5 Virginia, Hotel Africa Road

Monrovia, Liberia

Feb 01, 2015- Mar, 2016 **Infection Prevention and Control (IPC) Supervisor**

- Supervised Seven Health facilities in Paynesville
- Conducted IPC training for all the staff at the 7 health facilities
- Trained Montserrado Health workers in Safe and Quality Health Service (SQS)
- Conducted community engagement with the leaders on surveillance and referral
- Attended stakeholders meeting at the community level to give updates
- The IPC pillar of which I was a member, in collaboration with other pillar members coordinated and efficiently worked to put the Ebola outbreak in Liberia to an end.

Institution **JJ.Korhene Clinic**, Kakata, Margibi County

Aug1-Dec 30, 2014 **Officer in Charge (OIC)**

- Supervised and monitored staff of the Clinic drew Schedules for them

EDUCATION:

Expected December 2022 **Master of Public Health (MPH)**

Concentration: Health Policy and Global Health
Ankara Yildirim Beyazit University
Ankara, Türkiye

2018-Present **Master of Public Health (MPH) candidate**
Concentration: Epidemiology
Cuttington University
Tubman Boulevard, Congo Town, Monrovia, Liberia

Sept 1, 2017 – Mar23, 2018 **Certificate in Post Basic Mental Health Training**
Phebe Hospital and School of Nursing, Suakoko, Bong County, Liberia

Sep06, 2010 – Jun28, 2014 **Bachelor of Science (BSC)**
Concentration: Nursing
Cuttington University, Suakoko, Bong County, Liberia

March 3 -Dec 20, 2009 **Diploma in t*eaching***
Bilal Institute for Teachers' training, Conakry, Guinea

Oct 5, 2005-Jul13, 2007 **Diploma and West African Examination Senior School Certificate**
N'zerekore Central High school, N'zerekore, Guinea

Oct 06, 2000-Aug, 2003 **Arabic Senior High School Certificate**
Abubakar Sidik Institute, N'zerekore, Guinea

CERTIFICATIONS

Apr2-3, 2021 **Cancer Control Workshop**
Hacettepe University, Türkiye

Sep01- Nov30, 2020 **Integrated Disease surveillance and response**
WHO/AFRO COVID-19 IMST

Jun 25-Jul 10, 2020 **Mental Health and Psychosocial Support for covid-19 affected and infected people**
UNICEF/WHO/MOG/MOH/Carter Center

Mar 01-Apr2, 2019 **Introduction to Computer (Word, Excel, and PowerPoint)**
Kakata Computer Center, Kakata, Liberia

May 25-Jun 3, 2017 **Qualitative and Quantitative Research training**
Colombia University Mailman School of Public Health in Collaboration with Open Society Initiative for West Africa (OSIWA)

Feb1-8, 2016 **Malaria Epidemiology and management**
Training of Trainers
National Malaria Control Program (NMCP)/Mentor Initiative
Monrovia, Liberia

Oct 1-5, 2015 **Safe and Quality Health Services** (Training of Trainers)
WHO& Liberia Ministry of Health, Monrovia, Liberia

SKILLS

Computer Skills: Microsoft Word, Excel, PowerPoint, and internet applications
Statistical Programs: SPSS
Language: English, Arabic, French, Turkish
REPORT WRITING: Project proposal, Progress report, Technical report writing

PUBLICATIONS:

- Exploring prevalence and Incidence Rate of HIV and AIDs in West Africa
- Covid-19 in Liberia lesson learned (in progress)
- Occupational Hazards among nurses and midwives in C.H Rennie Hospital Margibi County (in progress)
- Understanding Knowledge Attitude and Practice OF Electricity Conservation in Kakata city, Margibi County, Liberia (in progress)

8.6. Appendıx 6: Photo of Some visited communities in Margibi county

