SCHOOL OF PUBLIC HEALTH

COLLEGE OF HEALTH SCIENCES

UNIVERSITY OF GHANA

ASSESSMENT OF GHANA'S NATIONAL HEALTH INSURANCE SCHEME (NHIS) ENROLMENT ON HEALTHCARE UTILIZATION AMONG RENAL PATIENTS AT THE KORLE BU TEACHING HOSPITAL

BY

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THIS DISSERTATION IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON, IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF MASTER OF PUBLIC HEALTH (MPH) DEGREE.

APRIL, 2025

DECLARATION

I, Ellen Okyere-Dankwa, affirm that this dissertation represents my entirely original work. The content presented in this dissertation is founded on thorough research conducted by me, and any external sources of information have been appropriately acknowledged and referenced. This dissertation has not been previously submitted for the attainment of any degree within this institution or any other university. The outcomes derived from this study will be presented to the School of Public Health, University of Ghana, as part of the fulfilment criteria for the Master of Public Health Degree.

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DEDICATION

I dedicate this work to the Almighty God, my family, lecturers and friends without whose contributions and prayers this project would not have been successful

ACKNOWLEDGEMENT

I extend my sincere appreciation to Dr. Genevieve C. Aryeetey, my supervisor, for her invaluable guidance and insights throughout the course of this study. My gratitude also goes to my lecturers for their significant contributions to broadening my understanding and application of public health concepts.

I would like to express a special thanks to the Renal Out-Patient Department staff of Korle-Teaching Hospital and patients who actively participated in this study, contributing to the expansion of knowledge and advancements in the impact of NHIS enrolment on healthcare utilization among renal patients.

I am deeply thankful to my family, particularly my parents and brother, and my friends for their unwavering support and prayers that have cushioned me throughout my academic journey.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Background: Renal disease presents a significant public health challenge, with patients requiring frequent and specialized medical care. In many countries, including Ghana, the National Health Insurance Scheme (NHIS) has been introduced to mitigate healthcare costs and improve access to necessary services. NHIS enrolment is particularly crucial for renal patients, given the financial burden of treatments such as dialysis and transplants. However, the extent to which NHIS enrolment influences healthcare utilization among renal patients remains underexplored.

Objectives: The study intended to investigate the NHIS enrolment on healthcare utilization among renal patients in Korle-Bu Teaching Hospital.

Methods: The study adopted a quantitative research approach and cross-sectional design in which consecutive sampling technique was used to select 200 from the population of 400 for the study. A structured questionnaire was used as a data collection tool. The study tested the association between enabling, need and predisposing factors and utilization of renal service using Chi-square. Additionally, multivariate regression was employed to assess the NHIS enrolment, enabling, need and predisposing factors influencing utilization of renal service.

Results: The study found that the majority of renal patients (93.5%) were currently enrolled in the National Health Insurance Scheme (NHIS). Among those not enrolled, reasons included expired insurance (30.8%), perceived ineffectiveness of NHIS in covering medical expenses (30.8%), and personal choice (38.4%). For the predisposing factor, patients who were aged 26-35 years were approximately 21 times more likely to utilise services (P<0.001). In terms of enabling and need factors, individuals who had the ability to perform daily activities were 1.8 times more likely to utilize renal services (p=0.008). Patients who were able to balance lifestyle were 1.84 more likely to utilize services (p=0.016). Patients who were assured about the availability of specialists were

2.4 times more likely to visit the renal unit (p=0.030). Individuals who agreed that NHIS plan partially covers renal services show a significant 1.12 times more likelihood of utilization of the facility (p=0.022). It was found that, very long waiting time with NHIS resulted in 98% less likelihood for patients to utilise renal service. Similarly, NHIS partial coverage for hospital admissions stance 3.11 times more likely of utilizing hospital services.

Patients who experienced shorter waiting time for renal treatments, had 1.9 times significantly higher likelihood of utilizing services (p=0.004). Conversely, longer waiting times were associated with decreased utilization (AOR=0.51, p=0.003), and "very long" waiting times also reflecting a higher reduced utilization (AOR=0.02, p=0.034).

Conclusion: Renal patients were enrolled on the NHIS. Again, there is an influence of enabling, need and pre-disposing on utilization of renal service.

Recommendation

Policymakers and government authorities should review and expand the NHIS benefit package to ensure more comprehensive coverage for renal patients. The Korle-Bu hospital administration should collaborate closely with the NHIS authorities to establish a dedicated renal desk that facilitates insurance processing, addresses patient complaints, and ensures timely service delivery.

Key words: National Health Insurance Scheme Enrolment, Healthcare Utilization, Renal patients, Korle Bu Teaching Hospital

CHAPTER ONE

INTRODUCTION

1.0 Background

Globally, the health financing landscape is ever evolving, marked by dynamic policy, practice, and access shifts. One such transformative force is the implementation of health insurance schemes, which aim to enhance healthcare accessibility and affordability for citizens (Poswa, 2022). In developed countries, the evolution of health insurance systems has been closely tied to the recognition of healthcare as a fundamental human right (Alawode & Adewole, 2021). Gawu (2020) acknowledged that the implementation of universal healthcare coverage has significantly improved access to medical services for all citizens, ensuring that financial barriers do not impede their ability to seek necessary care. According to Murray, Zimmerman, Agarwal et al. (2021), countries like the United States, Canada, and several European nations demonstrate a high level of healthcare expenditure per capita, reflecting substantial investments in their healthcare systems.

Healthcare in Africa presents a contrasting picture marked by a multitude of challenges, including limited resources, infrastructure deficits, and inadequate access to healthcare services (Sanders, 2023). The National Health Insurance Scheme (NHIS) in Ghana for example is a governmental initiative that seeks to provide financial protection against the cost of healthcare services for citizens (Adebisi, Odiachi & Chikere, 2019). Originating from a global commitment to achieving universal health coverage, the NHIS is designed to ensure that individuals, irrespective of their socio-economic status, can access necessary healthcare without facing financial hardship (Li, Chow et al., 2017). It operates through a system where individuals or their employers contribute to a pool of funds, and in return, they are entitled to a range of health services without direct payment at the point of use (Kipo-Sunyehzi, Ayanore, Dzidzonu & AyalsumaYakubu, 2019).

Renal diseases, which are often associated with high morbidity and mortality rates, pose a significant burden on the already strained healthcare systems in many African countries such as Uganda, Nigeria, Zambia, and the like (Kaze, Ilori, Jaar & Echouffo-Tcheugui, 2018). In the United States alone, Duru, Middleton, Tewari and Norris 2018) report that around 15% of adults in the country have chronic kidney disease (CKD). Renal patients in developed countries experience lower financial barriers to healthcare access, resulting in improved healthcare utilization rates and better overall outcomes (Pavkov, Collins, Coresh & Nelson, 2021).

The developed world has witnessed the positive impact of health insurance on renal patient outcomes. With financial barriers mitigated, individuals with renal conditions can access timely and appropriate treatments, leading to improved quality of life, decreased disease progression, and enhanced survival rates (Carter, Barr & Clarke, 2016). The emphasis on preventive care, regular check-ups, and the seamless provision of necessary interventions contributes to a holistic approach to managing renal diseases (Nanditha, Ma, Ramachandran et al, 2016). Additionally, renal patients also benefit from comprehensive coverage that spans the spectrum of care, including medications, diagnostic tests, dialysis, transplantation, and other necessary medical services (Li, Chow et al., 2017). In many developing countries however, the absence of robust health insurance systems exacerbates the difficulties faced by individuals with renal conditions, who may encounter financial barriers hindering their access to critical healthcare services (Naicker & Ashuntantang, 2017).

Within the West Africa context, Ghana stands out as a country that has made strides in developing and implementing a national health insurance system to address healthcare disparities. The Ghanaian government introduced the National Health Insurance Scheme (NHIS) to improve

healthcare access for its citizens (Adu & Ojo, 2020). The NHIS in Ghana was introduced in 2003 to provide financial protection against the cost of healthcare services and ensure equitable access for all citizens. It operates on a system where individuals contribute to a common fund, and in return, they gain access to a range of healthcare services without direct payment at the point of use (Kipo-Sunyehzi, Ayanore, Dzidzonu & AyalsumaYakubu, 2019). While the NHIS covers a broad spectrum of health services, including outpatient care, hospitalisation, and maternity services, the specific implications for renal patients warrant closer scrutiny (Gawu, 2020).

The NHIS in Ghana coverage does not extend to essential aspects of renal care, including some essential medications, diagnostic tests, and dialysis sessions. This financial support is instrumental in ensuring that individuals with renal conditions can afford the necessary healthcare, reducing the risk of delayed or inadequate treatment due to financial constraints (Dake, 2018). The study therefore assessed the association between NHIS enrolment and the healthcare utilization among renal patients in Korle-Bu Teaching Hospital.

1.2 Statement of the Problem

Renal diseases, ranging from chronic kidney disease (CKD) to acute kidney injury (AKI), are on the rise globally, affecting millions of individuals and posing a substantial burden on healthcare systems. In Ghana, like in many other developing countries, the prevalence of renal diseases is increasing mainly due to factors such as hypertension, diabetes, and limited access to healthcare. According to national health surveys conducted by Kovesdy (2022) in USA, the incidence of chronic kidney disease (CKD) affects >13% of the general population globally, amounting to >800 million individuals (Kovesdy, 2022). It also varied between 6.4% and 8.7% in South Africa

(Hariparshad, Bhimma, Nandlal et al., 2023), 10.7% to 13.9% in sub-Saharan Africa (Poswa, 2022) and 4.6% to 10.1% in Africa (Suriyong, Ruengorn, Shayakul et al., 2023) in general.

In a recent study, the prevalence of chronic kidney disease (CKD) in Ghana was found to be 13.3% (Kumah, Agyei-Baffour, Acheampong et al., 2022). Based on data from the Global Burden of Disease Study (GBD), chronic kidney disease (CKD) led to 1.2 million deaths in 2017, moving from the 17th rank in 1990 to the 12th rank in 2017 (Xie, Bowe, Mokdad et al., 2018; Li, Ning, Shen, Shi, Song, Fang & Ding, 2023). Projections suggest that CKD is anticipated to ascend to the fifth position among leading causes of death by the year 2040 (Li, Ning, Shen, Shi, Song, Fang & Ding, 2023). This was anticipated to be the cost associated with the dialysis processes.

For instance, the annual cost of haemodialysis (HD) per patient is estimated at US$ 7000 in South Africa (Ragheb, 2020), while in Nigeria, it varies from US$ 25,000 to US$ 55,000 (Khashayar, Sharifnejad Tehrani, Tabatabaei-Malazy et al., 2023). For peritoneal dialysis (PD), the costs fluctuate from US$ 7000 in Egypt (Negoi & Khanna (2020) to a range of US$ 20,000 to US$ 49,000 in Nigeria (Njuguna, 2022). Also, dialysis expenses in Ghana vary between US$ 25.04 and US$ 83.5 per session for which a minimum of 3 sessions a week is required. The median cost of US$ 33.4 in government and quasi-government health facilities, within a range of US$ 25.04 to US$ 50.08 (Boateng, Iddrisu, Kyei-Dompim & Amooba, 2023).

Despite the introduction of the National Health Insurance Scheme (NHIS) to improve access to healthcare, enrolment and renewal rates remain inconsistent, particularly among the poor and those in rural areas. Many Ghanaians are either not enrolled or have lapsed memberships (Atinga et al., 2017). Alhassan et al. (2016) pointed that NHIS coverage does not always guarantee access to quality or comprehensive care in certain treatments and medications. This results in high out-of-

pocket expenses contradicting the scheme's intent to provide financial protection (Alhassan et al., 2016).

Given these ongoing challenges, it becomes essential to study how NHIS enrolment influences healthcare utilization, particularly among vulnerable groups such as renal patients who require regular and costly medical care. This financial strain poses a substantial challenge for renal patients, potentially impeding their ability to adhere to prescribed treatment plans and access necessary healthcare services (Ghimire, Castelino, Jose & Zaidi, 2017).

In Ghana, the National Health Insurance Scheme (NHSI) was established to provide financial risk protection and ensure access to quality healthcare services. Despite the growing body of literature on NHIS (Wiredu, Peprah & Agyemang-Duah 2021; Adjei-Mantey & Horioka, 2023; Akokuwebe & Idemudia 2022), there exists a notable research gap in the specific context of healthcare utilization among renal patients in Ghana. Indeed, enrolment on to the NHIS could be a critical factor in determining the extent to which renal patients can utilize essential healthcare services (Harris, Davies, Finkelstein et al., 2019).

Chronic kidney disease (CKD) and end-stage renal disease (ESRD) have become significant public health concerns in Ghana, with increasing prevalence linked to lifestyle changes, hypertension, diabetes, and other non-communicable diseases (Amoako & Owusu-Ansah, 2021). According to Voora and Adey (2019), renal patients require frequent medical consultations, laboratory tests, dialysis sessions, medications, and sometimes kidney transplantation. These treatments are often long-term, intensive, and costly, posing a major challenge to patients and their families, especially those with limited financial resources (Voora & Adey, 2019).

Although the NHIS was established to improve financial access to healthcare and reduce out-of-pocket payments, its effectiveness in supporting patients with chronic conditions such as renal

disease remains uncertain. Many renal patients at Korle-Bu Teaching Hospital as reported by Acquah (2018) face difficulties in affording dialysis and medications. This raises concerns about the adequacy of the insurance coverage for renal care services. There has been a claim that some essential procedures and drugs are either partially covered or entirely excluded from the NHIS benefit package, forcing patients to make additional payments (Acquah, 2018). As a result, Anafi (2023) noted that disparities in healthcare utilization emerge between insured and uninsured renal patients, with those lacking sufficient financial resources often missing dialysis sessions, delaying treatment, or resorting to alternative therapies.

Moreover, while the NHIS was intended to promote equitable access to healthcare, there is limited evidence that utilization patterns can still vary depending on socioeconomic background, enabling, need and pre-disposing factors. For renal patients, consistent utilization of healthcare services is critical for survival and quality of life (Hall, Luciano, Pieper & Colón-Emeric, 2018). However, logistical challenges such as long waiting times, frequent equipment breakdowns, and inadequate supply of dialysis machines at Korle-Bu Teaching Hospital further draw the attention for many studies. These issues when not investigated and address can discourage continuous patients' engagement with the health system even among insured patients (Adogboba, 2018).

Similarly, the uncertainty about whether NHIS enrolment actually translates into improved healthcare utilization for renal patients at Korle-Bu Teaching Hospital calls for systematic investigation. Therefore, the study assessed the association between NHIS coverage and access to renal healthcare can provide insight into whether the scheme meets its objective of financial protection and equitable access for patients with chronic conditions.

1.3 Objectives

1.3.1 General objective

The general objective of the study was to assess whether NHIS enrolment associate with the utilization of healthcare service among renal patients in Korle-Bu Teaching Hospital.

1.3.2 Specific objectives

The study sought to address the following specific objectives:

1. To determine proportion of renal patients enrolled on the NHIS at the Korle-Bu Teaching Hospital.
2. To assess enabling, need and pre-disposing factors influencing utilization of renal service among clients at the Korle-Bu Teaching Hospital.
3. To investigate whether NHIS enrolment is associated with utilization of health services among renal patients at the Korle Bu Teaching Hospital

1.4 Research Questions

1. What proportion of renal patients enrolled on the NHIS at the Korle-Bu Teaching Hospital?
2. What enabling, need and pre-disposing factors influencing utilization of renal service at the Korle-Bu Teaching Hospital?
3. Does NHIS enrolment translate into utilization of health services among renal patients at the Korle Bu Teaching Hospital?

1.5 Significance of the Study

In a country where out-of-pocket expenditure remains high and access to quality healthcare is often determined by income levels, understanding the extent to which NHIS enrolment alleviates the financial burden and improves healthcare utilization for renal patients is essential for both policy and practice.

This study provided empirical evidence on whether the NHIS meets its intended purpose for this vulnerable population. Such insights are particularly valuable for policymakers and health administrators seeking to reform the insurance scheme to better accommodate the healthcare needs of patients requiring long-term care.

Furthermore, this study holds significance for healthcare practitioners and hospital management at Korle-Bu Teaching Hospital, Ghana's leading tertiary health facility. The study provides to them a clear understanding patterns of healthcare utilization among insured and uninsured renal patients, identify service delivery bottlenecks, and make data-driven recommendations for improving patient care. Understanding how financial coverage influences patient behaviour on utilization of health service serve as a guide to the hospital in improving its patient support systems, optimizing resource allocation, and advocating for better inclusion of renal treatments in the NHIS reimbursement structure.

On a broader scale, the study's findings added to the body of knowledge on health insurance effectiveness in sub-Saharan Africa, where many countries face similar challenges in providing comprehensive care for chronic disease patients. It will offer evidence-based insights that can inform national discussions on health financing reforms, particularly in extending NHIS coverage to encompass expensive and recurrent treatments like dialysis and kidney transplantation.

Additionally, the study will highlight the social and economic implications of inadequate health insurance coverage for renal patients, emphasizing the need for sustainable strategies to reduce health inequities and prevent financial impoverishment due to healthcare costs.

This study makes a theoretical contribution to the existing literature on the impact of NHIS on healthcare utilization among renal patients. More specifically, the study will shed light on the extent of coverage within this vulnerable population, facilitating targeted interventions to improve enrolment rates and ensure equitable access to healthcare services.

Moreover, in justification, this study was conducted to address the persistent gap between NHIS enrolment and the actual utilization of healthcare services among renal patients at the Korle-Bu Teaching Hospital. Although the National Health Insurance Scheme (NHIS) was introduced to improve access and financial protection in healthcare, there remains uncertainty regarding how effectively it supports patients with chronic and high-cost conditions such as kidney disease. Renal patients often require continuous and expensive medical care, including dialysis, medications, and specialist consultations services. This raises critical concerns about the scheme's adequacy in promoting equitable and sustainable healthcare utilization.

This lies in the need for evidence-based evaluation of how NHIS enrolment influences healthcare access and utilization for renal patients within a tertiary hospital context. The Korle-Bu Teaching Hospital, being Ghana's premier referral center, provides renal care to a large and diverse patient population, making it a suitable setting to assess how insurance coverage influences service uptake. Understanding the dynamics between enrolment, coverage, and utilization can help policymakers and hospital administrators identify gaps in policy implementation, affordability, and service delivery.

From a policy perspective, the evidence generated can guide the National Health Insurance Authority (NHIA) and the Ministry of Health to strengthen benefit packages, ensure timely reimbursements, and expand coverage for chronic disease management. For practice, the findings can inform hospital management on how to streamline administrative processes, reduce waiting times, and improve patients' experience with NHIS-supported renal services. For research, this study provides a foundation for further inquiry into the socioeconomic and institutional factors affecting healthcare utilization under NHIS, particularly for other chronic disease groups.

1.6 Conceptual Framework

The theoretical framework provides a comprehensive lens through which to explore the prevalence of NHIS enrolment, the impact on timely access to renal healthcare, the level of NHIS enrolment, healthcare utilization, and the demographic variables associated with NHIS enrolment among renal patients.

The conceptual framework in Figure 1 illustrates the association between the variables under the study. Thus, this study considered the kind of association that exists between the variables involved and whether this association is significant or not. Healthcare utilization such as the number of hospital admissions, outpatient clinic visits, dialysis sessions, emergency room visits, transplant clinic attendance, medication adherence, and laboratory and diagnostic tests examined are the response variables while the demographic variables, and NHIS status as illustrated in Figure 1 constitute the independent variables. Figure 1 presents a framework of typical renal healthcare issues.

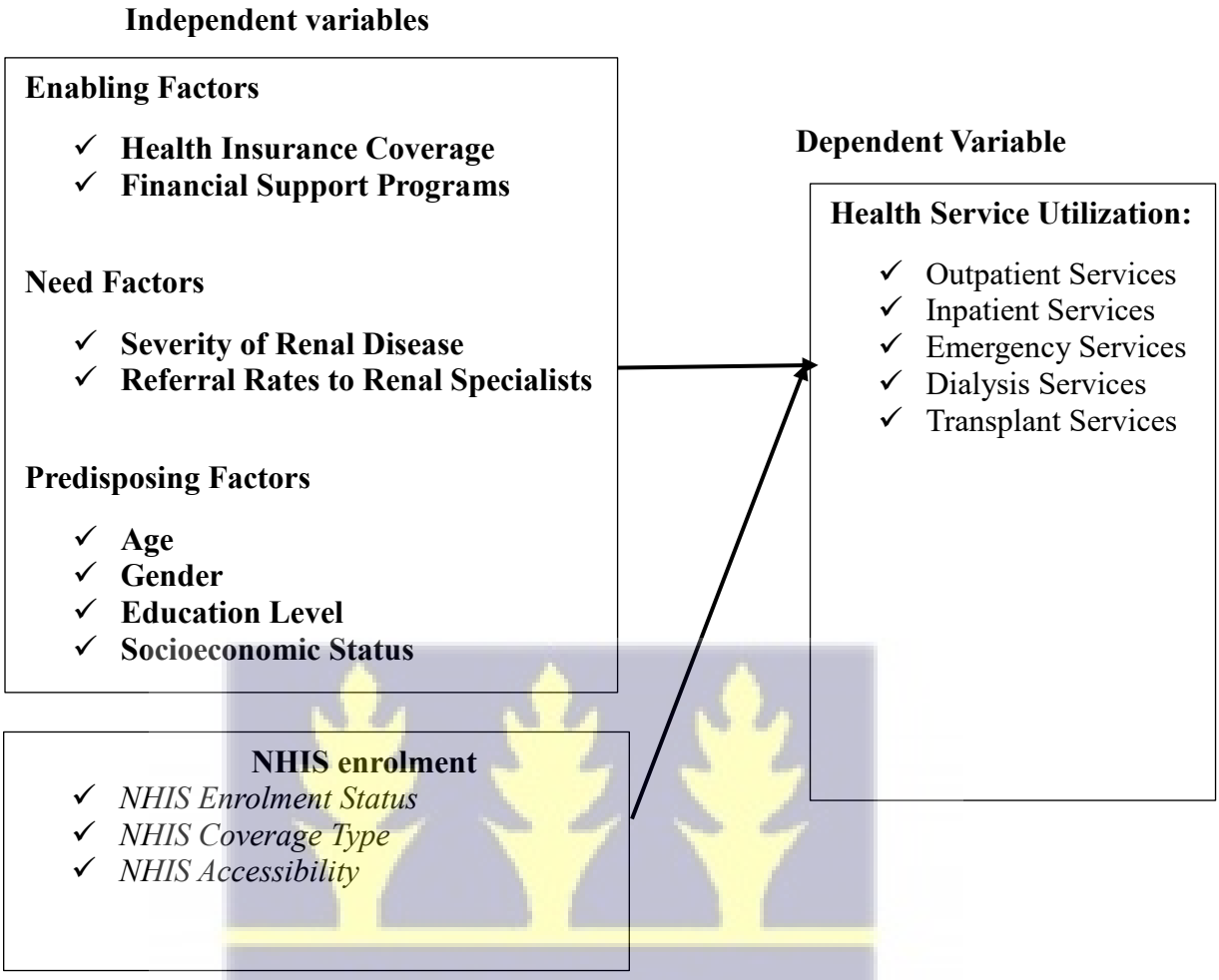

Figure 1.1: Conceptual Framework

Source: Author Construct from Review (2025)

The conceptual framework from Figure 1.1 demonstrates how different independent variables associate with the dependent variable-health service utilization among renal patients. Each independent variable is categorized as enabling, need, and predisposing factors, and the NHIS enrolment element.

Enabling factors such as health insurance coverage and financial support programs are expected to have direct association with patients' ability to access and afford healthcare services. When renal patients have active NHIS coverage and financial aid, they are expected to be more likely to use

outpatient, inpatient, emergency, dialysis, and transplant services. According to Andersen's Behavioural Model of Health Service Use (Andersen & Newman, 2005), enabling resources such as insurance and income facilitate healthcare access by removing financial barriers. In this context, NHIS coverage is expected to play a crucial role in determining how often patients seek medical attention. However, studies (Atinga et al., 2012; Blanchet, Fink, & Osei-Akoto, 2012) have shown that limited insurance coverage for disease by vulnerable persons can leads to partial utilization, as patients continue to bear high out-of-pocket costs despite being insured. In such case warrant the assessing of whether enabling factors such as health insurance coverage and financial support programs directly associate with renal patients' ability to access and afford healthcare services.

Need factors, including the severity of renal disease and referral rates to renal specialists, are also expected to determine the level of medical attention required. Patients with severe kidney conditions or frequent referrals are expected to utilize more healthcare services to manage their illness effectively. As Andersen (1995) explained, need factors are the most immediate determinants of service utilization because they reflect an individual's health condition and the urgency of care required. In the case of renal patients, the study wants to assess whether those (renal patients) with advanced disease stages or frequent are more likely to use dialysis and specialist services regularly, reported by Agyei-Baffour et al. (2013), who observed that disease severity significantly influences healthcare-seeking behaviour in Ghana.

Predisposing factors like age, gender, education level, and socioeconomic status are expected to shape individuals' awareness, attitudes, and likelihood of seeking care. For instance, higher education and income levels are expected to associate with increased utilization health service when there is an expectation of better knowledge and fewer financial constraints. Empirical studies

in Ghana (Salisu & Prinz, 2009; Duku, 2018) have established that insured individuals are more likely to use outpatient and inpatient services than uninsured ones.

Finally, NHIS enrolment is an important enabling determinant that includes enrolment status, coverage type, and accessibility. Thus, patients with NHIS enrolment having adequate coverage with easy access to the services is expected to have higher possibilities of using renal-related healthcare services consistently. Empirical studies in Ghana (Salisu & Prinz, 2009; Duku, 2018) have established that insured individuals are more likely to use outpatient and inpatient services than uninsured ones.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section reviews the theories, concept of NHIS and healthcare utilization and empirical studies on the prevalence of NHIS enrolment among renal patients, the impact of NHIS on timely access to renal healthcare, the association between the implementation of the National Health Insurance Scheme and healthcare utilization and the association between demographic variables the healthcare utilization among renal patients within Ghana, Africa, and the world at large.

2.2 Theoretical Review

This section introduces and elucidates the theoretical foundation of the study, detailing the Social Determinants of Health theory, the Health Services Utilization Model theory and the theory of Planned Behavioural Model and establishing their connection to the research.

2.2.1 Social Determinants of Health Theory

The Social Determinants of Health (SDH) theory proposed by Dahlgren and Whitehead in 1991 serves as a foundational lens for understanding the prevalence of NHIS enrolment among renal patients and the associated demographic variables. It emphasizes that health outcomes are influenced by social, economic, and environmental factors (Dahlgren & Whitehead, 1991). The theory posits that socio-economic status, education, and employment play pivotal roles in determining the likelihood of NHIS enrolment. It shapes the patterns of enrolment and influences disparities in access to healthcare (Rice & Sara, 2019). It also assumed that health is not merely a result of genetic predispositions or personal choices but is significantly influenced by the circumstances in which people are born, grow, live, work, and age (Dean, Williams & Fenton, 2013; Ferrer, 2023).

At its core, the SDH theory emphasizes the existence of a social gradient in health. This gradient implies that individuals occupying lower socioeconomic positions experience poorer health outcomes compared to those in higher positions (Weinstock, 2015). According to the theory, early life experiences play a crucial role in shaping future health outcomes. Access to quality education, proper nutrition, and a supportive family environment during formative years contribute to overall well-being (Cockerham, Hamby & Oates, 2017). Conversely, adverse conditions in childhood can have lasting effects on health. The theory suggests that employment status, job security, and the nature of work can impact an individual's health. Those facing unemployment or precarious employment are at an increased risk of adverse health outcomes (Shokouh, Mohammad et al., 2017). The theory also recognizes the role of social support networks, emphasizing that strong connections within communities positively influence health. Conversely, social isolation and lack of support can contribute to poor health (Naimi & Kaufman, 2015).

Relating the SDH theory to the study, renal patients with lower socioeconomic status may face financial barriers to NHIS enrolment. Empirical evidence by Short and Mollborn (2015) suggested that the cost of health insurance, even if subsidized, might be perceived as a financial burden for individuals with limited resources, impacting their decision to enrol. According to Garcia (2022), the level of education determines individuals' awareness of the importance of health insurance and their ability to navigate the enrolment process. Higher education levels are often associated with increased health literacy and a greater likelihood of participating in health insurance programs (Short & Mollborn, 2015).

Additionally, individuals with stable employment are more likely to have access to health insurance through their workplace, which can positively impact subscription rates (Monahan, Macdonald, Lytle, Apriceno & Levy, 2020). In contrast, those facing unemployment or informal

employment may struggle to access health insurance, leaving them vulnerable to financial strain in the face of healthcare costs (Restauri & Sheridan, 2020). Also, access to healthcare facilities, including NHIS enrolment centres, can vary based on geographic location. Rural areas may face challenges in accessing enrolment services, contributing to disparities in health insurance coverage (Cohen, Martinez & Zammitti, 2016).

Some critics argue that the theory oversimplifies the complex interplay of factors influencing health outcomes. Focusing primarily on social determinants, the theory neglects the role of individual choices and behaviours (Gehlert, Hudson & Sacks, 2021). Similarly, a critical review by Wemrell, Merlo, Mulinari and Hornborg (2016) criticized that the linear relationship assumed by the theory between social determinants and health outcomes did not adequately capture the dynamic and context-specific nature of these interactions. Additionally, the theory assumes a homogenous impact of social determinants across different populations and contexts, potentially overlooking the unique dynamics at play in specific demographic groups (Wemrell et al., 2016).

Despite the critics, the theory offers a valuable lens through the prevalence of NHIS enrolment among renal patients and associated demographic variables. In the study of NHIS enrolment among renal patients, the SDH theory provides a valuable framework for understanding the multifaceted factors contributing to disparities in healthcare access. By considering demographic variables such as socioeconomic status, education, employment, and geographical location, the study can identify specific social determinants influencing NHIS enrolment rates.

2.2.2 Health Services Utilization Model Theory

The Health Services Utilization Model (HSUM) theory proposed by Andersen and Newman in 1973 explains the factors influencing an individual's use of healthcare services. This theory recognizes that healthcare utilization is a complex process influenced by a variety of factors at different levels—individual, healthcare system, and environmental (Li, Denson & Dorstyn, 2017). A review by Lo, Runnels and Cheng (2018) contended that at the individual level, the HSUM considers predisposing factors, enabling factors, and need factors as key determinants of healthcare utilization. Predisposing factors include demographics, social structure, and health beliefs. Enabling factors encompass resources such as income, education, and health insurance coverage. Similarly, the need factors involve the individual's perceived and actual health status. According to Li, Denson and Dorstyn (2017), these factors' interactions help to predict and explain variations in healthcare utilization. The theory assumes that individuals weigh their predisposition to use healthcare services, the resources available to them, and their perceived need for care (Yang & Hwang, 2016). It further assumes that individuals make informed choices based on their circumstances and beliefs, shaping their decisions regarding healthcare-seeking behaviour (Thompson, Fazio, Kustra, Patrick & Stanley, 2016).

A systematic review by Garris and Weber (2018) in the context of NHIS explained that the model helps to identify barriers and facilitators to timely access, including factors such as demographic information, NHIS coverage adequacy, service availability, and the efficiency of healthcare delivery.

A study by Van Der Wielen, Falkingham and Channon (2018) contended that NHIS enrolment is influenced by demographic factors such as age, gender, and socioeconomic status. Individuals who are older or have a higher socio-economic status may be more likely to enrol in health insurance,

reflecting a predisposition to seek healthcare. Additionally, health beliefs, such as the perception of the importance of preventive care, influence NHIS enrolment and subsequent healthcare utilization (Danaa & Kim, 2019).

Also, a review by Ayanore, Pavlova, Kugbey et al. (2019) suggested that health insurance coverage is a significant enabling factor. NHIS can provide financial support, making healthcare services more accessible. Those with NHIS coverage have lower financial barriers to seeking renal healthcare, leading to more timely access to services. However, challenges such as the availability of NHIS-approved healthcare providers and the comprehensiveness of coverage may impact the extent of enabling factors (Bannerman-Agbeshie, 2021).

In the context of renal healthcare, Hounkpatin, Leydon, Veighey et al. (2020) opined that individuals with chronic kidney disease or other renal conditions may have a higher perceived need for care. NHIS coverage could positively influence the perceived need by reducing financial barriers to accessing renal healthcare services. However, the actual need for care was influenced by factors such as disease severity, comorbidities, and the availability of specialized renal care within the NHIS network (Campbell-Crofts & Stewart, 2018).

Some critics argue that the model overlooks broader contextual factors that influence healthcare utilization, such as social determinants of health, cultural influences, and systemic barriers. While the HSUM recognizes the role of enabling factors, it does not fully capture the systemic and structural issues that impact access to healthcare services (Lederle, Tempes & Bitzer, 2021).

Additionally, the assumption of rational decision-making does not hold in all circumstances. Individuals face various constraints, including limited information, cultural beliefs, or systemic barriers, that affect their ability to make completely rational decisions about healthcare utilization. For example, the complexity of healthcare systems, administrative hurdles, and lack of awareness

about NHIS benefits could hinder individuals' ability to make fully informed decisions (Byrd IV, Kim, Yeh, Lee & O'Leary, 2021).

However, the HSUM is relevant to the study because it explains how NHIS impacts timely access to renal healthcare, as it provides a framework to explore the interplay of individual and systemic factors. By analysing predisposing, enabling, and need factors within the context of NHIS, researchers can identify patterns of healthcare utilization among renal patients. This approach helps understand how health insurance coverage influences decision-making and whether it effectively addresses barriers to timely access to renal healthcare.

2.2.3 The Theory of Planned Behaviour Model

The Theory of Planned Behaviour (TPB) proposed by Ajzen in 1991 is a psychological model that seeks to explain and predict human behaviour by considering individuals' attitudes, subjective norms, and perceived behavioural control (Cameron, Ginsburg, Westhoff & Mendez, 2012). Yang, Liu, Hu, Zhang, Peng, Wei and Wang (2022) posit that these three factors together shape an individual's intention to engage in a behaviour, and this intention, in turn, influences the likelihood of actual behaviour.

According to the theory, behavioural intention is a key determinant of actual behaviour. Behavioural intention, in the context of healthcare utilization, reflects an individual's readiness and willingness to seek medical services, such as those related to renal health (Zhang, Hu, Lin et al., 2021). This intention is influenced by three primary components: Attitude (which refers to an individual's positive or negative evaluation of performing a behaviour) (Ajzen, Fishbein, Lohmann & Albarracín, 2018). In the context of healthcare utilization, attitudes include perceptions of the effectiveness of medical interventions, the importance of preventive care, and the perceived

benefits of seeking healthcare services for renal issues (Anuar, Shah, Gafor, Mahmood, & Ghazi, 2020).

Subjective norms (which involve the perceived social pressure or approval/disapproval from significant others regarding the behaviour in question). If an individual believes that their family, friends, or community values seeking healthcare for renal issues, this subjective norm can influence their intention to utilize healthcare services (Farrow, Grolleau & Ibanez, 2017). Perceived Behavioural Control (which refers to an individual's perception of the ease or difficulty of performing the behaviour) (Zolait, 2014). In the context of healthcare utilization, perceived behavioural control includes factors such as the availability of healthcare facilities, financial considerations, and the accessibility of NHIS services (Adewole, 2021).

The TPB assumes that individuals are rational decision-makers who consider the pros and cons of a behaviour before deciding to engage in it. In the case of healthcare utilization, individuals are assumed to weigh the perceived benefits of seeking healthcare against potential barriers (Jokonya, 2017).

The theory assumes that behavioural intention is a strong predictor of actual behaviour. The more favourable the attitude, subjective norms, and perceived behavioural control, the higher the intention to engage in a behaviour, and consequently, the higher the likelihood of the actual behaviour occurring (St Quinton, Morris & Trafimow, 2021)

For instance, individuals' attitudes towards seeking renal healthcare services may be influenced by their beliefs about the effectiveness of medical interventions for renal issues (Jamieson, Hanson, Josephson et al., 2016). Positive attitudes may arise if individuals perceive that seeking healthcare contributes to better renal health outcomes. The perceived approval or disapproval from family, friends, or the broader community regarding the importance of renal healthcare can impact

individuals' intention to seek medical services. Positive subjective norms create a social environment that encourages healthcare utilization (Phelan, Burgess et al., 2015).

Additionally, factors such as the availability and accessibility of NHIS services, financial considerations, and the convenience of accessing healthcare facilities influence individual perceived behavioural control (Hoque & Sorwar, 2017). A systematic review by Borthwick, O'Connor & Kennedy (2021) indicated that if these factors are perceived as favourable, individuals are more likely to have a positive intention to seek renal healthcare.

Critics argue that the TPB places too much emphasis on individual-level factors and does not adequately consider external factors that influence behaviour, such as systemic barriers, socio-economic conditions, or cultural influences (Jokonya, 2017). However, decision-making, especially in healthcare contexts, is often complex and influenced by emotional, cultural, and contextual factors that may not align with the rational choice model (Yuzhanin & Fisher, 2016).

The TPB is relevant to the study because it explains the association between the implementation of the NHIS and healthcare utilization among renal patients as it provides a structured framework to analyse the psychological factors shaping individuals' decisions. Understanding the attitudes, subjective norms, and perceived behavioural control related to seeking renal healthcare within the context of NHIS implementation allows for a more nuanced exploration of healthcare utilization patterns.

Conceptual Review

This section explains the terms and concepts relating to NHIS and healthcare utilization.

The NHIS system in Ghana

The National Health Insurance Scheme (NHIS) in Ghana is a pioneering initiative that was established in 2003 under the National Health Insurance Act (Act 650). The primary goal of the NHIS is to provide financial risk protection and improve access to quality healthcare for all residents of Ghana (Christmals & Aidam, 2020). This comprehensive social intervention program is designed to address the challenges of healthcare affordability and accessibility, particularly for vulnerable populations and those with limited financial means (Awoonor-Williams, Tindana, Dalinjong, Nartey & Akazili, 2016).

The NHIS operates on the principle of universal health coverage, aiming to ensure that every Ghanaian has access to essential healthcare services without facing financial hindrances. The system has evolved over the years, incorporating various components and operational mechanisms to achieve its overarching objectives (Alhassan, Nketiah-Amponsah & Arhinful, 2016).

A fundamental aspect of the NHIS is its coverage and membership structure. The scheme is open to all residents of Ghana, including both Ghanaians and legally resident foreigners. The membership is diverse, including formal sector employees, informal sector workers, and individuals without regular income. The inclusivity of the NHIS reflects a commitment to providing health coverage for all segments of the population (Kotoh, Aryeetey & Van der Geest, 2018).

To become a member of the NHIS, individuals or households need to undergo a registration process. During registration, personal details are collected, and members receive NHIS identification cards. These cards serve as proof of subscription and are presented whenever a member seeks healthcare services. The registration process is essential for maintaining an accurate

record of NHIS members and facilitating the efficient management of the scheme (Kwarteng, Akazili, Welaga et al., 2020).

Membership in the NHIS comes with an associated financial commitment in the form of premiums. The premium payment system is designed to contribute to the financial sustainability of the scheme. Premiums are income-based, meaning that individuals pay a percentage of their income as determined by a sliding scale. This income-based approach is intended to ensure that the financial burden is distributed equitably, with those who can afford to contribute more doing so (Aryeetey, Nonvignon, Amissah, Buckle & Aikins, 2016).

Despite the premium requirement, certain vulnerable groups are exempted from premium payments. This includes groups such as the elderly, pregnant women, and individuals identified as indigents (Wang, Otoo & Dsane-Selby, 2017). The exemption mechanism aims to ensure that those who are most at risk or face financial hardships still have access to healthcare services without the burden of premium payments (Sackey & Amponsah, 2017).

The benefit package offered by the NHIS is a critical component of the system. It defines the scope of healthcare services that members are entitled to receive. The benefit package includes a wide range of services, covering outpatient care, inpatient care, maternity services, emergency care, and some dental services. This comprehensive coverage is designed to address the diverse healthcare needs of the population and enhance the overall health and well-being of NHIS members (Opoku, Edusei, Agyei-Baffour, Teddy, Polin & Quentin, 2021).

The scheme contracts both public and private healthcare facilities to deliver services to its members. Government hospitals, clinics, and accredited private healthcare providers are part of the NHIS network. This approach not only increases the accessibility of healthcare services for

NHIS members but also provides them with a choice of service providers (Ayanore, Pavlova et al., 2019).

The NHIS operates within a robust administrative framework. The National Health Insurance Authority (NHIA) is the statutory body responsible for overseeing the implementation and management of the scheme. The NHIA operates at both national and regional levels, with district offices playing a crucial role in coordinating and managing NHIS activities at the local level. This multi-tiered administrative structure ensures effective governance and management of the NHIS across the country (Nwuzor, 2022).

The operational mechanisms of the NHIS include a claims processing and reimbursement system. When an NHIS member seeks healthcare services, the healthcare provider processes a claim for reimbursement from the NHIS. This involves submitting details of the services provided and associated costs (Agyepong, Abankwah et al., 2016). The NHIA, in turn, reimburses the healthcare provider based on the NHIS tariff schedule, which outlines the payment rates for various healthcare services. This mechanism ensures that service providers are appropriately compensated for the care they deliver to NHIS members (Kipo-Sunyehzi, Ayanore, Dzidzonu & AyalsumaYakubu, 2019).

A systematic review by Okoroh, Essoun, Seddoh, Harris et al. (2018) indicated that monitoring and evaluation are integral to the continuous improvement of the NHIS. The scheme regularly assesses its operations and evaluates its impact on healthcare delivery in Ghana. Monitoring involves tracking enrolment rates, premium payments, claims processing efficiency, and the overall functioning of the NHIS. The evaluation assesses the effectiveness of the scheme in achieving its objectives and identifies areas for improvement (Agyepong, Abankwah et al., 2016). While the NHIS has made significant strides in improving healthcare access and affordability, it is

not without its challenges. According to Kotoh and Van der Geest (2016), financial sustainability remains a persistent concern, and the scheme is dependent on various funding sources, including member premiums and government subsidies. Ensuring a steady and adequate flow of funds is crucial for sustaining the NHIS and expanding its coverage.

Surveys by Abdallah, Maarof and Zainal (2016) provide instances of fraud and abuse, such as false claims and identity theft, which have been identified as challenges within the NHIS. These issues strained the financial resources of the scheme and compromised its effectiveness. Robust measures to address fraud and abuse are essential to maintain the integrity of the NHIS.

The quality of care is another aspect that has been subject to scrutiny. While the NHIS focuses on affordability and accessibility, ensuring consistent delivery of high-quality healthcare services remains a challenge. Adequate monitoring and quality assurance mechanisms are essential to address this concern and maintain the trust of NHIS members in the healthcare system (Vercellini, Buggio, Viganò & Somigliana, 2016).

The NHIS is a critical component of Ghana's healthcare landscape, representing a significant step towards achieving universal health coverage. By providing financial risk protection and a comprehensive benefits package, the NHIS contributes to improved health outcomes and social inclusion. The system aligns with broader national development goals by promoting a healthy population, reducing the economic impact of illness on households, and supporting overall productivity (Assan, Takian, Aikins & Akbarisari, 2018).

Healthcare utilization

Healthcare utilization is a complex and multifaceted concept that encompasses a range of interconnected systems aimed at providing individuals with timely and appropriate healthcare services. This concept involves various components and mechanisms designed to address the diverse healthcare needs of populations (Horenstein & Heimberg, 2020).

At the core of healthcare utilization is to access primary healthcare services. Primary healthcare serves as the first point of contact between individuals and the healthcare system. It includes basic and essential healthcare services provided by general practitioners, nurses, and other healthcare professionals. Access to primary healthcare is fundamental for the initial assessment, diagnosis, and management of health conditions (Kesavayuth, Poyago-Theotoky & Zikos, 2020).

Healthcare utilization extends beyond the treatment of existing conditions to include preventive care and health promotion. Preventive services, such as vaccinations, screenings, and health education, aim to identify and address health risks before they escalate into more significant issues. Health promotion initiatives focus on empowering individuals to adopt healthy lifestyles, and fostering proactive engagement with their health (Dimitrov, 2016).

Beyond primary healthcare, specialized healthcare services cater to individuals with specific medical conditions or complex health needs. These services involve specialized medical professionals, advanced diagnostic tools, and targeted interventions (Abdul Aziz, Mohd Nordin et al., 2017). Specialized healthcare contributes to the comprehensive management of chronic diseases, complex surgeries, and conditions requiring specialized expertise (Kogan, Wilber & Mosqueda, 2016).

Healthcare utilization encompasses mental health services, acknowledging the interconnectedness of mental and physical health. Access to mental health professionals, counselling services, and

psychiatric care is vital for addressing mental health conditions. Integrating mental health into the broader healthcare system promotes holistic well-being and reduces the stigma associated with mental health issues (Cyr, Etchin, Guthrie & Benneyan, 2019).

The integration of telehealth and technology in healthcare utilization has become increasingly prominent. Telehealth facilitates remote consultations, virtual check-ups, and monitoring of health conditions through digital platforms. Technology integration includes electronic health records, which enhance communication among healthcare providers and contribute to more efficient and coordinated care (Garfan, Alamoodi et al., 2021).

Yuan, Jian, He, Wang and Balabanova (2017) contended that for individuals with chronic conditions, healthcare utilization involves participation in chronic disease management programs. These programs offer ongoing support, education, and monitoring for individuals managing conditions such as diabetes, hypertension, and cardiovascular diseases. They focus on optimizing health outcomes and preventing complications through regular healthcare engagement (Grasselli, Pesenti & Cecconi, 2020).

In times of acute medical crises, healthcare utilization extends to emergency medical services. These services include ambulance response, emergency room care, and critical care interventions. Rapid access to emergency medical services is crucial for addressing life-threatening situations and ensuring timely medical interventions (Zangrillo, Beretta et al., 2020).

Following medical interventions or surgeries, Rhon, Snodgrass, Cleland, Greenlee, Sissel and Cook (2018) contended that healthcare utilization includes access to rehabilitation services. These services, often provided by physical therapists, occupational therapists, and rehabilitation specialists, focus on restoring functionality, improving mobility, and enhancing overall well-being. Rehabilitation is integral to the recovery process and long-term health outcomes.

2.4. Empirical Review

Within this subsection, empirical studies examining the prevalence of NHIS enrolment among renal patients, the impact of NHIS on timely access to renal healthcare, the association between the implementation of the NHIS and healthcare utilization among renal patients and demographic variables associated with healthcare utilization among renal patients are reviewed. This analysis spans across Ghana, Africa, and the global context.

2.4.1 The prevalence of NHIS enrolment among renal patients

A lot of studies have been explored on the prevalence of NHIS among renal patients. A systematic review by Wiredu, Peprah and Agyemang-Duah (2021) was conducted in Ghana on the prevalence of health insurance enrolment and associated factors among persons with disabilities. The study employed a cross-sectional survey with a quantitative approach; data were collected from 180 persons utilizing simple random and cluster sampling techniques. The findings indicate that a substantial majority (80%) of the respondents had enrolled in the NHIS, with 65.3% classified as active enrolees. Notably, 38.9% of participants paid premiums ranging from 21 to 25 cedis. Gender and income played significant roles in NHIS enrolment, with males and those earning more than 500 cedis per month exhibiting lower likelihoods of enrolment. Conversely, individuals with primary education and those perceiving their health status as poor demonstrated significantly higher chances of NHIS enrolment. The study underscores the need for targeted policy interventions to enhance NHIS enrolment among persons with disabilities.

Van der Wielen, Channon and Falkingham (2018) explored universal health coverage in the context of population ageing in Ghana. the study employed data from the Ghanaian Living Standards Survey spanning the period from 2012 to 2013. The study delves into the factors influencing National Health Insurance Scheme (NHIS) enrolment among individuals aged 50–69

and those aged 70 and above residing in rural Ghana. The investigation employs multilevel regression analysis to scrutinize the determinants of NHIS enrolment within this specific demographic and geographic context. The research findings highlight notable trends in National Health Insurance Scheme (NHIS) enrolment among different age groups and communities. Among adults aged 70 and above, a higher percentage (61%) enrolled in the NHIS when there was no hospital in the community, compared to their counterparts aged 50–69 (51%). However, the presence of a hospital in the community considerably reduced the gap in insurance enrolment between these two age groups. The study emphasized the significant impact of healthcare facilities or clinics on NHIS enrolment. Communities with such facilities experienced higher enrolment, a trend more pronounced among older adults aged 70 and above. Additionally, the presence of a motorable road passing through the community positively influenced NHIS enrolment.

According to Van der Wielen et al. (2018), household expenditure and education emerged as influential factors in NHIS uptake. Higher financial well-being and higher education levels were associated with increased enrolment, a relationship that persisted even among older adults aged 70 and above, who are exempt from NHIS premium payments.

Furthermore, the study by Van der Wielen et al. (2018) demonstrated that the availability of a healthcare clinic in the community had a positive effect on insurance enrolment for both age groups. Additionally, road access in the community positively influenced insurance enrolment, with a stronger effect observed among those aged 70 and above. Notably, higher household expenditure was linked to increased NHIS enrolment, even among older adults aged 70 and above exempt from premium payments. For individuals aged 50–69, the likelihood of being insured increased when the household head was employed in the formal sector, a relationship that was not significant when focusing on individuals aged 70 and above (Van der Wielen et al., 2018).

A cross-sectional study was conducted by Akokuwebe and Idemudia (2022) in Nigeria and South Africa on the prevalence and determinants of health insurance coverage. The research utilized data from the 2018 Nigeria Demographic Health Survey and the 2016 South Africa Demographic Health Survey to explore the prevalence of health insurance among 55,132 individuals in Nigeria and 12,142 individuals in South Africa. The findings revealed that approximately 2.8% of the Nigerian population and 13.3% of the South African population were insured. Gender disparities were observed, with 3.4% of Nigerian males and 2.7% of females having insurance, compared to 13.9% of South African males and 12.8% of females. The study further found that higher education was significantly correlated with health insurance in both Nigeria and South Africa. Moreover, respondents with a higher wealth index and those employed were independently associated with health insurance uptake in both countries.

According to the study by Akokuwebe and Idemudia (2022), gender differences were notable, with females being more likely to be insured than males in both Nigeria and South Africa. Additionally, education significantly influenced the likelihood of health insurance uptake, particularly in high-wealth index households, for both males and females in both countries. The study concluded that low health insurance coverage in both Nigeria and South Africa, with education, wealth, and employment independently influencing insurance uptake. The findings underscore the necessity for continuous sensitization, educational health interventions, and increased employment opportunities to encourage widespread participation in health insurance coverage in both nations.

A systematic review was conducted by Anjorin, Ayorinde et al. (2022). Equity of national publicly funded health insurance schemes under the universal health coverage agenda in Africa. The study conducted searches across seven databases, namely Web of Science, Medline, Scopus, Cochrane Library and World Bank electronic library. According to the study, a total of forty-five studies met

the inclusion criteria and were incorporated into our analysis, with 90% of them focusing on equity assessed by socioeconomic status. The findings consistently revealed that individuals residing in rural areas, those engaged in self-employment or informal sector work, men, individuals with lower educational attainment, and those with lower socioeconomic status were less likely to benefit from health insurance coverage. Notably, the research indicated that health insurance schemes, particularly community-based health insurance (CBI) schemes, exhibited improvements in utilization among disadvantaged groups. However, paradoxically, these same groups were less likely to enjoy the benefits of corresponding health services.

Adhikari, Gahatraj and Yadav (2020) explored the factors associated with non-enrolment in the National Health Insurance Scheme in Nepal. Data was collected from 492 households (246 non-enrolled and 246 enrolled) through face-to-face interviews. The findings revealed that households without elderly family members were 2.06 times less likely to enrol in the scheme. Similarly, non-enrolment increased with a decreasing wealth quintile of the family. Families perceiving their family health status as fair were more likely to join the scheme than those perceiving it as good health status. Furthermore, households with poor or average knowledge of the scheme were almost five times more likely to experience non-enrolment.

Adjei-Mantey and Horioka (2023) delve into the factors influencing health insurance enrolment and health expenditure in Ghana, drawing insights from micro-level data obtained from the seventh wave of the Ghana Living Standards Survey (GLSS 7). The study found that the National Health Insurance Scheme (NHIS) is theoretically mandatory but operates voluntarily in practice, with only approximately 40% of the population enrolled. The study results indicate that risk preferences play a pivotal role in health insurance enrolment, with households exhibiting risk-averse behaviour showing a significantly higher likelihood of enrolling in health insurance.

Furthermore, the study findings reveal that very impoverished households are notably more inclined to enrol in health insurance, potentially attributed to their exemption from health insurance premiums. Additionally, the study uncovers a noteworthy association between the availability of health facilities in one's community and a decrease in healthcare expenditures.

2.4.2 Enabling, need and pre-disposing factors influencing utilization of renal service

A lot of studies indicated that enabling factors, need factors and predisposing factors are likely to affect patients seeking and receiving communicable and non-communicable disease medical care. Choi, Sullivan, DiNitto and Kunik (2019) examined healthcare utilization among adults with CKD and psychological distress. The study found among the respondents, 5% indicated experiencing mild to moderate psychological distress, while 11% reported serious psychological distress. In contrast to those without distress, individuals with mild to moderate and serious distress tended to be younger, less likely to have been employed in the preceding year, had a higher prevalence of chronic medical conditions, and visited the emergency department more frequently. Multivariable regression models revealed a significant association between each financial barrier to healthcare access, likely stemming from a lack of health insurance, and both mild to moderate and serious psychological distress.

Studies have demonstrated a lot of factors associated with healthcare utilization. A study by Singh, Evans, Williams, Sezginis and Baryeh (2018) delved into the influences of sociodemographic factors and health utilization factors on patient-centred provider communication in Asia. The analysis drew on cross-sectional data from 3,608 respondents participating in the Health Information National Trends Survey-Cycle 4, 2014. Employing multiple regression analyses, the study scrutinized the association between sociodemographic factors, health utilization patterns, and the quality of patient-centred provider communication. Findings revealed that adults aged 50

and above, as well as women, reported more favourable patient-centred provider communication. Conversely, Hispanic and Asian respondents, when compared to White respondents, reported less satisfactory patient-gcentred communication. Regarding health utilization, respondents with routine checkups spaced between 1 and 2 years, 2 and 5 years, 5 or more years, and none were all negatively associated with patient-centred provider communication compared to those with routine checkups within the past year. Respondents who did not visit a health provider within the past year reported poorer patient-centred provider communication compared to those with at least one recent visit. Importantly, a higher quality of healthcare experience was consistently linked with more positive patient-centred provider communication.

Similarly, a study by Morgan, Salzman et al. (2015) on demographic, operational, and healthcare utilization factors associated with emergency department patient satisfaction noted that patient satisfaction was influenced by several factors, with heightened levels observed among Non-Hispanic Black and Hispanic individuals, patients aged 65 and older, those covered by Medicare, individuals arriving by bus or on foot, and those receiving medication orders in the Emergency Department (ED). Conversely, reduced satisfaction was reported by patients who perceived no improvement in their medical condition, those treated in the ED behavioural health area, and individuals enduring prolonged wait times.

Abera Abaerei, Ncayiyana and Levin (2017) delved into health-care utilization and associated factors in South Africa. The study obtained data from a 2013 Quality of Life survey conducted by the Gauteng City-Region Observatory, and utilized simple random sampling to select participants, resulting in 27,490 interviews. The study found that approximately 95.7% of respondents reported regular use of healthcare services, while the remaining 4.3% did not seek any healthcare services. Among those not seeking services, 75% cited a perceived decline in the quality of public health

services as a major reason. Factors associated with higher odds of healthcare utilization included being female, being White compared to being African and possessing medical insurance. Conversely, lower odds of seeking healthcare were linked to immigrant status. The study's outcomes underscore the imperative to enhance the quality of public healthcare services and foster positive perceptions toward them. Improved healthcare quality is identified as a catalyst for expanding the array of healthcare providers individuals choose to engage with.

2.4.3 NHIS enrolment and utilization of health services

NHIS enrolment plays a critical role in the utilization of health services by increasing access to affordable healthcare. For instance, Daramola, Maduka, Adeniran and Akande (2017) evaluate patients' satisfaction with services accessed under the National Health Insurance Scheme at a Tertiary Health Facility in Nigeria. the study utilized structured interviews, medical records, and claims data to assess NHIS enrolment status and the timing of patients' healthcare utilization. The study found that non-NHIS-enrolled individuals demonstrated a significantly shorter time from diagnosis to accessing healthcare services compared to those with NHIS coverage. The study identified socioeconomic factors, such as income and education, as significant predictors of timely access, with NHIS acting as a mitigating factor. The study suggested that NHIS enrolment is associated with a statistically significant improvement in timely access to renal healthcare.

In Tanzania, Tungu, Amani et al., (2020) conducted a cross-sectional analysis utilizing data from a nationally representative health survey on how health insurance contributes to improved utilization of healthcare services. The study employed logistic regression models to examine the association between NHIS enrolment and the likelihood of healthcare utilization, adjusting for demographic and health-related variables. The study found that NHIS-enrolled individuals were more likely to utilize healthcare services compared to non-enrolled counterparts. Also, age, gender,

and urban/rural residence were identified as significant moderators of the relationship between NHIS enrolment and healthcare utilization. The study suggested that NHIS enrolment is positively correlated with an increased likelihood of utilizing healthcare services.

A cross-sectional household survey by Dalinjong, Welaga et al. (2017) was conducted in Ghana on the association between health insurance status and utilization of health services. The study engaged with 11,175 households and gathered data on 55,992 household members. The study employed multiple logistic regression models to pinpoint factors linked to the utilization of outpatient and inpatient health services, with the dependent variables being the actual usage of these healthcare services. Various potential socio-demographic factors related to utilization and health insurance status were adjusted for in the analysis. Remarkably, individuals with health insurance had 2.51 and 2.78 higher odds of utilizing outpatient and inpatient health services, respectively. Respondents reporting a recent history of illness or injury exhibited 32.4 and 5.72 increased odds of utilizing both outpatient and inpatient health services. Similarly, those with poor or very poor self-reported health status showed 2.08 and 2.52 higher odds, and individuals on chronic medication demonstrated 2.79 and 3.48 increased odds of utilizing outpatient and inpatient health services, respectively. Within the insured category, the study found that the poorest individuals primarily utilized Community-based Health Planning and Services (CHPS) compounds for outpatient health services, while the least poor opted for private clinics and public hospitals. Conversely, the uninsured predominantly sought services from pharmacies or licensed chemical shops (LCSs). Regarding inpatient health services, the insured predominantly utilized public hospitals, while the uninsured turned to private clinics or public health centres. The findings suggested that NHIS enrolment is associated with an augmented utilization of both outpatient and inpatient health services.

Adebiyi and Adeniji (2021) delve into the assessment of healthcare utilization and its associated factors among federal civil servants utilizing the NHIS in Nigeria. The study employed a descriptive cross-sectional design and administered self-administered questionnaires for data collection with a sample of 334 federal civil servants. The study highlighted that, out of a total of 334 respondents, a substantial 83.8% were enrolled in NHIS, and among them, 72.5% availed themselves of the scheme's services. Notably, 82.1% of these respondents visited the healthcare facility at least once in the preceding year. Although 43.9% of the respondents made payments at the point of access to healthcare services, there was an overall reduction in out-of-pocket payments. Significant factors influencing utilization included possession of the NHIS card, the attitude of health workers, and patient's satisfaction, all demonstrating a statistically significant impact. Regression analysis revealed age and income as predictors of NHIS utilization. Despite a relatively high utilization rate, there is room for improvement, particularly in eliminating payments at the point of access and ameliorating the sometimes-harsh attitudes exhibited by certain health workers. Nketiah-Amponsah, Alhassan, Ampaw and Abuosi (2019) explored subscribers' perception of the quality of services provided by Ghana's National Health Insurance Scheme. This research utilized information gathered from the 2014 Ghana Demographic and Health Survey. The findings revealed that NHIS subscribers in rural areas tended to express a more positive perception of the quality of services compared to their urban counterparts. The study further found that age, out-of-pocket payment for healthcare, and region of residence emerged as significant factors influencing the perceived quality of NHIS services. Moreover, the analysis demonstrated that age, out-of-pocket payment for healthcare, region of residence, wealth status, and access to media were influential predictors of perceived service quality for both rural and urban NHIS subscribers. It is noteworthy

that the significance of these variables exhibited variations among men and women in both rural and urban areas.

CHAPTER THREE

METHODS

3.1 Introduction

In this section provides details on the study's design, scope, the target population, the sampling methods and size. It also provides information on the inclusion and exclusion criteria, outlining data instrumentation and collection procedures, discussing data analysis methods, and addressing ethical considerations.

3.2 Research Design

This study adopted a cross-sectional design. In a cross-sectional design, data is collected at a single point in time from a diverse population or a representative sample (Spector, 2019). Furthermore, Kesmodel (2018) noted that cross-sectional studies are often used for surveys, observational studies, and establishing prevalence rates of diseases or behaviours in populations. Therefore, this design can provide a snapshot of the current economic burden on individuals with chronic lifestyle diseases. By quantifying these aspects, the study can reveal patterns and trends that might be invisible in qualitative assessments. This method is suitable for these studies as it enables the collection and analysis of data at a specific point in time, allowing researchers to determine proportions, assess influencing factors, and analyse the impact and effects of health system elements such as NHIS enrolment on the utilization of renal services.

3.3 Study area

The research was conducted at Korle Bu Teaching Hospital which was established on October 9, 1923. The facility stands as Ghana's premier tertiary healthcare service. The name "Korle Bu" in the local Ga language translates to 'the valley of the Korle Lagoon.' Following its inception, Korle Bu experienced a notable rise in hospital attendance due to the proven effectiveness of hospital-

based treatment. This increased demand led to significant congestion, prompting the government to form a committee in 1953 to assess and recommend expansion measures. Accepting the Task Force's suggestions, new structures, including Child Health, Maternity, Medical, and Surgical Blocks, were added, elevating the hospital's initial 200-bed capacity to 1,200.

In 1962, Korle Bu achieved teaching hospital status with the establishment of the School of Medicine and Dentistry, formerly the University of Ghana Medical School, dedicated to training doctors. Presently, Korle Bu Teaching Hospital ranks as the third-largest referral centre in Africa, boasting 2,000 beds, 21 clinical and diagnostic departments, and three Centres of Excellence. The hospital sees an average outpatient attendance of 1,500 and around 250 inpatient admissions.

Clinical and diagnostic departments encompass Internal Medicine and Therapeutics, Child Health, Surgery, Obstetrics and Gynaecology, Anaesthesia, Family Medicine/Polyclinic, Accident and Emergency, Psychiatry, Reconstructive Plastic Surgery and Burns Centre, Accident and Orthopaedics, Pharmacy, Pathology, Laboratory, and Radiology.

Korle Bu also offers advanced scientific treatment procedures in various subspecialties, including Neurosurgery, Paediatric Surgery, Dental/Oral Maxillofacial, Ophthalmology, Ear, Nose & Throat (ENT), Renal, Orthopaedics, Oncology, Dermatology, Reconstructive Plastic Surgery, Cardiothoracic Surgery, and Radiotherapy & Nuclear Medicine. Korle Bu Teaching Hospital is selected for this study because it is one of the biggest reference hospitals in Ghana, and due to its convenience and accessibility for participants and the presence of respondents is essential for fulfilling the study objectives.

3.4 The Population of the Study

The population for the study involved all renal patients in the Korle Bu Teaching Hospital. Korle Bu Teaching Hospital runs 3 renal clinics a week, namely on Mondays, Wednesdays, and Fridays. The main outpatient renal clinic is on Wednesdays. Monday clinics are targeted for patients on dialysis, and Fridays for transplant and Glomerulonephritis cases to meet the needs of the population. Generally, there are 400 renal patients who visit the renal unit at Korle-Bu Teaching Hospital every month. Out of that, an estimate of 100 patients are seen every week, with 80-130 old cases and approximately 10-20 newly referred cases from the peripheries (Korle Bu annual report, 2023). The study, therefore, targets all the 400 renal patients who visit Korle Bu Teaching Hospital every month as the study population.

3.5 Inclusion and Exclusion Criteria

3.5.1 Inclusion Criteria

1. The study included patients with a confirmed diagnosis of renal conditions.
2. Patients actively receiving care or treatment at the Korle Bu Teaching Hospital were considered.
3. Patients who provided informed consent and expressed willingness to participate in the study or receive specific interventions related to renal care were considered.

3.5.2 Exclusion Criteria

1. The study excluded renal patients who were unable to provide informed consent.
2. Patients who were severely ill and could not move or speak were also asked to be excluded from the study.

3.6 Sample size determination

The sample size was determined using the Yamene (1967) formula, which is shown below.

$n = \frac{N}{1+N(e)^2}$ $n = \frac{400}{1+400(0.05)^2}$ n= 200.00

where: n = sample size

N = population size

e = level of precision (confidence interval)

N = 400 and e = 0.05

Adjusted sample size calculation

Mathematically, the adjusted sample size ($\boldsymbol{n_{adjusted}}$) can be calculated as:

$n_{calculated}$/(1-NR)

Where NR=Non-Response Rate

Non-response rates of 10% to 20% are often considered acceptable in many research studies (Barclay, Todd, Finlay, Grande & Wyatt, 2002; Hendra & Hill, 2019).

The study therefore considers 10% non-response rate.

$\boldsymbol{n_{adjusted}} = n_{calculated}$/(1-NR)

$\boldsymbol{n_{adjusted}}$= 200/ (1-0.10)

=200/ (0.9) =222.22 (round down to the whole number) =223

An adjusted total of 223 renal patients in the Korle Bu Teaching Hospital was considered from the estimated projected population of 400, as cited by the Korle Bu Annual Report (2023) to participate in the study, depending on their willingness.

3.7 Sampling Technique

The study employed a consecutive sampling approach selecting study participants. This non-probability sampling method is frequently used for ordered populations, especially in clinical research. Consecutive sampling involves enrolling eligible individuals in the order they present, essentially on a first-come, first-served basis, until the required sample size is reached (Bowers et al., 2011; Bujang, 2017). In medical settings, patients are typically seen in a sequential manner, such as according to appointment lists, and a complete sampling frame is often unavailable because the total population is not fully known. As a result, observational studies commonly rely on consecutive sampling to recruit participants (Flamaing et al., 2015; Jensen et al., 2015; Weigner et al., 2015).

3.8 Data Collection Instrument

The study utilized a structured questionnaire as the primary instrument for data collection, specifically designed to address each of the research objectives. This questionnaire was adapted from various sources, including (Adhikari, Gahatraj & Yadav, 2020; Adebiyi & Adeniji, 2021; Abera Abaerei, Ncayiyana & Levin, 2017), and is composed of closed-ended questions. It has been organized into four (4) sections, each serving a distinct purpose.

Section A focuses on gathering demographic characteristics from the respondents. In Section B, the questionnaire evaluates the prevalence of NHIS enrolment among renal patients. The timely access to renal healthcare is explored in Section C, while Section D delves into healthcare utilization such as outpatients service, inpatient service, emergency service, dialysis service and transplant service.

3.9 Data Collection Technique

The researcher obtained a letter of introduction from the Korle Bu Teaching Hospital. This helped the researcher to obtain the needed cooperation from the departments/ sections/units where data were collected. Data collection for the main study was conducted at the Renal Unit at the Korle Bu Teaching Hospital from the 8th of January to February 7th, 2025. It was done with the support of two (2) research assistants, who are Renal Unit workers, a Renal Doctor and a Nurse. They were given a day's training on the study purpose and the instrument. The research assistants approached respondents by greeting them, introducing themselves, and telling respondents their purpose for approaching them. An informed consent form was read to the respondents, and the questionnaire was administered by the interviewers. It took about 15 to 20 minutes to answer. However, respondents who can read and understand the English language were allowed to fill out their questionnaires. The questionnaires were checked for completeness and validity of responses after every data collection section.

3.10 Response Rate

Data was collected from Korle Bu Teaching Hospital. The population considered for this study was an average of four hundred (400) renal patients who visit Korle Bu Teaching Hospital and a sample size of 223 was chosen based on the Yamane (1967) formula for sample size determination. A total of two hundred and twenty-three (223) questionnaires were issued from which two hundred (200) were filled and returned which represents a response rate of 89.7%. According to Mugenda and Mugenda (2003), a 50 percent response rate is adequate, 60 percent is good and above 70 per cent rates very well. The success rate in this study could be attributed to the self-administration of the questionnaires applied by the researcher, from which the intended respondents from the renal

unit at Korle Bu Teaching Hospital were pre-notified on the actual date before the data collection. The response rate is represented in Table 1 below.

Table 3.1: Response Rate

Questionnaire	Count	Percentage (%)
Returned	200	89.69
Non-Returned	23	10.31
Total	**223**	**100**

Source: Field Survey, 2025

3.11 Pretesting

A pilot test of the questionnaire was conducted to identify areas requiring improvement in both the questions and their administration. This step was crucial to ensure the realization of the study's objectives. The pre-testing was done at the Korle-Bu renal unit from 13th to 25th October, 2024, to determine its validity and reliability. Korle-Bu renal unit was chosen because it one of the leading best facilities in Ghana, which receives the highest renal patient referral cases in Ghana. Further, it was chosen due to proximity. Borg and Gall (1989) suggest that there is the need to subject a new research instrument to field-testing with a similar population from the subjects of the study.

The researcher administered 40 questionnaires using convenient sampling, incorporating the researcher's own judgment to select renal patients from the renal unit for the study. Guidelines for filling the questionnaires were clear, and respondents were assured that the information they provided was used for only academic purposes and would be treated confidentially. They were also allowed to ask questions for clarification of doubts. While thirty-seven (37) patients representing 92.5% were able to complete and submit electronically, three (3) renal patients representing 7.5% who could not complete due to their severe condition were requested to

withdraw from the study. Therefore, 37 questionnaires out of the 40 were retrieved from the respondents, representing a 92.5% recovery rate.

3.12 Validity and Reliability of Instruments

In this current study, rigorous measures were taken to improve the validity of the questionnaire by aligning it with the predetermined research objectives. This alignment aimed to ensure a thorough coverage of vital information relevant to addressing the study's goals (Mohamad, Sulaiman, Sern & Salleh, 2015). Content validity was employed, involving the gathering of expert and supervisor opinions to assess the questionnaire's content. To evaluate internal consistency reliability, the researcher opted for Cronbach's Alpha of 0.804 which was above the widely acknowledged method particularly suited for assessing reliability in structured questionnaires containing rating scale items (Sharma, 2016).

3.13 Data Processing and Analysis

The questionnaires were entered into Microsoft Excel version 2021 before being exported to STATA software version 15.0. Descriptive statistics, including frequency distribution, were employed to analyze all numerical data. For this study, frequency distribution tables were utilized to present totals and percentages concerning the demographic characteristics of the respondents. Furthermore, frequency tables were employed to assess the proportion of renal patients enrolled on the NHIS, enabling need and predisposing factors influencing utilization of renal service, health system factors (NHIS implementation) and utilization of health services among renal patients. To explore the association between enabling, need and pre-disposing factors and utilization of renal service, the Chi-square test was used. Additionally, multivariate regression was employed to assess the enabling, need and predisposing factors influencing utilization of renal service. To assess the

association between NHIS enrolment and utilization of renal service, chi-square and multivariate analysis was conducted.

Chi-Square Test

The Chi-square test, which is a non-parametric approach, can be adopted when the data does not meet the required assumptions of normal distribution or homogeneity of variance (Salman & Aleem, 2024). In health-related studies, these assumptions are often violated due to the nature of survey and clinical data, making the Chi-square a more flexible and reliable statistical tool (Beauchamp et al., 2015). Furthermore, the test is valuable for evaluating associations between two different groups, such as demographic characteristics and service utilization (Turhan, 2020). For instance, assessing whether NHIS enrolment influences healthcare access or utilization among renal patients.

Turhan (2020) emphasized that the Chi-square test allows researchers to test hypotheses about associations between variables in large datasets without requiring complex statistical models. Its strength lies in its simplicity and interpretability, as it provides a clear indication of whether an association exists between independent and dependent categorical variables. Similarly, Ghosh and Mitra (2020) highlighted that the Chi-square test helps researchers understand the degree of dependence between variables, which is crucial for policy development and health system evaluation.

Additionally, Ghosh and Mitra (2020) noted that the Chi-square test is an essential tool for analyzing cross-tabulated data, particularly in studies that explore behavioural or demographic patterns in health research. The study results failed the assumptions of a parametric test, such as linear regression analysis; hence, the researcher uses a non-parametric test, such as the Chi-square test.

The use of the Chi-square (χ^2) test for analysis is designed to examine relationships between categorical variables (such as age, gender, marital status, educational level, utilization of renal unit and others) and determine whether observed differences between groups are due to chance or represent real associations. According to Idika, Owan and Agama (2023), the Chi-square test is appropriate when both variables are measured on a nominal or ordinal scale, as it compares observed frequencies with expected frequencies under the assumption of independence. For instance, when comparing gender (male/female) with utilization of renal unit (infrequent, Moderate, and Frequent), or educational level with utilization of renal unit (infrequent, Moderate, and Frequent). In each case, the test examines whether the observed distribution across categories deviates significantly from what would be expected if there were no association between the variables (Sourial et al., 2010). This makes it particularly useful in public health and social science research, where many variables such as gender, educational level, and health insurance status are categorical (Idika et al., 2023). For instance, in examining the relationship between NHIS enrolment and healthcare utilization, which violates the assumption of linear regression analysis, the Chi-square test was used to determine whether differences in utilization rates are statistically significant across demographic groups or other variables specified in Appendix A.

Measurement of variables

Twenty (20) questions were used to assess health service utilization of renal service in this study and to get the utilization score responses, 'Occasionally/Never' and '2/3 Weeks/Monthly' to all questions were considered to be '1=infrequent' and '2=moderate infrequent' while 'Daily/Weekly' was considered 3=frequent utilization. The average score was found to be 2.5 and hence respondents who had 1.0-1.4 and 1.5-2.4 score were considered to have had an infrequent and

moderate infrequent utilization respectively. Similarly, those who scored average of 2.5 and above were considered to have had a frequent utilization of renal service.

3.14 Study variables

Dependent Variable	Independent Variables
Health Service Utilization	**Enabling Factors** ✓ Health Insurance Coverage ✓ Financial Support Programs **Need Factors** ✓ Severity of Renal Disease ✓ Referral Rates to Renal Specialists **Predisposing Factors** ✓ Age ✓ Gender ✓ Education Level ✓ Socioeconomic Status **NHIS enrolment** ✓ *NHIS Enrolment Status* ✓ *NHIS Coverage Type* ✓ *NHIS Accessibility*

3.15 Ethical Consideration

Approval for ethical considerations were granted by the Korle Bu Teaching Hospital Ethical Review Committee. Before the questionnaire's administration, explicit informed consent was

obtained from all participants. Participants were informed of their right to withdraw from the study at any stage without facing any consequences. Additionally, participants were explicitly instructed not to disclose their names or provide any information that could potentially reveal their identities, aligning with the principles of confidentiality and anonymity.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents an in-depth analysis of the study's findings. The questionnaire data has been carefully examined and illustrated through tables to enhance clarity and comprehension. These representations provide a detailed interpretation of the results. Out of 222 distributed questionnaires, 200 were completed and returned for analysis.

4.2 Demographic characteristics of the participants

This section provides a detailed profile of the participants, highlighting key characteristics such as age, marital status, education level, employment status, number children, household income, and out-of-pocket healthcare expenses. The study's results, including demographic distributions, frequency counts, and percentage breakdowns, are summarized in Table 4.1.

Table 4.1: Demographic characteristics of the renal patients

Demographic Description	Frequency(n=200)	Percentages (%)
Age		
18-25 years	25	12.5
26-35 years	24	12.0
36-45 years	34	17.0
46-55 years	46	23.0
56 and above	71	35.5
Marital status		
Married	117	58.5
Single	54	27.0
Divorced	8	4.0
Widowed	21	10.5
Educational level		

No formal education	31	15.5
Primary education/JHS	41	20.5
Secondary education	42	21.0
Tertiary education (Diploma/Associate	86	43.0
Degree or higher)		
Employment Status		
Employed full-time	34	17.0
Employed part-time	4	2.0
Self-employed	89	44.5
Unemployed	27	13.5
Retired	36	18.0
Students	10	5.0
Number of children		
None	46	23.0
One	8	4.0
Two	38	19.0
Three or more	108	54.0
Household Income Level		
Less than 500GH	50	25.0
500GH – 1000GH	42	21.0
1100GH – 1500GH	48	24.0
1600GH -2000GH	34	17.0
More than 2000	26	13.0
Out-of-pocket healthcare expenses		
Less than 500GH	59	29.5
500GH – 1000GH	77	38.5
1100GH – 1500GH	42	21.0
1600GH -2000GH	12	6.0
More than 2000	10	5.0

Source: Field survey (2025)

The demographic characteristics of the 200 renal patients surveyed show that the majority (35.5%) are aged 56 and above, followed by 46-55 years (23.0%) and 36-45 years (17.0%). Most patients are married (58.5%), while 27.0% are single, and smaller proportions are divorced (4.0%) or widowed (10.5%). In terms of education, 43.0% have attained tertiary education, while 21.0% completed secondary education, 20.5% have primary or junior high education, and 15.5% have no formal education (Table 4.1).

Employment data reveals that 44.5% are self-employed, 17.0% work full-time, 18.0% are retired, and 13.5% are unemployed. A majority (54.0%) have three or more children, while fewer (23.0%) have none. Household income levels vary, with 25.0% earning less than 500GH and 24.0% earning between 1100GH and 1500GH. Out-of-pocket healthcare expenses are highest for those spending between 500GH – 1000GH (38.5%), followed by less than 500GH (29.5%) (Table 4.1).

4.3 Proportion of renal patients enrolled on the NHIS

Figure 4.1 presents the proportion of renal patients enrolled on the NHIS in Korle-Bu teaching hospital. The study results showed that a significant majority of renal patients (93.5%; 95% CI 89.1, 96.2)) are currently enrolled in the National Health Insurance Scheme (NHIS), while 6.5% are not.

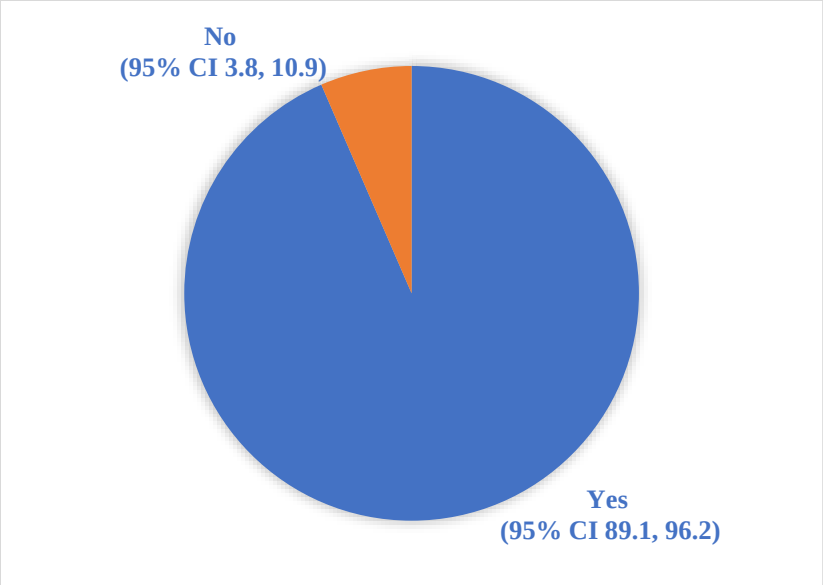

Figure 4.1: Proportion of renal patients enrolled on the NHIS

Table 4.2 assessed the duration of NHIS coverage, level of satisfaction, and reasons for non-insurance cover. It was observed that among those not enrolled, reasons include expired insurance (30.8%), perceived ineffectiveness of NHIS in covering medical expenses (30.8%), and personal choice (38.4%). Most enrolled patients (68.0%) have been on NHIS for more than five years, while 15.0% have had coverage for 3-5 years, and smaller proportions have been enrolled for shorter periods. Regarding satisfaction with NHIS coverage for renal treatment, 39.0% of patients expressed dissatisfaction (12.5% very dissatisfied and 18.5% dissatisfied), while 37.0% were either satisfied (16.5%) or very satisfied (20.5%), and 25.5% remained neutral. In terms of utilization, 40.5% of patients use NHIS services sometimes, 17.0% often, and 36.0% always, with 6.5% not using NHIS due to non-enrolment.

Table 4.2: Duration, level of satisfaction and reasons for non-NHIS enrolment among renal Patients

NHIS Enrolment Status	Frequency (n=200)	Percentage (%)
Reason for non-enrolment		
Expired	4	30.8
Health insurance is ineffective; it does not cover up to 20% of medical expenses	4	30.8
I don't want it	5	38.4
Duration of being enrolled in the NHIS		
Less than 1 year	9	4.5
1-2 years	12	6.0
3-5 years	30	15.0
More than 5 years	136	68.0
Not applicable (not enrolled)	13	6.5
satisfactory level of the coverage provided by the NHIS for renal treatment		
Not applicable (not enrolled)	13	6.5
Very dissatisfied	25	12.5
Dissatisfied	37	18.5
Neutral	51	25.5
Satisfied	33	16.5
Very satisfied	41	20.5
Frequency of use of NHIS for renal services		
Not applicable (not enrolled)	13	6.5
Sometimes	81	40.5
Often	34	17.0
Always	72	36.0

Source: Field survey (2025)

4.3.1 NHIS Coverage Type for renal patients

Table 4.3 displays the distribution of NHIS coverage type for renal patients. The study findings reveal that NHIS coverage for renal patients is limited in key areas of treatment. Only 36.0% of patients have NHIS plans that cover dialysis treatments, while 57.5% do not, and 6.5% are not enrolled. Coverage for prescription medications is similarly constrained, with 27.5% receiving full coverage, 66.0% receiving partial coverage, and 6.5% not enrolled. Specialist consultations for renal care are fully covered for 36.5% of patients, partially covered for 57.0%, and not applicable for 6.5%. Hospital admissions for renal-related complications are fully covered for 33.0% of patients, while 22.0% receive partial coverage, and 38.5% are not covered at all. These results highlight gaps in NHIS support for essential renal treatments.

Table 4.3: Distribution of NHIS Coverage Type for renal patients

NHIS Coverage Type	Frequency (n=200)	Percentage (%)
NHIS coverage on dialysis treatments		
yes	72	36.0
no	115	57.5
Not applicable (not enrolled)	13	6.5
NHIS coverage on the cost of prescription medications for renal disease		
Yes	55	27.5
Partially	132	66.0
Not applicable (not enrolled)	13	6.5
NHIS coverage on specialist consultations related to renal care		
Yes	73	36.5
Partially	114	57.0
Not applicable (not enrolled)	13	6.5
NHIS coverage on Hospital admissions for renal-related complications		
Yes	66	33.0
Partially	44	22.0
No	77	38.5
Not applicable (not enrolled)	13	6.5

Source: Field survey (2025)

4.3.2 NHIS accessibility for renal patients

Table 4.4 shows the summary of distribution of NHIS Accessibility for renal patients. The study results indicate varying levels of accessibility to NHIS-approved healthcare facilities for renal patients. While 32.0% of patients find access either easy (20.0%) or very easy (12.0%), a significant proportion (37.0%) experience difficulties, with 19.5% describing access as very difficult and 17.5% as difficult. Additionally, 24.5% consider access to be neither easy nor difficult, and 6.5% do not have access to NHIS services. Regarding waiting times for NHIS-covered renal treatments, 40.5% of patients report very long waiting times, while 11.0% experience long waits. In contrast, 22.0% find the wait short, 6.0% very short, and 14.0% rate it as neither short nor long, with 6.5% not using NHIS services. These findings highlight challenges in both accessibility and service efficiency for NHIS-covered renal treatments.

Table 4.4: Distribution of NHIS accessibility for renal patients

NHIS Accessibility	Frequency (n=200)	Percentage (%)
Rate the ease of accessing NHIS-approved healthcare facilities for renal treatment		
Not applicable (not accessible to NHIS)	13	6.5
Very difficult	39	19.5
Difficult	35	17.5
Neither easy nor difficult	49	24.5
Easy	40	20.0
Very easy	24	12.0
Rate the waiting time to receive NHIS-covered renal treatments		
Very short	12	6.0
Short	44	22.0
Neither short nor long	28	14.0
Long	22	11.0
Very long	81	40.5
Not applicable (not accessible to NHIS)	13	6.5

Source: Field survey (2025)

4.4 Enabling and need factors influencing utilization of renal service.

Table 4.5 summarises the enabling and need factors influencing utilization of renal service. The study findings in Table 5 indicate that enabling factors and need-related factors influence the utilization of renal services among patients. Nearly half (49.0%) agree that their insurance plan provides comprehensive coverage, while 27.5% disagree, and 23.5% remain neutral. Similarly, 48.0% acknowledge financial support as readily available, whereas 31.0% disagree, and 21.0% are neutral. Social support appears limited, with only 22.5% receiving encouragement from family and friends for a fast recovery, while 73.5% disagree.

Regarding the overall well-being of renal disease, 75.5% disagree that they had the ability to perform daily activities, while only 20.5% agree. While 26.0% state that they were able to manage health effectively and ensure well-being, 49.0% disagree, and 25.0% remain neutral. Additionally, 69.0% disagree that they could lead a balanced lifestyle, with only 16.5% agreeing.

For referral rates to renal specialists, 60.5% disagree that the referral process is easy, while only 22.5% agree. The timeliness of referrals influenced 30.5% of patients to visit the renal unit, but 67.0% disagreed. Similarly, while 27.5% visited due to the availability of specialists, 70.5% disagree. Additionally, 25.0% prefer the renal unit because of the high-quality standards of specialists, yet 70.5% do not share this view. These findings suggest that while financial and insurance factors are somewhat supportive, issues with social support, severity perception, and specialist referrals present barriers to renal service utilization.

Table 4.5: Factors influencing utilization of renal service

Enabling factors	Agree *n (%)*	Neutral *n (%)*	Disagree *n (%)*
The insurance plan provides comprehensive coverage that meets my needs	98 (49.0)	47 (23.5)	55 (27.5)
Financial support is readily available when needed	96 (48.0)	42 (21.0)	`62 (31.0)
I receive encouragement from my relatives and friends for a fast recovery	45 (22.5)	8 (4.0)	147 (73.5)
Need factors: *overall well-being of renal disease*			
The ability to perform daily activities	41 (20.5)	8 (4.0)	151 (75.5)
Able to manage health effectively and ensure well-being	52 (26.0)	50 (25.0)	49 (49.0)
Able to maintain a balanced lifestyle.	33 (16.5)	29 (14.5)	138 (69.0)
Need factor: *Referral Rates to Renal Specialists*			
There is an ease in the referral process during my utilization of the renal unit	45 (22.5)	34 (17.0)	121 (60.5)
I visited the renal unit due to the timeliness of the referral process	61 (30.5)	5 (2.5)	134 (67.0)
I visited the renal unit due to the availability of specialists	55 (27.5)	4 (2.0)	141 (70.5)
I prefer the renal unit because the specialists meet high-quality standards	50 (25.0)	9 (4.5)	141 (70.5)

Source: Field survey (2025)

4.5 Health service utilization of renal service

Table 4.6 provides a summary distribution of health service utilization of renal service. The study results indicate varying levels of health service utilization among renal patients across outpatient, inpatient, emergency, dialysis, and transplant services.

In outpatient services, routine check-ups are attended frequently by 38.0% of patients, while 39.5% attend moderately and 22.5% infrequently. Laboratory tests are the most frequently utilized outpatient service, with 59.0% undergoing them regularly. Specialist consultations are frequent for 46.0% of patients, while 33.0% consult infrequently. Treatment sessions, including dialysis and

medication adjustments, are attended frequently by 35.5% but infrequently by 41.0%. However, participation in educational programs is low, with 50.0% attending infrequently.

Inpatient services show that 54.5% of patients have infrequent hospital admissions, while 27.0% have moderate and 18.5% frequent admissions. The need for inpatient dialysis is rare, with 75.5% requiring it infrequently. Surgical procedures related to renal conditions are uncommon, with 88.0% undergoing them infrequently. Extended hospital stays of more than three days are reported infrequently by 52.5% of patients, while 19.0% experience them frequently.

Emergency services utilization varies, with 37.0% seeking urgent consultations frequently, 25.0% moderately, and 38.0% infrequently. Immediate dialysis treatments are rarely needed, with 75.0% requiring them infrequently. Immediate medications for acute renal conditions are needed frequently by 42.0%, but 38.0% require them infrequently.

Dialysis services show that scheduled sessions are attended infrequently by 71.0% of patients, while only 22.5% attend frequently. Unscheduled or emergency dialysis sessions are rare, with 81.0% requiring them infrequently. Missed dialysis appointments are uncommon, with 90.0% reporting infrequent absences. Complications requiring additional dialysis sessions occur infrequently for 78.5% of patients.

Transplant services utilization is low, with 81.0% attending pre/post-transplant evaluations infrequently. Consultations with transplant specialists are infrequent for 79.0% of patients, and 82.0% rarely undergo medication monitoring as part of transplant care.

These findings highlight a higher reliance on outpatient services, limited inpatient admissions, and low utilization of transplant-related care, with many patients facing gaps in regular dialysis and emergency interventions.

Table 4.6: Distribution of Health service utilization of renal service

Outpatient Services	**Frequent** *n (%)*	**Moderate** *n (%)*	**Infrequent** *n (%)*
How often do you attend routine check-ups at the renal outpatient clinic	76 (38.0)	79 (39.5)	45 (22.5)
How frequently do you undergo lab tests as part of your renal outpatient care	118 (59.0)	33 (16.5)	49 (24.5)
How often do you consult with your renal specialist in the outpatient setting	92 (46.0)	42 (21.0)	66 (33.0)
How often do you attend treatment sessions (e.g., dialysis, medication adjustments) at the renal outpatient facility	71 (35.5)	47 (23.5)	82 (41.0)
How frequently do you participate in educational programs or workshops for renal health offered by the outpatient clinic	57 (28.5)	43 (21.5)	100 (50.0)
Inpatient Services			
How often have you been admitted to the hospital for your renal condition in the past year	37 (18.5)	54 (27.0)	109 (54.5)
How often do you require inpatient dialysis treatments?	24 (12.0)	25 (12.5)	151 (75.5)
How frequently have you undergone surgical procedures related to your renal condition in the hospital	16 (8.0)	8 (4.0)	176 (88.0)
How often do you have extended hospital stays (more than 3 days) due to complications from your renal condition	38 (19.0)	57 (28.5)	105 (52.5)
Emergency Services			
How frequently do you seek urgent medical consultations for sudden renal complications	74 (37.0)	50 (25.0)	76 (38.0)
How often do you require immediate dialysis treatments?	24 (12.0)	26 (13.0)	150 (75.0)

How often do you need immediate medications for acute renal conditions	84 (42.0)	40 (20.0)	76 (38.0)
Dialysis Services			
How often do you attend your scheduled dialysis sessions	45 (22.5)	13 (6.5)	142 (71)
How frequently do you require unscheduled or emergency dialysis sessions	17 (8.5)	21 (10.5)	162 (81.0)
How frequently do you miss your dialysis appointments	12 (6.0)	8 (4.0)	180 (90.0)
How often do you experience complications that require additional dialysis sessions	16 (8.0)	27 (13.5)	157 (78.5)
Transplant Services			
How often do you attend pre/post-transplant evaluation appointments	25 (12.5)	13 (6.5)	162 (81.0)
How frequently do you consult with your transplant team or specialist	24 (12.0)	18 (9.0)	158 (79.0)
How frequently do you undergo medication monitoring as part of your transplant care	24 (12.0)	12 (6.0)	164 (82.0)

Source: Field survey (2025)

4.6 Association between demographic information and utilization of health services.

Table 4.7 delved into the demographic information associated with health service utilization of renal service. It shows in each case the Chi-square and p-value of the variables. The study results show significant associations between several demographic factors and the utilization of renal health services. The study found that age (p=0.024), marital status (p=0.011), educational level (p=0.026), employment status (p<0.001) and number of children (p=0.021) play a significant role in the association between demographic factors and health service utilization.

However, household income level (p=0.943) and out-of-pocket healthcare expenses (p=0.552) do not show statistically significant associations with health service utilization, indicating that financial factors may not be the primary determinants of renal service usage.

Table 4.7: Association between demographic information and Health service utilization of renal service

Variables	Health service utilization of renal service			(X^2)(p-value)
	Infrequent *n (%)*	Moderate *n (%)*	Frequent *n (%)*	
Age				17.685 (0.024)
18-25 years	15 (7.5)	5 (2.5)	5 (2.5)	
26-35 years	8 (4.0)	8 (4.0)	8 (4.0)	
36-45 years	14 (7.0)	8 (4.0)	12 (6.0)	
46-55 years	25 (12.5)	17 (8.5)	4 (2.0)	
56 and above	38 (19.0)	25 (12.5)	8 (4.0)	
Marital status				16.680 (0.011)
Married	64 (32.0)	29 (14.5)	24 (12.0)	
Single	24 (12.0)	17 (8.5)	13 (6.5)	
Divorced	4 (2.0)	4 (2.0)	0 (0.0)	
Widowed	8 (4.0)	13 (6.5)	0 (0.0)	
Educational level				14.383 (0.026)
No formal education	18 (9.0)	13 (6.5)	0 (0.0)	
Primary education/JHS	16 (8.0)	17 (8.5)	8 (4.0)	
Secondary education	18 (9.0)	12 (6.0)	12 (6.0)	
Tertiary education (Diploma/Associate Degree or higher)	48 (12.0)	21 (10.5)	17 (8.5)	
Employment Status				45.754 (<0.001)

Employed full-time	18 (9.0)	8 (4.0)	8 (4.0)	
Employed part-time	0 (0.0)	0 (0.0)	4 (2.0)	
Self-employed	57 (28.5)	20 (10.0)	12 (6.0)	
Unemployed	9 (4.5)	14 (7.0)	4 (2.0)	
Retired	16 (8.0)	16 (8.0)	4 (2.0)	
Students	0 (0.0)	5 (2.5)	5 (2.5)	
Number of children				14.965 (0.021)
None	20 (10.0)	13 (6.5)	13 (6.5)	
One	0 (0.0)	4 (2.0)	4 (2.0)	
Two	21 (10.5)	13 (6.5)	4 (2.0)	
Three or more	59 (29.5)	33 (16.5)	16 (8.0)	
Household Income Level				2.861 (0.943)
Less than 500GH	26 (13.0)	13 (6.5)	11 (5.5)	
500GH – 1000GH	20 (10.0)	14 (7.0)	8 (4.0)	
1100GH – 1500GH	23 (11.5)	18 (9.0)	7 (3.5)	
1600GH -2000GH	19 (9.5)	10 (5.0)	5 (2.5)	
More than 2000	12 (6.0)	8 (4.0)	6 (3.0)	
Out-of-pocket healthcare expenses				6.859 (0.552)
Less than 500GH	33 (16.5)	18 (9.0)	8 (4.0)	
500GH – 1000GH	34 (17.0)	25 (12.5)	18 (9.0)	
1100GH – 1500GH	22 (11.0)	15 (7.5)	5 (2.5)	
1600GH -2000GH	5 (2.5)	4 (2.0)	3 (1.5)	
More than 2000	6 (3.0)	1 (0.5)	3 (1.5)	

Source: Field Data (2025)

4.7 Association between demographic information and NHIS enrolment.

Table 4.8 delved into the demographic information associated with NHIS enrolment of renal patients. It shows in each case the Chi-square and p-value of the variables. The findings presented in Table 8 show the association between demographic characteristics and NHIS enrolment among renal patients at Korle-Bu Teaching Hospital. The chi-square test results indicate that age, educational level, and employment status had statistically significant associations with NHIS enrolment ($p < 0.05$), while marital status, number of children, household income level, and out-of-pocket healthcare expenses showed no significant relationship ($p > 0.05$).

The results suggest that older patients were more likely to be enrolled in the NHIS, with the 56 years and above group showing the highest enrolment rate (35.5%). This may indicate a greater awareness or need for financial protection among older adults who often experience more health challenges. Educational attainment also influenced enrolment—patients with tertiary education (41%) had higher enrolment rates compared to those with only primary or JHS education (16%), implying that better-educated individuals are more informed about the benefits of health insurance. Employment status showed a similar pattern, with self-employed (42.5%), retired (18%), and full-time employed (15%) respondents having the highest enrolment rates, while the unemployed (11%) group had a higher proportion of uninsured individuals. This highlights the role of economic stability in facilitating access to and maintenance of NHIS membership.

Conversely, variables such as marital status, number of children, income level, and healthcare expenses did not significantly affect enrolment, suggesting that NHIS participation is more strongly influenced by individual demographic and occupational factors than by household or expenditure characteristics. Overall, the findings emphasize that age, education, and employment are key determinants of NHIS enrolment among renal patients in Korle-Bu Teaching Hospital.

Table 4.8: Crosstabulation of Association between demographic information and NHIS enrolment

Variables	NHIS enrolment		(X^2)(p-value)
	Yes *n (%)*	No *n (%)*	
Age			26.039 (<0.001)
18-25 years	25 (12.5)	0 (0.0)	
26-35 years	20 (10.0)	4 (2.0)	
36-45 years	34 (17.0)	0 (0.0)	
46-55 years	37 (18.5)	9 (4.5)	
56 and above	71 (35.5)	0 (0.0)	
Marital status			2.363 (0.501)
Married	108 (54.0)	9 (4.5)	
Single	50 (25)	4 (2.0)	
Divorced	8 (4.0)	0 (0.0)	
Widowed	21 (10.5)	0 (0.0)	
Educational level			21.664 (<0.001)
No formal education	31 (15.5)	0 (0.0)	
Primary education/JHS	32 (16.0)	9 (4.5)	
Secondary education	42 (21.0)	0 (0.0)	
Tertiary education (Diploma/Associate Degree or higher)	82 (41.0)	4 (2.0)	
Employment Status			12.033 (0.034)
Employed full-time	30 (15.0)	4 (2.0)	
Employed part-time	4 (2.0)	0 (0.0)	
Self-employed	85 (42.5)	4 (2.0)	
Unemployed	22 (11.0)	5 (2.5)	
Retired	36 (18.0)	0 (0.0)	
Students	10 (5.0)	0 (0.0)	
Number of children			4.160 (0.245)
None	42 (21.0)	4 (2.0)	
One	8 (4)	0 (0.0)	
Two	38 (19.0)	0 (0.0)	
Three or more	99 (49.5)	9 (4.5)	
Household Income Level			1.084 (0.897)
Less than 500GH	47 (23.5)	3 (1.5)	

500GH – 1000GH	39 (19.5)	3 (1.5)	
1100GH – 1500GH	44 (22.0)	4 (2.0)	
1600GH -2000GH	33 (16.5)	1 (0.5)	
More than 2000	24 (12.0)	2 (1.0)	
Out-of-pocket healthcare expenses			1.464 (0.833)
Less than 500GH	55 (27.5)	4 (2.0)	
500GH – 1000GH	71 (35.5)	6 (3.0)	
1100GH – 1500GH	40 (20.0)	2 (1.0)	
1600GH -2000GH	12 (6.0)	0 (0.0)	
More than 2000	9 (4.5)	1 (0.5)	

Source: Field Data (2025)

4.8 Association between enabling and need factors with utilization of renal service

Table 4.9 expresses whether enabling and need factors are associated with utilization of renal service. It displays the Chi-square and p-value of the variables. The study results indicate significant associations between various enabling and need factors and the utilization of renal health services. Among the enabling factors, the perception that an insurance plan provides comprehensive coverage (p=0.045) and the availability of financial support (p=0.043) significantly influence service utilization. Encouragement from relatives and friends (p=0.031) also plays a role, with those lacking support being more likely to use services infrequently.

Regarding the well-being of renal disease, the ability to perform daily activities (p=0.038), able to manage health effectively and ensure well-being(p<0.001), and the ability to a balanced lifestyle (p<0.001) are all significantly associated with health service utilization.

Referral rates to renal specialists also show significant associations. The ease of the referral process (p=0.005), timeliness of referrals (p=0.015), and the availability of specialists (p=0.000) contribute to higher utilization rates. However, preference for specialists due to high-quality standards (p=0.065) does not show a statistically significant relationship with utilization.

Table 4.9: Association between enabling and need factors with utilization of renal service

Enabling and need factors	Health service utilization of renal service			(X^2)(p-value)
	Infrequent n (%)	Moderate n (%)	Frequent n (%)	
Enabling factors				
The insurance plan provides comprehensive coverage that meets my needs				9.723 (0.045)
Disagree	20 (10.0)	20 (10.0)	15 (7.5)	
Neutral	23 (11.5)	13 (6.5)	11 (5.5)	
Agree	57 (28.5)	30 (15.0)	11 (5.5)	
Financial support is readily available when needed				9.848 (0.043)
Disagree	32 (16.0)	22 (11.0)	8 (4.0)	
Neutral	18 (9.0)	19 (9.5)	5 (2.5)	
Agree	22 (11.0)	24 (12.0)	96 (48.0)	
I receive encouragement from my relatives and friends during my treatment service				10.672 (0.031)
Disagree	75 (37.5)	48 (24.0)	24 (12.0)	
Neutral	0 (0.0)	4 (2.0)	4 (2.0)	
Agree	25 (12.5)	11 (5.5)	9 (4.5)	
Need factor: ***overall well-being of renal disease***				
The ability to perform daily activities				10.174 (0.038)
Disagree	74 (37.0)	54 (27.0)	23 (11.5)	
Neutral	3 (1.5)	1 (0.5)	4 (2.0)	
Agree	23 (11.5)	8 (4.0)	10 (5.0)	
Able to manage health effectively and ensure well-being				18.786 (<0.001)
Disagree	34 (17.0)	42 (21.0)	22 (11.0)	
Neutral	31 (15.5)	11 (5.5)	8 (4lead .0)	

Agree	35 (17.5)	10 (5.0)	7 (3.5)	
Able to a balanced lifestyle				22.550 (<0.001)
Disagree	59 (29.5)	56 (28.0)	23 (11.5)	
Neutral	18 (9.0)	1 (0.5)	10 (5.0)	
Agree	23 (11.5)	6 (3.0)	4 (2.0)	
Need factor; *Referral Rates to Renal Specialists*				
There is an ease of the referral process during my utilization of the renal unit				14.870 (0.005)
Disagree	59 (29.5)	47 (23.5)	15 (7.5)	
Neutral	14 (7.0)	8 (4.0)	12 (6.0)	
Agree	27 (13.5)	8 (4.0)	10 (5.0)	
I visited the renal unit due to the timeliness of referral process				12.410 (0.015)
Disagree	64 (32.0)	50 (25.0)	20 (10.0)	
Neutral	5 (2.5)	0 (0.0)	0 (0.0)	
Agree	31 (15.5)	13 (6.5)	17 (8.5)	
I visited the renal unit due to the availability of specialists				27.878 (<0.001)
Disagree	68 (34.0)	54 (27.0)	19 (9.5)	
Neutral	0 (0.0)	0 (0.0)	4 (2.0)	
Agree	32 (16.0)	9 (4.50)	14 (7.0)	
I prefer renal unit because the specialists meet high-quality standards				8.847 (0.065)
Disagree	68 (34.0)	50 (25.0)	23 (12.50)	
Neutral	5 (2.5)	4 (2.0)	0 (0.0)	
Agree	27 (13.5)	9 (4.5)	14 (7.0)	

Source: Field Data (2025)

4.9 Association between NHIS Enrolment and utilization of renal service

Table 4.10 provides how NHIS Enrolment is associated with health utilization of renal service. The study results show significant associations between NHIS enrolment and the utilization of renal health services. NHIS enrolment status ($p<0.001$) is strongly linked to service utilization, with those enrolled using the services more frequently. The length of NHIS enrolment ($p<0.001$) also plays a role, as individuals with more than five years of coverage tend to use services more frequently.

Satisfaction with NHIS coverage for renal treatment ($p<0.001$) is significantly associated with service utilization, as is the frequency of NHIS usage for renal care ($p<0.001$), indicating that those who frequently rely on NHIS services utilize renal care more often. NHIS coverage for prescription medications ($p<0.001$), specialist consultations ($p<0.001$), and hospital admissions ($p<0.001$) also shows strong associations with utilization rates. However, NHIS coverage for dialysis treatments ($p=0.956$) does not show a significant relationship with utilization.

Accessibility factors such as ease of accessing NHIS-approved healthcare facilities ($p<0.001$) and waiting times for NHIS-covered renal treatments ($p<0.001$) also significantly influence utilization. Longer waiting times are associated with less frequent service use, while easier access to NHIS-approved facilities correlates with higher utilization.

Table 4.10: Association between NHIS enrolment and other health insurance-related issues and utilization of renal service

NHIS enrolled rate	Health service utilization of renal service			(X^2)(p-value)
	Infrequent n (%)	Moderate n (%)	Frequent n (%)	
NHIS Enrolment Status				
Are you currently enrolled in the National Health Insurance Scheme (NHIS)?				30.235 (<0.001)
Yes	100 (50.0)	50 (25.0)	37 (18.5)	
No	0 (0.0)	13 (6.5)	0 (0.0)	
How long have you been enrolled in the NHIS?				54.685 (<0.001)
Less than 1 year	4 (2.0)	1 (0.5)	4 (2.0)	
1-2 years	4 (2.0)	0 (0.0)	8 (4.0)	
3-5 years	17 (8.5)	8 (4.0)	5 (2.5)	
More than 5 years	75 (37.5)	41 20.5)	20 (10.0)	
Not applicable (not enrolled)	0 (0.0)	13 (6.5)	0 (0.0)	
How satisfied are you with the coverage provided by the NHIS for your renal treatment?				73.103 (<0.001)
Not applicable (not enrolled)	0 (0.0)	13 (6.5)	0 (0.0)	
Very dissatisfied	25 (12.5)	0 (0.0)	0 (0.0)	
Dissatisfied	20 (10.0)	5 (2.5)	12 (6.0)	
Neutral	30 (15.0)	12 (6.0)	9 (4.5)	
Satisfied	13 (6.5)	12 (6.0)	8 (4.0)	
Very satisfied	12 (6.0)	21 (10.5)	8 (4.0)	
How often do you use NHIS services for your renal care?				75.129 (<0.001)
Not applicable (not enrolled)	0 (0.0)	13 (6.5)	0 (0.0)	

Sometimes	60 (30.0)	15 (7.5)	6 (3.0)	
Often	18 (9.0)	2 (1.0)	14 (7.0)	
Always	22 (11.0)	33 (16.5)	17 (8.5)	
NHIS Coverage for renal patients				
Does your NHIS plan cover dialysis treatments?				0.664 (0.956)
Yes	37 (18.5)	22 (11.0)	13 (6.5)	
No	56 (28.0)	38 (19.0)	21 (10.5)	
Not applicable (not enrolled)	7 (3.5)	3 (1.5)	3 (1.5)	
Does your NHIS plan cover the cost of prescription medications for renal disease?				30.519 (<0.001)
Yes	28 (14.0)	15 (7.5)	12 (6.0)	
Partially	72 (36.0)	35 (17.5)	25 (12.5)	
Not applicable (not enrolled)	0 (0.0)	13 (6.5)	0 (0.0)	
Does your NHIS plan cover specialist consultations related to renal care?				31.400 (<0.001)
Yes	39 (19.5)	22 (11.0)	12 (6.0)	
Partially	61 (30.5)	28 (14.0)	25 (12.5)	
Not applicable (not enrolled)	0 (0.0)	13 (6.5)	0 (0.0)	
Are hospital admissions for renal-related complications covered under your NHIS plan?				35.789 (<0.001)
Yes	39 (19.5)	16 (8.0)	11 (5.5)	
Partially	27 (13.5)	11 (5.5)	6 (3.0)	
No	34	23	20	
Not applicable (not enrolled)	0 (0.0)	13 (6.5)	0 (0.0)	
NHIS Accessibility for renal patients				

How would you rate the ease of accessing NHIS-approved healthcare facilities for your renal treatment?				80.545 (<0.001)
Not applicable (not accessible to NHIS)	0 (0.0)	13 (6.5)	0 (0.0)	
Very difficult	37 (18.5)	2(1.0)	0 (0.0)	
Difficult	15 (7.5)	12 (6.0)	8 (4.0)	
Neither easy nor difficult	24 (12.0)	12 (6.0)	13 (6.5)	
Easy	8 (4.0)	20 (10.0)	12 (6.0)	
Very easy	16 (8.0)	4 (2.00	4 (2.0)	
How would you rate the waiting time to receive NHIS-covered renal treatments?				122.95 (<0.001)
Very short	12 (6.0)	0 (0.0)	0 (0.0)	
Short	4 (2.0)	28 (14.0)	12 (6.0)	
Neither short nor long	8 (4.0)	8 (4.0)	12 (6.0)	
Long	8 (4.0)	9 (4.0)	5 (2.5)	
Very long	68 (34.0)	5 (2.5)	8 (4.0)	
Not applicable (not accessible to NHIS)	0 (0.0)	13 (6.5)	0 (0.0)	

Source: Field Data (2025)

4.10 Relationship between demographic variable and Health service utilization of renal service

Table 4.11 presents the multivariate analysis of the relationship between demographic variable and Health service utilization of renal service. It shows crude odd ratio (COR), adjusted odds ratio (AOR), confidence interval and p-values. The multivariate analysis reveals that several demographic variables significantly influence health service utilization for renal services. For age, individuals aged 26-35 years (AOR=20.6, 95% CI: 18.52, 70.15, p<0.001) are approximately 21 times more likely to utilize services compared to those in the 18-25 years age group. Similarly,

those in the 36-45 years age group (AOR=2.28, 95% CI: 0.19, 4.37, p=0.033) and 46-55 years group (AOR=1.7, 95% CI: 0.35, 2.96, p=0.013) also show 2.3 and 1.7 times higher likelihoods of utilization, though the results are less pronounced in the latter group. However, those aged 56 and above were 94% less likely to utilize health services compared to other age groups (AOR=0.06, 95% CI: 0.01, 1.19, p=0.921).

Regarding marital status, being single was 1.3 times more likely to use health services irrespective of other groups of marital status (AOR=1.3, 95% CI: 0.002, 2.54, p=0.05).

For educational level, individuals with secondary education (AOR=1.9, 95% CI: 0.701, 3.10, p=0.002) and tertiary education (AOR=1.7, 95% CI: 0.54, 2.88, p=0.004) were 1.9 and 1.7 times more likely to utilize renal services compared to those with no formal education.

Employment status significantly affects renal service utilization, with part-time (AOR=23.6, 95% CI: 15.37, 41.90, p<0.001), unemployed (AOR=24.6, 95% CI: 20.96, 33.38, p<0.001), retired (AOR=21.5, 95% CI: 14.72, 30.34, p<0.001), and student (AOR=21.9, 95% CI: 11.92, 51.11, p=0.049) status all showing strong positive associations with service utilization.

Lastly, the number of children appears to influence utilization, with individuals having one child showing a moderately increased likelihood of utilization (AOR=3.4, 95% CI: 0.71, 6.09, p=0.013), but those with two or more children do not exhibit significant associations.

Table 4.11: Multivariate analysis of the relationship between demographic variables and Health service utilization of renal service

Demographic variable	COR (95% C.I) (p-value)	AOR (95% C.I.) (p-value)
Age		
18-25 years	Ref 1	Ref 1
26-35 years	32.9 (8.13, 69.57), <0.001	**20.6 (18.52, 70.15) <0.001**
36-45 years	1.7 (0.91, 8.62), 0.042	**2.28 (0.19, 4.37) 0.033**
46-55 years	1.8 (0.77, 3.40), 0.028	**1.7 (0.35, 2.96), 0.013**
56 and above	0.28 (0.12, 31.78), 0.741	0.06 (0.01, 1.19), 0.921
Marital status		
Married	Ref 1	Ref 1
Single	3.3 (2.73, 3.67), 0.024	**1.3 (0.002, 2.54), 0.05**
Divorced	0.71 (0.44, 1.89), 0.389	0.9 (0.05, 1.19), 0.403
Widowed	13.28 (11.28, 42.92), 0.588	19.3 (18.77, 92. 88), 0.989
Educational level		
No formal education	Ref 1	Ref 1
Primary education/JHS	1.5 (0.25, 2.78), 0.063	1.2 (0.10, 2.56), 0.070
Secondary education	1.48 (0.34, 2.57), 0.008	**1.9 (0.701, 3.10), 0.002**
Tertiary education (Diploma/Associate Degree or higher)	2.57 (1.13, 13.44), 0.010	**1.7 (0.54, 2.88), 0.004**
Employment Status		
Employed full-time	Ref 1	**Ref 1**
Employed part-time	66.98 (40.46, 127.51), <0.001	**23.6 (15.37, 41.90), <0.001**
Self-employed	4.51 (3.49, 81.76), 0.638	1.4 (1.08, 18.89), 0.923
Unemployed	67.89 (44.13, 137.02), 0.002	**24.6 (20.964, 33.38), <0.001**

Retired	33.18 (27.78, 36.55), 0.002	**21.5 (14.72, 30.34) <0.001**
Students	31.03 (25.38, 90.31), 0.032	21.9 (11.92, 51.11), 0.049
Number of children		
None	Ref 1	Ref 1
One	3.78 (2.68, 26.73), 0.006	**3.4 (0.71, 6.09), 0.013**
Two	47.77 (14.79, 77.67), 0.814	21.7 (14.22, 142.61), 0.991
Three or more	0.198 (-13.97, 4.546)	0.21 (0.08, 1.10), 0.638

Source: Field Data (2025)

4.11 Influence of enabling and need factors on health utilization of renal service

Table 4.12 presents the multivariate analysis of the influence of enabling and need factors on health utilization of renal service. It indicates crude odds ratio (COR), adjusted odds ratio (AOR), confidence interval and p-values. The multivariate analysis indicates that several enabling and need factors significantly influence renal service utilization. For financial support, individuals who agree that financial support is readily available when needed have a higher likelihood of utilizing renal services (AOR=1.52, 95% CI: 1.21, 5.99, p=0.030). Encouragement from relatives and friends also plays a role, as those who agree with receiving such support are more likely to utilize services (AOR=3.08, 95% CI: 2.03, 12.44, p=0.021).

Regarding the well-being of renal patients, individuals who agree that they had the ability to perform daily activities are more likely to utilize renal services (AOR=1.84, 95% CI: 0.25, 3.93, p=0.008). However, the ability to manage health effectively and ensure well-being did not significantly influence the likelihood of utilization (AOR=1.23, 95% CI: 0.40, 6.10, p=0.410).

The ability to maintain a balanced lifestyle is another important factor, with individuals agreeing that they were able to a balanced lifestyle were more likely to utilize services (AOR=1.84, 95% CI: 0.49, 2.16, p=0.016). The referral process also shows some impact, where the timeliness of

referrals is a significant factor, with those agreeing that they visited due to the timeliness of the referral process showing a higher likelihood of utilization (AOR=0.11, 95% CI: 0.08, 1.37, p=0.018). Lastly, the availability of specialists is strongly associated with higher utilization, as individuals who agree that specialists are available are more likely to visit the renal unit (AOR=2.36, 95% CI: 2.11, 8.91, p=0.030).

Table 4.12: Multivariate analysis of the enabling and need factors influencing utilization of renal service

Enabling and need factors variable	COR (95% C.I) (p-value)	AOR (95% C.I.) (p-value)
Financial support is readily available when needed		
Disagree	Ref 1	Ref 1
Neutral	1.67 (0.40, 2.12), 0.129	3.73 (0.31, 17.76), 0.171
Agree	1.47 (0.27, 4.83), 0.009	1.52 (1.21, 5.99), 0.030
I receive encouragement from my relatives and friends during my treatment service		
Disagree	Ref 1	Ref 1
Neutral	-	1.03 (0.01, 4.89), 0.082
Agree	-	3.08 (2.03, 12.44), 0.021
The ability to perform daily activities		
Disagree	Ref 1	Ref 1
Neutral	1.38 (0.68, 2.79), 0.377	1.33 (0.77, 9.107), 0.070
Agree	2.05 (0.94, 4.48), 0.007	1.84 (0.25, 3.93), 0.008
Able to manage health effectively and ensure well-being		
Disagree	Ref 1	Ref 1
Neutral	0.73 (0.32, 1.68), 0.459	1.76 (0.27, 4.80), 0.148
Agree	0.78 (0.29, 2.11), 0.624	1.23 (0.40, 6.10), 0.410
Able to a balanced lifestyle.		
Disagree	Ref 1	Ref
Neutral	2.87 (1.27, 6.50), 0.012	1.84 (0.49, 2.16), 0.016
Agree	2.21 (0.89, 5.46), 0.005	1.33 (0.19, 2.86), 0.008
There is an ease of the referral process during my utilization of the renal unit		
Disagree	Ref 1	Ref 1
Neutral	1.89 (0.36, 3.21), 0.303	1.01 (0.10, 3.33), 0.161
Agree	1.46 (0.15, 2.37), 0.162	1.11 (0.97, 5.55), 0.971

I visited the renal unit due to the timeliness of the referral process		
Disagree	Ref 1	Ref 1
Neutral	0.91 (0.41, 2.05), 0.044	0.11 (0.08, 1.37), 0.018
Agree	1.75 (0.31, 2.85), 0.533	1.22 (1.14, 3.77), 0.510
I visited the renal unit due to the availability of specialists		
Disagree	Ref 1	Ref 1
Neutral	1.72 (0.34, 2.15), 0.381	1.71 (0.69, 8.12), 0.322
Agree	1.91 (0.42, 7.05), 0.010	2.36 (2.11, 8.91), 0.030

Source: Field Data (2025)

4.12 The relationship between NHIS enrolment and utilization of health services

The study assesses the relationship between NHIS Enrolment and utilization of health. The results of the study are presented in Table 4.13. The multivariate analysis reveals the relationship between NHIS enrolment status and health service utilization. Individuals who are currently enrolled in the NHIS show no significant difference in utilization compared to those not enrolled (AOR=0.56, 95% CI: 0.28, 3.82, p=0.212). Similarly, the number of years enrolled does not significantly affect utilization, with no clear impact from being enrolled for 1-2 years, 3-5 years, or more than 5 years. However, satisfaction with NHIS coverage plays a role. Those who are very dissatisfied with their coverage are less likely to utilize renal services (AOR=0.06, 95% CI: 0.03, 0.98, p=0.008). Additionally, individuals who sometimes use NHIS services for renal care have a significantly higher likelihood of utilizing services (AOR=7.06, 95% CI: 3.35, 18.57, p=0.008), with frequent users also showing a higher likelihood (AOR=13.97, 95% CI: 1.88, 26.04, p=0.000). In contrast, those who always use NHIS services show no significant difference in utilization (AOR=8.15, 95% CI: 4.18, 17.72, p=0.797).

Again, the results in Table 12 suggest that NHIS accessibility has varying effects on the utilization of health services. In terms of the ease of accessing NHIS-approved healthcare facilities, no significant associations were found for most groups, with those rating accessibility as "very easy"

showing a marginally higher likelihood of utilization (AOR=1.99, 95% CI: 1.01, 12.11, p=0.091). Other groups, including those who found access "difficult" or "easy," did not exhibit significant differences in utilization.

Regarding waiting time for NHIS-covered renal treatments, those reporting "short" waiting times had a significantly higher likelihood of utilizing services (AOR=1.9, 95% CI: 1.69, 9.14, p=0.004). Conversely, longer waiting times were associated with decreased utilization, with those reporting "long" waiting times showing a significantly lower likelihood (AOR=0.51, 95% CI: 0.08, 4.22, p=0.003), and "very long" waiting times also reflecting a higher reduced utilization (AOR=0.02, 95% CI: 0.17, 3.86, p=0.034).

Finally, the analysis indicates that NHIS coverage for prescribed medications does not significantly affect health service utilization, as those with partial coverage show no significant difference (AOR=0.49, 95% CI: 0.27, 2.24, p=0.237), and those not enrolled in NHIS have a lower likelihood of utilization (AOR=0.24, 95% CI: 0.16, 8.45, p=0.007).

For specialist consultations, individuals whose NHIS plan partially covers these services show a significant reduction in the likelihood of utilization (AOR=1.12, 95% CI: 0.66, 1.98, p=0.022). Those not enrolled in NHIS have no significant impact (AOR=0.31, 95% CI: 0.16, 3.65, p=0.222).

Regarding hospital admissions for renal-related complications, partial coverage significantly increases the likelihood of utilizing hospital services (AOR=3.11, 95% CI: 1.19, 11.13, p=0.018). Those not enrolled in NHIS show a slightly higher likelihood (AOR=3.078, 95% CI: 2.17, 9.09, p=0.079), although this result is marginally significant.

Table 4.13: Multivariate analysis of the relationship between NHIS Enrolment Status and utilization health services

NHIS Enrolment Status	COR (95% C.I) (p-value)	AOR (95% C.I) (p-value)
Currently enrolled in the NHIS		
Yes	Ref 1	Ref 1
No	0.73 (0.33, 9.51), 0.303	0.56 (0.28, 3.82), 0.212
Years of enrolled in the NHIS		
Less than 1 year	Ref 1	Ref 1
1-2 years	2.15 (0.14, 32.21), 0.579	1.25 (0.77, 9.90), 0.336
3-5 years	2.00 (1.51, 6.95), 0.078	1.19 (0.17, 6.65), 0.276
More than 5 years	2.07 (1.99, 8.09), 0.530	1.51 (1.11, 3.98), 0.504
Not applicable (not enrolled)	0.30 (0.17, 2.68), 0.030	0.05 (0.02, 1.15), 0.004
Satisfied with coverage provided by the NHIS renal treatment		
Not applicable (not enrolled)	Ref 1	Ref 1
Very dissatisfied	0.04 (0.00, 0.83), 005	0.06 (0.03, 0.98), 0.008
Dissatisfied	0.08 (0.03, 2.38), 0.377	0.10 (0.07, 2.69), 0.195
Neutral	1.97 (1.22, 8.66), 0.091	2.59 (1.16, 4.10), 0.107
Satisfied	1.83 (0.99, 6.21), 0.333	1.19 (1.05, 7.99), 0.662
Very satisfied	5.88 (4.77, 14.09), 0.099	3.82 (2.08, 12.89), 0.081
Used NHIS services for renal care		
Not applicable (not enrolled)	Ref 1	Ref 1
Sometimes	10.46 (5.56, 53.78), 0.031	7.06 (3.35, 18.57), 0.008
Often	18.11 (7.34, 44.89), 0.001	13.97 (1.88, 26.04), 0.000
Always	11.22 (5.88, 32.09), 0.538	8.15 (4.18, 17.72), 0.797
NHIS Accessibility		
Rate the ease of accessing NHIS-approved healthcare facilities		
Not applicable (not accessible to NHIS)	Ref 1	Ref 1
Very difficult	0.24 (0.12, 3.14), 0.307	0.54 (0.22, 5.42), 0.331
Difficult	0.23 (0.19, 3.98), 0.103	0.32 (0.17, 1.98), 0.171
Neither easy nor difficult	0.30 (0.01, 2.04), 0.239	0.22 (0.19, 4.13), 0.523
Easy	0.77 (0.60, 8.00), 0.480	0.81 (0.33, 3.44), 0.210
Very easy	1.08 (.41, 6.10), 0.080	1.99 (1.01, 12.11), 0.091
Rate the waiting time to receive NHIS-covered renal treatments		
Very short	Ref 1	Ref 1
Short	1.23 (0.99, 2.81), 0.012	1.9 (1.69, 9.14), 0.004
Neither short nor long	0.33 (0.06, 9.05), 0.211	0.40 (0.11, 2.62), 0.425
Long	0.07 (0.00, 2.51), 0.013	0.51 (0.08, 4.22), 0.003
Very long	0.09 (0.02, 5.19), 0.028	0.02 (0.17, 3.86), 0.034
Not applicable (not accessible to NHIS)	0.18 (0.01, 2.71), 0.211	0.13 (0.03, 8.99), 0.322

NHIS Coverage		
The NHIS plan covers the cost of prescribed medications		
Yes	Ref 1	Ref 1
Partially	0.28 (0.21, 8.27), 0.763	0.49 (0.27, 2.24), 0.237
Not applicable (not enrolled)	0.31 (0.10, 2.34), 0.044	**0.24 (0.16, 8.45), 0.007**
NHIS plan cover specialist consultations		
Yes	Ref 1	Ref 1
Partially	2.33 (0.31, 12.02), 0.011	**1.12 (0.66, 1.98), 0.022**
Not applicable (not enrolled)	0.41 (0.03, 2.88), 0.32	0.31 (0.16, 3.65), 0.222
NHIS covers hospital admissions for renal-related complications		
Yes	Ref 1	Ref 1
Partially	4.31 (0.96, 16.36), 0.009	3.11 (1.19, 11.13), 0.018
Not applicable (not enrolled)	1.89 (0.77, 8.08), 0.114	3.078 (2.17, 9.09), 0.079

Source: Field Data (2025)

4.13 Chapter Summary

The study's main findings are summarised as follows: the study found that in reference to the proportion of renal patients enrolled on the NHIS in Korle-Bu teaching hospital, 93.5% are currently enrolled in the National Health Insurance Scheme (NHIS), while 6.5% are not. Among those not enrolled, reasons include expired insurance (30.8%), perceived ineffectiveness of NHIS in covering medical expenses (30.8%), and personal choice (38.4%).

In terms of enabling and need-related factors influencing the utilization of renal services among patients. Nearly half (49.0%) agree that their insurance plan provides comprehensive coverage. Similarly, 48.0% acknowledge financial support as readily available. Social support appears limited, with only 22.5% receiving encouragement from family and friends for a fast recovery.

More so, there is a significant association between demographic factors and the utilization of renal health services. Again, there is a significant association between enabling and need factors and the utilization of renal health services. NHIS enrolment shows a significant association with the utilization of renal health services. Further, demographic factors, enabling and need factors

significantly influence health service utilization for renal services. Finally, there is a significant effect of NHIS enrolment on health service utilization.

CHAPTER FIVE

DISCUSSION

5.0 Introduction

The primary goal of the study was to investigate the impact of NHIS enrolment on healthcare utilization among renal patients in Korle-Bu Teaching Hospital.

5.1 The proportion of renal patients enrolled on the NHIS

The study assessed the proportion of renal patients enrolled on the NHIS. A substantial majority of renal patients are enrolled in the NHIS, with a small proportion not enrolled. This aligns with existing studies, such as Christmals and Aidam (2020) and Awoonor-Williams et al. (2016), which reported a high enrolment rate in NHIS, albeit with a focus on persons with disabilities. The study findings were further confirmed by Wiredu et al. (2021) in Ghana. This similarity suggests that NHIS enrolment is relatively high across different patient groups, including renal patients, which affirmed the study by Kotoh et al. (2018). However, the reasons for non-enrolment in the current study differ somewhat from those observed in other research, where factors such as perceived health status and knowledge about the scheme play more prominent roles, which affirmed the study by Kwarteng, Akazili et al. (2020).

It is further reported that the majority of enrolled renal patients have been on NHIS for more than five years, which indicates long-term enrolment is common among patients with chronic conditions like renal disease. This is consistent with Alhassan, Nketiah-Amponsah and Arhinful's (2016) and Van der Wielen et al. (2018) findings, which emphasised the importance of community healthcare facilities in enhancing NHIS enrolment, particularly in rural areas where access to treatment is often more challenging.

Regarding utilisation, patients frequently use NHIS services, with a significant portion reporting that NHIS coverage does not fully meet their treatment needs, which affirmed the work of Adjei-Mantey and Horioka (2023), who observed that even though NHIS is mandatory, its voluntary nature and limitations in coverage mean that many patients may still face barriers to accessing comprehensive care. The current study's finding that 51.5% of patients report long waiting times is particularly concerning, as this indicates systemic inefficiencies that are consistent with criticisms in the broader literature, such as those from Akokuwebe and Idemudia (2022) and Wang et al. (2017), who found that access to healthcare is often hindered by long waits, particularly in under-resourced settings.

Moreover, it is reported that patients believe dialysis treatments are covered by NHIS and perceive partial coverage for specialist consultations underscore the issue of incomplete healthcare coverage, which affirmed the previous studies by Sackey and Amponsah (2017) in Ghana and Adhikari et al. (2020) in Nepal, where the lack of comprehensive coverage was cited as a major obstacle to NHIS uptake and satisfaction.

5.2 Enabling and need factors influencing utilization of renal service

The study provides a clear view of the factors influencing the utilization of renal healthcare services, with a focus on enabling, need-related, and predisposing factors. Notably, the study shows that enabling factors like insurance coverage (reporting comprehensive coverage), availability of financial support, and social support significantly influence the decision to seek renal care. This aligns with existing research on healthcare utilization, such as the studies by Choi et al. (2019) and Ayanore et al. (2019), where financial barriers and health insurance coverage were significant enabling factors affecting healthcare access. However, while it was reported that 49.0% of patients felt their insurance plan was comprehensive, other studies, like Garris and Weber

(2018), highlight that NHIS coverage may not always fully alleviate financial barriers due to gaps in coverage and the availability of NHIS-approved providers.

The need factors were reported as the severity of renal disease (stating it impacts their daily activities and reporting quality of life restrictions), which then has a statistically significant association with healthcare utilization. The findings affirmed the Health Services Utilization Model (HSUM), which emphasizes the importance of perceived health needs in shaping healthcare-seeking behaviour (Li, Denson & Dorstyn, 2017). Additionally, the study by Hounkpatin et al. (2020) affirmed that chronic kidney disease patients perceive a higher need for care, which influences their healthcare decisions. However, the extent to which need influences utilization varies based on individual circumstances and available resources, as suggested by the criticism of HSUM by Lederle et al. (2021), which argues that the model does not account for contextual barriers, such as cultural influences and systemic healthcare flaws.

Further, it was reported that predisposing factors like age, marital status, and employment status are associated with healthcare utilization. This confirmed the studies such as Van Der Wielen et al. (2018) and Abera Abaerei et al. (2017), which suggest that demographic characteristics such as age and socio-economic status play a significant role in healthcare utilization. However, while there was a statistically significant association between employment status and healthcare use, other studies (such as Singh et al., 2018) have shown that the effect of employment status may vary across populations and regions. It was also reported that those individuals who tend to utilise healthcare services more frequently reflect the notion that employment status is often associated with access to insurance and financial resources, thus facilitating access to care.

The referral rates to renal specialists (reporting ease in referrals and visiting due to timely referrals) also affirmed with the results of Garris and Weber (2018), who discuss the importance of timely

and efficient referral processes in improving healthcare access. The ease of referral process and the availability of specialists as significant determinants of service utilization further underscore the importance of an efficient healthcare system in facilitating access to specialist care, as suggested by both the current study and prior literature, which is affirmed by Opoku et al. (2021).

5.3 The relationship between NHIS enrolment and utilization of health services

The study assessed the relationship between NHIS enrolment status and health service utilization. The study found that patients who expressed dissatisfaction with NHIS coverage were 94% less likely to utilize renal services, while those with more consistent usage of NHIS services had a substantially higher likelihood of utilizing these services (7.06 times higher for occasional users and 13.97 times higher for frequent users). This finding was affirmed by the study by Dalinjong et al. (2017), who also reported that individuals with health insurance were significantly more likely to utilize both outpatient and inpatient services. Specifically, Kipo-Sunyehzi et al. (2019) study affirmed that individuals with health insurance had 2.51 and 2.78 higher odds of utilizing outpatient and inpatient services, respectively, which aligns with the study by Okoroh et al. (2018) where consistent NHIS utilization results in higher service usage.

Additionally, the finding that partial coverage of NHIS increases the likelihood of utilizing renal services (3.11 times for hospital admissions) supports the conclusions of Daramola et al. (2017), which suggested that NHIS plays a critical role in increasing timely access to healthcare, including renal care. In fact, the role of NHIS in improving access to renal services is a common theme across several studies, including Tungu, Amani et al. (2020), who found that NHIS-enrolled individuals were more likely to use healthcare services.

The study also identifies the impact of waiting times on healthcare utilization, with patients reporting "short" waiting times having a significantly higher likelihood of utilizing services, while

those experiencing "long" or "very long" waiting times were much less likely to seek care. This is consistent with the findings of Nketiah-Amponsah et al. (2019), who explored NHIS subscribers' perception of service quality and found that factors such as wait times and the perceived quality of services influenced healthcare utilization. Longer waiting times often act as a deterrent to service use, as evidenced in the current study, where longer waits were associated with significantly lower utilization.

Moreover, the study's findings affirmed the importance of socioeconomic factors, as discussed in the Social Determinants of Health (SDH) theory (Rice & Sara, 2019). It is noteworthy that the study results suggest dissatisfaction with NHIS and delayed care are associated with lower utilization of renal services, potentially linking these issues with socio-economic barriers to healthcare access. The theory suggests that lower socioeconomic status can hinder access to NHIS, influencing the enrolment process and the likelihood of healthcare service utilization ((Dean et al., 2013; Ferrer, 2023), a concept supported by the current study's findings on NHIS enrolment and utilization.

Comparatively, the study by Adebiyi and Adeniji (2021) diverges slightly in terms of the utilization rates among civil servants, where respondents availed themselves of NHIS services. While the study suggests that dissatisfaction with NHIS coverage significantly impacts service utilization, Adebiyi and Adeniji's study highlights that the vast majority of NHIS enrollees utilized the services. This contrast reflects different populations or healthcare settings, yet both studies underscore the importance of NHIS enrolment in improving access to healthcare.

5.4 Limitation of the study

The study is conducted at a single facility, the Korle-Bu Teaching Hospital, which limit the applicability of the results to other healthcare settings with different demographic compositions,

healthcare infrastructures, or NHIS implementation strategies. Moreover, due to the state of most patient, data collection became a great challenge but with the effort of the research, the required number was achieved for the study analysis. Finally, socioeconomic and structural barriers outside the scope of the study, such as healthcare provider attitudes also influence service utilization but are not explicitly accounted for.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of Key Findings

The study tested the proportion of renal patients enrolled on the NHIS and found that a significant majority of renal patients (93.5%) are currently enrolled in the National Health Insurance Scheme (NHIS), while 6.5% are not. Among those not enrolled, reasons include expired insurance (30.8%), perceived ineffectiveness of NHIS in covering medical expenses (30.8%), and personal choice (38.4%). Most enrolled patients (68.0%) have been on NHIS for more than five years. Regarding satisfaction with NHIS coverage for renal treatment, 37.0% of patients expressed satisfaction (16.5% satisfied and 20.5% very satisfied). In terms of utilization, 50.0% of patients (17.0% often, and 36.0% always) use NHIS services frequently with 6.5% not using NHIS due to non-enrolment. Again, only 36.0% of patients believed that NHIS plans cover dialysis treatments and 66.0% believing they received partial coverage of prescribed medications. Specialist consultations for renal care were believed partially covered for 57.0% patients. Less than half (33.0%) of patients believe that hospital admissions for renal-related complications are fully covered. The study found that a significant proportion (37.0%) of patients experience NHIS access difficulties. Regarding waiting times for NHIS-covered renal treatments, 51.5% of patients report long waiting times (40.5% very long waiting time and 11.0% experience long waits).

Considering whether enabling factors and need-related factors influence the utilization of renal services among patients. It was reported that nearly half (49.0%) of patient believed that their insurance plan provides comprehensive coverage. Similarly, 48.0% acknowledge financial support as readily available for their treatment. Social support appears limited, with only 22.5% receiving encouragement from family and friends for a fast recovery.

Regarding the well-being of renal disease, 20.5% believes that they had the ability to perform daily activities. More than one fourth (26.0%) state that they were able to manage health effectively and ensure well-being. Additionally, 16.5% believes that they were able to a balanced lifestyle.

For referral rates to renal specialists, 22.5% reported that the referral process is easy. More than one fourth (30.5%) visit the renal unit due to the timeliness of referrals. Similarly, 27.5% also visited renal unit due to the availability of specialists. Additionally, 25.0% prefer the renal unit because of the high-quality standards of specialists.

The study found that enabling factors, need-related and pre-disposing factors significantly associate with the utilization of renal services among patients. The study further found that individuals who believes that financial support is readily available when needed 1.52 more likely of utilizing renal services (p=0.030). Similarly, patients who received encouragement from relatives and friend's stance 3.08 times likely to utilize services (p=0.021).

Further, individuals who believes that the disease hinders their ability to perform daily activities were 1.84 times more likely to utilize renal services (p=0.008). Patient who believes that their life is restricted when facing severe disease were 1.84 more likely to utilize services (p=0.016)). Lastly, the availability of specialists is strongly associated with higher utilization, as individuals who agree that specialists are available were 2.36 more likely to visit the renal unit (p=0.030).

In terms of pre-disposing factors, patients who aged 26-35 years were approximately 21 times more likely to utilize services compared to those in the 18-25 years age group. Similarly, those in the 36-45 years age group and 46-55 years group also show 2.3 and 1.7 respectively times higher likelihoods of utilization. However, for those aged 56 and above, were 94% less likely to utilize health service. Regarding marital status, patients being single were 1.3 times more likely to use health service irrespective of other groups of marital status. For educational level, individuals with

secondary education and tertiary education were 1.9 and 1.7 times more likely to utilize renal services compared to those with no formal education.

Employment status significantly affects renal service utilization, with those patients with part-time (23.6 times), unemployed (24.6 times), retired (21.5 times), and student (21.9, times) status all showing strong positive associations with service utilization. The study lastly found that, the number of children influences utilization, with individuals having one child were 3.4 times more likely to utilized health service.

In line with the relationship between the NHIS enrolment and health service utilization, it was found that patients who were very dissatisfied with NHIS coverage were 94% less likely to utilize renal services. Additionally, individuals who sometimes use NHIS services for renal care were 7.06 times more likely of utilizing services, with frequent users also showing 13.97 times higher likelihood utilizing services.

It was reported that for specialist consultations, individuals whose NHIS plan partially covers these services show a significant 1.12 times more likelihood of utilization of the facility.

Regarding hospital admissions for renal-related complications, those that believes that NHIS partial coverage for hospital admissions were 3.11 times more likely of utilizing hospital services.

Regarding waiting time for NHIS-covered renal treatments, those reporting "short" waiting times had 1.9 times more likely of utilizing services. Conversely, longer waiting times were associated with 49% less likely of utilization the renal service, and "very long" waiting times also reflecting reduced of 98% chance of utilization.

6.2 Conclusion

Considering objective one which assessed the proportion of renal patients enrolled on the NHIS, renal patients were enrolled on the National Health Insurance Scheme (NHIS). Renal patients hold the view that NHIS is ineffectiveness in covering medical expenses with some holding their personal view which were undisclosed. Renal patients were enrolled on NHIS for more than five years. However, renal patients expressed satisfaction with NHIS coverage for treatment. Renal patients frequently utilized NHIS. Patient however believed that NHIS had only partial coverage of prescribed medications for renal service. NHIS also partially covered specialist consultations for renal care. Moreover, renal patient experiences difficulties using NHIS to access facilities. Also, there is a long waiting time utilizing NHIS for renal treatment.

Considering objective two which examines whether enabling factors and need-related factors influence the utilization of renal services among patients. There is an association between enabling factors, need-related and pre-disposing factors with the utilization of renal services among patients. The financial support relates to the utilization of renal services. Similarly, encouragement from relatives and friend translate to health service utilization services.

Further, frequent utilization of renal services is because of fear of high risk of disease which may hinders patients' ability to perform daily activities. Patient utilized renal services due to availability of specialists.

Patients' utilization of renal services is influenced by age, marital status, educational level, employment status and number of children. Specifically, patients who aged 18-25 years, 26-35 years, 36-45 years and 46-55 years utilizes renal service. Again, utilization of renal service was frequent among unmarried/single patients. Further, utilization of renal service is based on patients

with secondary and tertiary education. Patients with status of part-time, unemployed, retired, and student utilizes renal service. Patients with at least a child turn to utilizes renal service.

In line with objective three which assessed the relationship between NHIS enrolment status and health service utilization, it can be concluded that NHIS coverage translate to utilization of renal services. Patients with NHIS utilizes renal services. Even though there was a partially NHIS covers for specialist consultations and hospital admissions, it influences utilization of the renal services. Moreover, shorter waiting time when using NHIS increases utilization of renal service. Conversely, long and very long waiting times of patient with NHIS reduces the utilization of the renal service.

6.3 Recommendations

Based on the study's findings, several key recommendations were made to policymakers, the government, and the management of Korle-Bu Teaching Hospital to improve the effectiveness of the National Health Insurance Scheme (NHIS) and enhance renal healthcare utilization.

i. Policymakers and government authorities should review and expand the NHIS benefit package to ensure more comprehensive coverage for renal patients. The current partial coverage of prescribed medications and specialist consultations limits the scheme's effectiveness in supporting patients with chronic conditions. Expanding the scope to include full coverage for dialysis, laboratory tests, specialist consultations, and essential medications would significantly reduce out-of-pocket expenses and improve continuity of care.

ii. Additionally, the government should consider introducing a special subsidy or a chronic illness support fund within the NHIS framework dedicated to renal and other long-term disease management to protect patients from catastrophic health expenditures.

iii. It is also suggested that the government strengthen the operational efficiency of the NHIS by addressing administrative bottlenecks that lead to long waiting times in accessing renal

treatment. Digitalizing patient records and claims processing can help minimize delays and streamline service delivery for both patients and healthcare providers.

iv. Furthermore, public education campaigns should be intensified to raise awareness about the full benefits of NHIS enrolment and the procedures for accessing covered services. This would encourage more patients, especially younger individuals and those in informal employment, to register and maintain active NHIS membership.

v. Korle-Bu Teaching Hospital, administration should collaborate closely with the NHIS authorities to establish a dedicated renal desk that facilitates insurance processing, addresses patient complaints, and ensures timely service delivery. Training frontline healthcare staff on NHIS procedures and patient communication can also improve patient satisfaction and reduce perceived barriers to care. Moreover, the hospital should consider investing in more dialysis machines and expanding renal service capacity to accommodate the increasing number of patients seeking care under the NHIS.

vi. In a broader context, partnerships between the Ministry of Health, the NHIA, and tertiary hospitals like Korle-Bu are essential to ensure the sustainability and inclusiveness of renal healthcare financing. Evidence from this study suggests that enabling and need-related factors such as financial support, social encouragement, and availability of specialists directly influence service utilization. Therefore, integrating social support programs, patient education, and counselling services into renal care can enhance adherence to treatment and improve overall health outcomes.

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APPENDIX I: RESEARCH QUESTIONNAIRE

Introduction: This study is in partial fulfilment of the requirements for the award of Master of Public Health in the Department of Health Policy Planning and Management under the School of Public Health of the University of Ghana. This questionnaire is integral to the success of this study and is aimed at obtaining relevant data for the purpose of assessing the NHIS enrolment on healthcare utilization among renal patients. No personal data will be retained nor given to a third party. Additionally, data obtained via this medium will be employed solely for academic purposes. Confidentiality and anonymity are assured. Thank you.

PART 1

SECTION A: Demographic information

Please fill in the blank spaces and tick (√) where applicable.

Form: ……

1. Age
   a. 18-25 years [ ] b. 26-35 years [ ] c.36-45 years. [ ] d. 46-55 years [ ]
   e. 56 years and above [ ]
2. Marital status
   a. Married [ ] b. Single [ ] c. Divorced[ ] d. Widowed[ ]
3. Level of education
   a. No education [ ] b. Primary School [ ] c. Secondary School [ ] d. Tertiary/University education [ ]
4. Employment status
   a. Employed full-time [ ] b. Employed part-time [ ] c. Self-employed [ ]
   d. Unemployed [ ] e. retired [ ] f. student [ ]
5. How many children do you have? a. zero (0) [ ] b. 1 [ ] c. 2 [ ] d. 3 or more [ ]
6. Monthly Household Income (in local currency) a. Less than 500GH [] b. 500GH – 1000GH [] c. 1100GH – 1500GH [ ] d. 1600GH -2000GH [] e. More than 2000 []

7. Out-of-pocket healthcare expenses per month (in local currency) a. Less than 500GH [] b. 500GH – 1000GH [] c. 1100GH – 1500GH [ ] d. 1600GH -2000GH [] e. More than 2000 []

SECTION B: NHIS enrolment

Kindly tick in the appropriate boxes (yes or no), the rate of enrolment for the following:

Please tick (✓) the response applicable to NHIS enrolment on status, coverage type, claim reimbursement, accessibility and premium status as cited by Sarpong, Loag et al. (2010).

SECTION B1: NHIS Enrolment Status

1. Are you currently enrolled in the National Health Insurance Scheme (NHIS)? a. Yes [] b. Not applicable (not enrolled) []
2. If not, why?.....
3. How long have you been enrolled in the NHIS? a. Less than 1 year [ ] b. 1-2 years [ ] c. 3-5 years [ ] d. More than 5 years [] e. Not applicable (not enrolled) []
4. How satisfied are you with the coverage provided by the NHIS for your renal treatment? a. Very satisfied [] b. Satisfied [] c. Neutral [] d. Dissatisfied [] e. Very dissatisfied [] f. Not applicable (not enrolled) []
5. How often do you use NHIS services for your renal care? a. Always [ ] b. Often [ ] c. Sometimes [ ] d. Not applicable (not enrolled) [ ]

SECTION B2: NHIS Coverage for renal patients

1. Does your NHIS plan cover dialysis treatments? a. Yes [] b. No [] c. Not applicable (not enrolled) []
2. Does your NHIS plan cover the cost of prescription medications for renal disease? A. Yes [] b. Partially [] c. Not applicable (not enrolled) []
3. Does your NHIS plan cover specialist consultations related to renal care? a. Yes [] b. Partially [] c. Not applicable (not enrolled) []
4. Are hospital admissions for renal-related complications covered under your NHIS plan? a. Yes [] b. No [] c. Partially [] d. Not applicable (not enrolled) []

SECTION B3: NHIS Accessibility for renal patients

1. How would you rate the ease of accessing NHIS-approved healthcare facilities for your renal treatment? a. Very easy [] b. Easy [] c. Neither easy nor difficult [] d. Difficult [] e. Very difficult [] f. Not applicable (not accessible to NHIS) []
2. How would you rate the waiting time to receive NHIS-covered renal treatments? a. Very short [] b. Short [] c. Neither short nor long [] d. Long [] e. Very long [] f. Not applicable (not accessible to NHIS) []

SECTION C: Enabling and need factors influencing utilization of renal service.

Please read each statement tick a BOX how you agree to the following factors that influences your past day/year's utilization of renal service; Scale 1= strongly disagree; 2= disagree; 3= neutral; 4= agree; 5= strongly agree

S/N	**Enabling, need and pre-disposing factors:** what is your agreement to the following factors that influences the past days/year's utilization of renal service	1	2	3	4	5
	Enabling factors					
1	The insurance plan provides comprehensive coverage that meets my needs					
2	Financial support is readily available when needed					
3	I receive encouragement from my relatives and friends for fast recovery					
	Need factor; *overall well-being of renal disease*					
4	I am able to perform daily activities					
5	I am able to manage health effectively and ensure well-being					
6	I am able to a balanced lifestyle.					
	Need factor; *Referral Rates to Renal Specialists*					
7	The ease of the referral process compels me to utilize the renal unit					
8	I visited the renal unit due to timeliness of referral process					
9	I visited the renal unit due to availability of specialists					
10	I prefer renal unit because the specialists meet high-quality standards					

SECTION D: Health service utilization of renal service

Please read each statement by ticking a BOX the frequency of utilization renal health service: Scale; 1=Infrequent: (Occasionally/Never); 2=Moderate: (2/3 Weeks/Monthly), 3=Frequent: (Daily/Weekly)

S/N	**Health service utilization**	1	2	3
	Outpatient Services			
1	How often do you attend routine check-ups at the renal outpatient clinic			
2	How frequently do you undergo lab tests as part of your renal outpatient care?			
3	How often do you consult with your renal specialist in the outpatient setting?			
4	How often do you attend treatment sessions (e.g., dialysis, medication adjustments) at the renal outpatient facility?			
5	How frequently do you participate in educational programs or workshops for renal health offered by the outpatient clinic?			
	Inpatient Services			
6	How often have you been admitted to the hospital for your renal condition in the past year?			
7	How often do you require inpatient dialysis treatments?			
8	How frequently have you undergone surgical procedures related to your renal condition in the hospital?"			
9	How often do you have extended hospital stays (more than 3 days) due to complications from your renal condition?			
	Emergency Services			
10	How frequently do you seek urgent medical consultations for sudden renal complications?			
11	How often do you require immediate dialysis treatments?			
12	How often do you need immediate medications for acute renal conditions?			
	Dialysis Services			
14	How often do you attend your scheduled dialysis sessions?			
15	How frequently do you require unscheduled or emergency dialysis sessions?			
16	How frequently do you miss your dialysis appointments?			
17	How often do you experience complications that require additional dialysis sessions?			
	Transplant Services			

18	How often do you attend pre/post-transplant evaluation appointments?			
19	How frequently do you consult with your transplant team or specialist?			
20	How frequently do you undergo medication monitoring as part of your transplant care?			

APPENDIX II: ETHICS APPROVAL LETTER

In case of reply the number
And the date of this
Letter should be quoted
My Ref. No. KBTH/md/G3/25
Your Ref. No.

KORLE BU TEACHING HOSPITAL
P. O. BOX KB 77,
KORLE BU, ACCRA.

Tel: +233 302 667759/673034-6
Fax: +233 302 667759
Email: Info@kbth.gov.gh
pr@kbth.gov.gh
Website: www.kbth.gov.gh

4th February, 2025

DR (MED) ELLEN OKYERE-DANKWA
DEPARTMENT OF HEALTH POLICY, PLANNING & MANAGEMENT
SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA. LEGON

INSTITUTIONAL APPROVAL: KORLE BU TEACHING HOSPITAL-SCIENTIFIC AND TECHNICAL COMMITTEE/INSTITUTIONAL REVIEW BOARD (KBTH-STC/IRB/000206/2024

Following approval of your study entitled "**Assessment of Ghana's National Health Insurance Scheme (NHIS) Enrolment on Healthcare Utilization among Renal Patients at the Korle-Bu Teaching Hospital**" by the Korle Bu Teaching Hospital-Scientific and Technical Committee/Institutional Review Board.

I am pleased to inform you that institutional approval has been granted for the conduct of your study in Korle Bu Teaching Hospital.

Please contact the Head of Department to discuss the commencement date of the study.

Please note that, this institutional approval is rendered invalid if the terms of the Institutional Reviewed Board/Scientific and Technical Committee approval are violated.

Sincere regards,

Dr. Harry Akoto
Ag. Director of Medical Affairs

Cc: The Chief Executive, Korle Bu

In case of reply the number
And the date of this
Letter should be quoted

My Ref. No. KBTH/IRB/93125

Your Ref. No......

KORLE BU TEACHING HOS
P. O. BOX KB 77,
KORLE BU, ACCRA.

Tel: +233 302 667759/673034-
Fax: +233 302 667759
Email: Info@kbth.gov.gh
pr@kbth.gov.gh
Website: www.kbth.gov.gh

15th January, 2025

DR (MED) ELLEN OKYERE-DANKWA
DEPARTMENT OF HEALTH POLICY, PLANNING & MANAGEMENT
SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA. LEGON

SCIENTIFIC AND TECHNICAL COMMITTEE APPROVAL PROTOCOL IDENTIFICATION NUMBER: KBTH-STC 000206/2024

The Korle Bu Teaching Hospital Scientific and Technical Committee (KBTH-STC), on 15th January, 2025 reviewed and approved your submitted study protocol.

Title of Protocol: **"Assessment of Ghana's National Health Insurance Scheme (NHIS) Enrolment on Healthcare Utilization among Renal Patients at the Korle-Bu Teaching Hospital"**

This approval requires that you forward your approved document to Korle Bu Teaching Hospital – Institutional Review Board (KBTH-IRB) for the ethical aspect of the proposal to be assessed before the project may be initiated.

PRINCIPAL INVESTIGATOR: **ELLEN OKYERE-DANKWA**

This STC approval is valid till 31st December, 2025

You may, however, request extension of the approval period, or renewal as the case may be, should the study extend beyond the stated period.

Upon completion, you are required to submit a final report on the study to the STC. This is to enable the STC ensure among others that, the project has been implemented as per the approved protocol. You are also required to inform the KBTH-STC and Research Directorate of any publications that may emanate from the research findings.

Kindly note that, should the need arise, the KBTH-STC or IRB may institute appropriate measures to satisfy itself that study is being conducted according to the highest scientific and ethical standards.

Please note that any modification to the study protocol without Scientific Technical Committee (STC) approval renders this Approval invalid.

Prof. G. Obeng Adjei
Chairman, KBTH-STC

Cc: The Chairman, KBTH-IRB