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ANALYSIS OF HEALTH SERVICE UTILIZATION IN GHANA

BY

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DECLARATION

I, Derek Anamaale Tuoyire, hereby submit this dissertation and I declare that it is my own original work. I have not submitted this work for another degree, in whole or in part, in this university or elsewhere, with the exception of other people's work which I have duly acknowledged.

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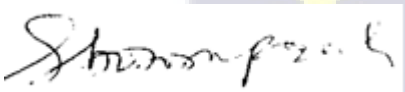
Derek Anamaale Tuoyire

(Student)

Date: 13th September, 2022 .



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Prof. Samuel Bosomprah

(Supervisor)

Date: 13th September, 2022

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DEDICATION

I dedicate this work to my family

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ABSTRACT

BACKGROUND: Essential healthcare services remain inaccessible or unutilized by many people in need of care in Ghana. In a bid to extend the frontiers of current understanding of health service utilization, this study analyzed the 30-year (1987-2017) time trends in health service utilization in Ghana, as well as the factors associated with health service utilization in Ghana

METHODS: A secondary analysis of the Ghana Living Standards Survey (rounds 1-7) data was conducted using proportions, linear and binary logistic regression techniques.

RESULTS: The results showed a low fluctuating but increasing trend in health facility visits in Ghana over the period (1987 to 2016/17) under review, ranging from 35% in 1998/1999 to 50% in 2012/13. The regression results revealed that health service utilization in Ghana is significantly ($p<0.05$) predictable by a number of predisposing (age, sex), enabling (wealth status, health insurance) and need factors (severity of illness/injury) with varying effects. Severity of illness or injury had the strongest positive effect on both health facility visits (mild, OR=2.5, 95% CI=2.27-2.85; severe, OR=2.7, 95% CI=2.32-3.27) and patronage of public facilities (severe, OR=1.3, 95% CI=1.02-1.67) for health services.

CONCLUSIONS: Health service utilization in Ghana has generally been low over the period under review, with higher rates in public than private facilities. The factors associated with health service utilization in Ghana include; age, sex, wealth status, health insurance, and severity of illness.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ANC	-	Antenatal Care
BIC	-	Bayesian Information Criterion
CHPS	-	Community Health Planning and Services
CI	-	Confidence Interval
GSS	-	Ghana Statistical Service
GLSS	-	Ghana Living Standards Survey
GHS	-	Ghana Health Service
HBM	-	Health Belief Model
LSMS	-	Living Standards Measurement Study
MOH	-	Ministry of Health
NHIS	-	National Health Insurance Scheme
OR	-	Odds Ratio
PHC	-	Population and Housing Census
PSU	-	Primary Sampling Unit
PWD	-	Person with Disability
UHC	-	Universal Health Coverage
UN	-	United Nations
WHO	-	World Health Organization

CHAPTER 1

INTRODUCTION

1.1 Background to the study

The link between the state of health of the population of any given society and its development is the underlying philosophy which has shaped global health policy agenda since the 1978 declaration of "health for all" in Alma-Ata (WHO, 2015). With health recognized as a statutory fundamental human right, the health for all agenda resurged about two decades under the rubric of universal health coverage (UHC). The overall goal of UHC is to promote access to essential health services for all without compromising on quality, while making sure that those utilizing such health services or their families are free from the risk of financial hardship or impoverishment (Boerma et al., 2014). Deemed an important mechanism for ensuring equitable and affordable access to healthcare, UHC has since been integrated into the sustainable development goals with UN member states committed to attaining at least 80% essential health coverage regardless of socioeconomic status (Akweongo et al., 2021).

Monitoring progress towards the achievement of UHC requires mechanisms for assessing such progress (Akweongo et al., 2021; Boerma et al., 2014). In that regard, health services use by the populace of UN member countries is not only considered an essential policy issue in the delivery of public health, but is equally deemed as an important indicator for assessing progress towards the achievement of UHC, particularly in low- and middle-income countries (LMICs) (Workie et al., 2021). In LMICs, access to health services and their actual utilization constitute key indicators for improving health

related outcomes, as well as meeting international obligations of making healthcare more accessible (Akazili et al., 2012).

Despite several programmatic and policy efforts, health services considered to be essential remain unavailable to those needing and seeking care. For instance, more than one billion people still do not have access to healthcare, with LMICs disproportionately affected (Abaerei et al., 2017). Health utilization rates in sub-Saharan Africa is particularly low with rates ranging from 0.2 visits to 2 visits per year (Bonfrer et al., 2014; Workie et al., 2021).

The decision to seek and utilize health services often stems from the interplay of multiple factors beyond the specific health condition of the individual. Studies on health service utilization relating to both preventive and curative services have often cited demographic, socio-economic, health beliefs, as well as cost, availability and quality of care as factors explaining differences in the patterns of health service utilization (Soleimanvandiazar et al., 2020). Although these factors and how they interact vary across populations, there is some general consensus that income, wealth, and health insurance are strong socioeconomic factors influencing the quality and quantity of health service utilization (Kim & Lee, 2016; Soleimanvandiazar et al., 2020).

For LMICs like Ghana, understanding health service utilization and associated determinants is necessary, considering the inherent inequities relating to the general disease burden and accessibility to primary care (Wambiya et al., 2021). Indeed, poor access to health services has often been cited as a significant contributor to high mortality and morbidity rates in such countries (Kruk et al., 2018). In a bid to further extend the frontiers of current understanding of health service utilization for strategic policy

intervention purposes, this study seeks to analyze health service utilization in Ghana based on nationally representative Ghana Living Standard Survey (GLSS) data.

1.2 Statement of the problem

Ghana has seen appreciable improvements in its population health and wellbeing over the last three decades. For instance, life expectancy increased from 57 to 64 years between 1990 and 2017, while infant and child mortality reduced from 9% to 4% and 15% to 5%, respectively over the same period (Government of Ghana, 2020). Despite these general improvements in heath, Ghana continues to face high burden of morbidity and mortality as in other LMICs. Indeed, Ghana is said to have a complex disease burden with increasing burden of noncommunicable diseases, compared with the historic predominance of communicable, maternal, perinatal and nutritional diseases (Government of Ghana, 2020). Malaria still accounts for 24% of morbidity while hypertension accounts for over 15% mortality (Ghana Health Service (GHS), 2020).

Overall, Ghana is still far from reaching the desired global health targets partly due to huge disparities in access to- and utilization of affordable healthcare services. Cognizant of the importance of equitable allocation of health services more according to need rather than affordability, Ghana is among the few countries in the sub-Sahara African region advocating for UHC (Zhang et al., 2019). In that stride, several policy efforts have been championed over the years, including the implementation of the Community Health Planning and Services (CHPS) and National Health Insurance Scheme (NHIS) initiatives in the year 2000 and 2005, respectively. These initiatives reflect attempts to improve healthcare access for everyone by removing financial barriers

and protecting Ghanaians from catastrophic healthcaare expenditure (Akazili et al., 2012; Zhang et al., 2019).

In spite of these policy interventions, health service utilization in Ghana is generally low, with about 1.1 out-patient visits per capita between 2012 and 2014 (Nonvignon et al., 2018). Health service utilization varies by gender with lower rates among men (15%) compared with women (37%) (Ghana Statistical Service (GSS) & Ghana Health Service (GHS), 2015). Crystalizing this problem further is the death of extant literature on health service utilization in Ghana. The existing little research landscape on health service utilization is Ghana is replete with studies relating to maternal and child health service utilization ((Adu et al., 2018; Ganle et al., 2014; Nuamah et al., 2019). Other attempts at understanding the phenomenon have rather also focused on specific population segments such as the aged (Saeed et al., 2016), those with chronic health conditions (Opare-Addo et al., 2020) or health insurance subscription (Duku et al., 2016a). While these studies have provided some useful insights on the subject, such insights are not generalizable to the Ghanaian population since they only represent specific segments of the population.

This gap in our current understanding of health service utilization in Ghana and its antecedent factors beyond those observed in maternal and child health or other specific population segments provides impetus for conducting the current study. The study, thus, seeks to make a contribution to the discourse on health service utilization in Ghana by providing a national perspective on the phenomenon to inform future policy intervention and planning purposes.

1.3 Objectives of the study

The general objective of this study is to analyze health service utilization in Ghana.

Specifically, this study seeks to:

1. Describe the time trends in health service utilization rates in Ghana
2. Determine the factors associated with health service utilization in Ghana
3. Examine the factors associated with the type facility (public versus private) utilized for health services in Ghana

1.4 Significance of the study

In any country, the extent to which health service delivery and equitable access to healthcare can be achieved hinges on understanding the imperatives of health service utilization. This is because health service utilization consists of diverse dimensions in knowledge, beliefs, perceptions, needs and structural factors (Oladipo, 2014). Hence, the need to always investigate the phenomenon across the full range of populations rather than narrow segments for intervention purposes. By analyzing health service utilization using nationally representative GLSS data, this study will provide insights on how the patterns and determinants of health service utilization identified in prior studies based on segmented samples play out at the broader Ghanaian population level.

Beyond providing a national perspective on health service utilization, findings from the study could provide insights on health services utilization rates and patterns to inform policy decisions and interventions for ensuring equitable access to healthcare and improved health outcomes for all. For instance, an understanding of the type of services and facilities utilized could provide an indication for where more resources should be channeled.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter contains a review of existing literature relating to health services utilization. The review is presented according to themes, from a discussion of conceptual issues relating to health service utilization to the theories underlying healthcare seeking behaviours. The chapter ends with a description of the conceptual framework employed in the study.

2.2 Conceptual issues on health service utilization

Health service utilization describes the point where the various needs of patients seeking care are met by health professionals operating within a health system (Soleimanvandiazar et al., 2020). The concept simply refers to the use of healthcare services for the prevention or cure of disease or health related events, promotion of wellbeing, or even obtaining information about one's health status (Carrasquillo, 2013). For the purposes of quantification, health service utilization may be measured using a variety of approaches.

One approach involves estimating the total number of health services obtained over a defined time period, divided by a common population denominator. Another way is by computing the percentage of persons using a particular health service divided by the total number of persons eligible for that health service over a specified time period. A more straightforward alternative involves quantifying health service utilization by obtaining an aggregate number of person who use any particular health service without necessarily dividing by any population denominator (Carrasquillo, 2013).

2.3 Theoretical models explaining health service utilization

Several theories or models have attempted to describe the various pathways through which health services are utilized by people for preventive, promotive, curative or even rehabilitative purposes. This section of the review considers the most frequently used theories and models related to health service utilization from varied perspectives. This review therefore cuts across theories or models such as the health belief model which focus on psychological processes such as attitudes and beliefs which influence decision-making to behavioural models which extend to the social environmental context.

2.3.1 The health belief model

The health belief model (HBM) is frequently relied on for designing and implementing health interventions. The model was propounded in the 1950s for the purposes of explaining the low uptake or utilization of tuberculosis screening programmes in the United States of America (Strecher & Rosenstock, 1997). According to the HBM, health behaviour results from the interplay of personal beliefs or perceptions people hold about particular health conditions, as well the available interventions to reduce the occurrence of those health conditions (Skinner et al., 2008). Other factors at the intrapersonal level are the personal beliefs or perceptions they hold about these health conditions which are posited to be based on four main constructs – *perceived seriousness, perceived barriers, perceived susceptibility, and perceived benefits.* These beliefs have the propensity to collectively or individually explain one's health behaviour and associated outcomes such as health service use. A subsequent revision of the model saw the addition of other constructs, namely *self-efficacy, motivating factors and cues to action* (Skinner et al., 2008).

Perceived susceptibility describes beliefs that a person may have relating to their likelihood of catching a disease or condition. In other words, the more susceptible people believe they are to a particular heath outcome, the greater their probability of taking actions to counter that susceptibility and vice versa (Skinner et al., 2008). For instance, a person with an illness or injury must believe that their condition requires healthcare before considering to seek care in a facility. Perceived seriousness as a construct reflects the evaluation of an individual about the likely consequences (such as disability, death etc.) of the condition on their overall quality of life (Skinner et al., 2008). In this case, a person who considers his or her health condition as a less serious one may not seek care in a facility, as opposed to the one who sees it to pose a serious risk for further complication or death. The construct of *perceived threat* essentially describes the combined effects of perceived seriousness and perceived susceptibility (Skinner et al., 2008).

The model describes perceived benefits as the tendency for people to adopt health seeking behaviours such as visiting a health facility when they believe it will lead to some beneficial outcome such as improved health or cure of an illness or injury. The logic is that a person's behavioural choice irrespective of their perceived level of threat, is more likely to be influenced by the perceived benefits they belief will result from their actions, such as visiting a health facility (Abraham & Sheeran, 2014). Perceived barriers are the potential negative aspects an individual considers to be associated with their particular actions which may hinder them from engaging in certain health related behviours. This typically results from some form of unconscious, cost-benefit analysis about the expected benefits versus perceived barriers of engaging in a behaviour (Skinner et al., 2008).

Cues to action are considered as mechanisms which trigger an individual's actions such as reports in the media or other educational campaigns about available health services or the death or disability of a family member who refused to seek healthcare following an illness or injury. Self-efficacy explains the amount of conviction one has regarding their capacity to execute a certain desirable behaviour such as visiting a heath facility to receive needed care (Abraham & Sheeran, 2014; Bandura, 2001). Despite its wide application in various studies, the HBM is commonly criticized that one's perception of risk seldomely translates into health seeking behaviour (Baranowski et al., 2003).

2.3.2 Kroeger's health behavioural model

This model classifies the factors which determine the utilization of health services in both developed and developing countries into three groups. These factors are classified into predisposing, enabling, and health service determinants (Kroeger, 1983). Those considered as predisposing determinants are sociodemographic factors which potentially influence the use of health service, including age of a person, the sex/gender, size of their household, social status, ethnic background, social network among, socioeconomic status, innovation among others. However, these factors manifest differently between developed and developing countries. According to Kroeger, (1983) industrial economies of the developed world in comparison to the traditional economies of developing countries provide a better network of factors which interact for explaining health service

The model considers enabling determinants as factor relating to the supply of health services and the behavioral antecedents associated with heath service use. Particular factors of interest here relate to how health professionals interact with their clients, physical accessibility to health facility, health care cost, quality of care and

patient satisfaction. Health service determinants focus on health condition or illness characteristics such as severity of the health condition or illness, client satisfaction, expected benefits for utilizing health services, and the person's health behaviour. This category of determinants is exemplified in developing countries, were home remedies (including self-medication) is commonly resorted to in the event of acute health conditions (Majaj et al., 2013).

One limitation of the model is its failure to demonstrate the influence of health policy in explaining health service utilization, given that health policy is often cited to have impacts on health service utilization patterns. For instance, Buor (2013) and several others (Blanchet, Fink, & Osei-Akoto, 2012) have documented how health service utilization patterns have changed following the implementation of NHIS in Ghana.

2.3.3 Andersen behavioural model

The Andersen model describing health services utilization emerged in the later part of the 1960s to help explain the use of formal health services and proffer policy interventions for promotion the equitable access of health services (Andersen, 1995).

Like the Kroeger's, Anderen posits that service utilization is influenced by people's predisposition to utilize health services, impeding or enabling factors, as well as those that elicit a relative need for care in health facilities (Andersen, 1995). Predisposing determinant could be demographic (age) or biological (sex) imperatives which increase the probability that people will need health services. They could also include the beliefs people have about health conditions which are generally a reflection of their values, attitudes or knowledge they have about their health conditions or available health.

The model suggests that enabling factors could be at either the community or personal level or both, and their presence or absence determines whether health service

utilization will occur or not. In other words, health service utilization could occur if personnel and facilities are proximal to where potential users reside or work, coupled with the extent to which people have the means and knowledge of how to access and actually utilize the services. Some of the enabling determinants could be possession of valid health insurance, wealth status or income, distance to facility and length of waiting time for care among others.

Despite the wide array of both enabling and predisposing determinants posited in the model, the model recognizes the important role of arising imperatives that drive the need for health services. Accordingly, need factors are the perceived personal susceptibility or vulnerability to a disease or condition. Therefore, health service use is determined by how people perceive their health functional state in general, in addition to their experience of symptoms associated with disease or illness such as pain. Equally, utilization of health services is determined by an individual's self-assessment as to whether their symptoms are sufficient enough to require the need to seek health care services in a facility. Though widely used, the model is often criticized for not considering the influence of social and cultural interactions in explaining health service utilization (Andersen, 1995).

2.4 Determinants of health service utilization

A review of the existing literature relating to health service utilization reveals a plethora of studies from varying contexts and perspectives about the determinants of health service utilization. The following section discusses a number of factors identified in the literature to influence health services utilization.

2.4.1 Age

Age is a demographic factor which could determine person's capacity to understand issues in relation to health. For example, children are not able to comprehend their health issues and take decisions regarding care seeking. Adults on the other hand understand their health issues and could take healthcare seeking decisions. Additionally, age could shape one's decision-making regarding the use of healthcare services or otherwise (Anderson and Newman's, 1973). This is because people of varied age groups have different health needs and health conditions which could require different treatment and care. Beam et al. (2020), for example observed that health service utilization is strongly linked to a country's population age structure. Older aged groups and those with underlying health conditions such as hypertension, cardiovascular disease and diabetes may tend to utilize health services more frequently as compared with younger age groups and among people without underlying health conditions.

While assessing health service use and responsiveness of the health system, Awoke et al. (2017) reported that the aged used outpatient health services more often than their younger counterparts. Studies (Amin et al., 2010; Jatrana & Crampton, 2009; Lahana et al., 2011) conducted in both developed and developing countries also revealed that a person's likelihood of health services utilization increases with their age. Similar observations were made by Figueroa et al. (2017) in their study to identify multiplicity of factors that influences healthcare utilization. They opined that age is a critical determinant of utilization of health services, and observed that the elderly had a greater tendency to use healthcare services compared with the young.

2.4.2 Sex

Sex or gender is significant demographic variable that tends to shape or describe variations in how people use healthcare services. Studies (Bazie & Adimassie, 2017; Parslow et al.,(2004) suggest that women are highly perceptive and responsive of their own health needs which makes them allocate greater amount of time for looking after their health through visits to health facilities. Figueroa et al. (2017) in their study on the other hand identified a variety of factors that influences healthcare utilization with sex of the individual being one of the key factors. Owens (2008) for instance, observed that women generally tend to have higher rates compared to men in the use of health services. This is because sex related health vulnerabilities are especially associated with disease exposure.

Others have also argued that the higher exposure of women to contagion from the dominant roles they play as healthcare workers or home and family caregivers may explain the phenomenon (United Nations, 2020; World Bank Group, 2020). Similarly, Greene (2016) observed that women, especially working mothers, tend to spend more time than men focusing on medical issues related to their own healthcare and that of their families, thereby increasing their likelihood of health utilization than men.

2.4.3 Educational level

The level of educational attainment of an individual has a profound effect on the their health seeking behaviour, including health service utilization by influencing their perception of health needs, as well as the knowledge of the type of health services available (Buor, 2013). The more educated one is, the more cautious and conscious they are about their health which translates positively into their use of health services. For instance, Mohammadbeigi et al. (2015) found that oral health care utilization rates

increases as educational level increases. A study by Kalin (2011) suggests that educated people tend to pay greater attention to their healthcare needs and by extension tend to used healthcare services more. Similar observations have been reported by Awoke et al. (2017) while assessing health service use and responsiveness of the health system in Ghana.

In Bangladesh, Kabir (2021) found the level of maternal health service utilization to be higher for women who attained higher educational compared to their counterparts who attained lower education level. Rwabilimbo et al. (2020) also showed that women who had at least primary education had higher antenatal care (ANC) visitation rates compared with those without any education. In Uganda, however, Rutaremwa et al. (2015), observed this effect of education on healthcare utilization to only be evident for those with at least secondary level of education.

2.4.4 Marital status

The link between marital status and healthcare service utilization is rather complex and limited. It is difficult to ascertain if married people utilize health services more than unmarried or single persons. What is known is that, in settings where women do not have autonomy or lacked voice in decision-making regarding their health seeking, they tend to have lower odds of health service utilization (Barbi et al., 2021). In such context and settings, being married tends to reduce a likelihood of women utilizing the desired level of maternal health care services (Rutaremwa et al., 2015).

2.4.5 Wealth status

Also, wealth is observed to be a significant determining factor of healthcare utilization across various populations. The likelihood of service use varies according to the individual wealth status. This is because the household or family wealth status can

have a bearing on the type of healthcare services sought based on affordability. High income groups may have the means to afford the cost of travel and cost of service provided relative to the low income groups. O'Donnell, (2007) observed that the poor in third world countries have less access to health services. Kim and Richardson (2014), for example reported similar findings in their study involving the aged population in the United States. Health service utilization was found to be predicted by income level of participants, as well as their asset-base and ownership private health insurance. Arcury et al., (2005) found household wealth to significantly predict health service utilization in their study which further revealed a strong positive relationship between health service utilization and income. Awoke et al. (2017), for instance, found higher wealth status to be a significant determinant of utilizing private outpatient health services.

2.4.6 Religion

Studies have argued that there is an association between religious affiliation and health service utilization among populations. However, the direction of these relationships remains unclear. Among some religious groups, the use of some health services such as injection, blood transfusion and condoms are prohibited. Therefore, individuals belonging to such religious groups tend to have relatively lower health service utilization rates. Religious beliefs and sociocultural practices therefore may influence decisions about health service uptake (Dapaah & Nachinaab, 2019; Kabir, 2021). In the Tallensi district of Ghana, Dapaah and Nachinaab (2019) found religion as a cultural religious practices to have an influence on the seeking of MHS by women.

In Kabir's (2021) study for example, Muslim women were found to have lower odds of utilizing the desired MHS package than those of other religions. This was similarly noted in Uganda by Rutaremwa et al.(2015) where Muslim women had higher

probabilities of utilizing adequate MHS. In some occasions, rather than persons seeking healthcare, they tend to attribute the role of God in curing their ailments and therefore, would hinge on their faith or belief system rather the healthcare (Barbi et al., 2021).

2.4.7 Distance to health facility

The physical location of a healthcare facility has implication for utilization of health services. This is because distance to a health facility influences its use by the population (Leive & Xu, 2008). The distance to a health facility, largely has an inverse relationship with utilization. Therefore, as the distance to the facility increases, the health service utilization by the population tends to decrease. In other words, health facilities that are located in a distance far away from the population may have fewer people utilizing their services compared to those that are closer. This was confirmed by Yawson et al. (2012) that institutions that are situated far away (about 23 kilometres) from the location of a health facility, had the least frequency of attendance to the clinic compared to other institutions situated much closer (Yawson et al., 2012). Similar observations have been reported by Arcury et al. (2005). Figueroa et al. (2017) in their study on the other hand identified multiple factors determining health service utilization, including geographic area of residence.

In a Ugandan study Bakeera et al. (2009) observed that proximity of local clinics was an important determinant of health service use. Their study concluded that the nearness of a healthcare facility provided easy access to community members and hence facilitated an increase in utilization. Similarly, Barbi et al. (2021) studied the sociocultural factors influencing care-seeking decision-making of women during pregnancy and delivery in Ghana, and concluded that the geographical distance from the nearest hospital was a primary obstacle to health service utilization. They further showed

that those living in remote villages usually had difficulties travelling to access hospital care as result of poor road network and vehicular shortages.

2.4.8 Place of residence

Studies have argued that urban settings compared to rural areas provide an elevated opportunity for healthcare service accessibility and use. In Ghana, the spatial distribution of health services shows that t health services and facilities are concentrated in urban centres (Buor, 2013). By implication, urban populations have greater accessibility to facilities providing health services as compared to their rural folk who experience inadequate access to and utilization of health services. Therefore, as argued by Kabir (2021), the use of health services for people living in the urban areas are higher than their rural counterparts. The rural-urban disparities in healthcare utilization as observed might be attributable to the various infrastructural differences (Wong et al., 2009). Wong et al. (2009) observed that women residing in urban settings have better health service utilization their counterparts residing in rural localities.

2.4.9 Health insurance

The possession of a health insurance is a key factor determining health service utilization, particularly in developing countries. The utilization of health service tend to be higher for insured patients compared to non-insured patients. Awoke et al. (2017) observed that public outpatient care facilities tend to be used more by those who have national health insurance card subscriptions. Further, they observed that respondents who had the Ghana national health insurance subscription had high chances of using public and private outpatient care facilities than those who did not possess same. Similar studies (Criel et al., 1999) in the Democratic Republic of Congo established that health service utilization increased among insured patients as compared to non-insured patients.

The possession of health insurance means that the out-pocket payment cost for treatment or health service could be reduced for the individual patients, thereby providing incentive to seek care in a health facility.

Sometimes the public choice of a particular health facility depends largely on whether such facilities operate based on the provisions of an insurance scheme. This is because the insurance scheme caters for the greater proportion of bills that would otherwise be incurred by patients (Duku et al., 2016a). Therefore, the ownership of an insurance card could have implication for health service utilization, particularly services that are said to be expensive.

2.5 Conceptual framework of the study

Following a review of available literature as well as theoretical models seeking to explain health service utilization, the current study adapted the Andersen's behavioural model as the conceptual framework work. The choice of this model as the conceptual framework was informed by the fact that its key constructs could be applied to the available data for the study. Key adaptions centre on the selection of variables in an attempt to explain health service utilization in Ghana. As shown in Figure 1, health service utilization as measured by health facility visits and type of facility visited by an individual during an episode illness or injury could be attributed factors classified into three, namely; predisposing, enabling, and need factors.

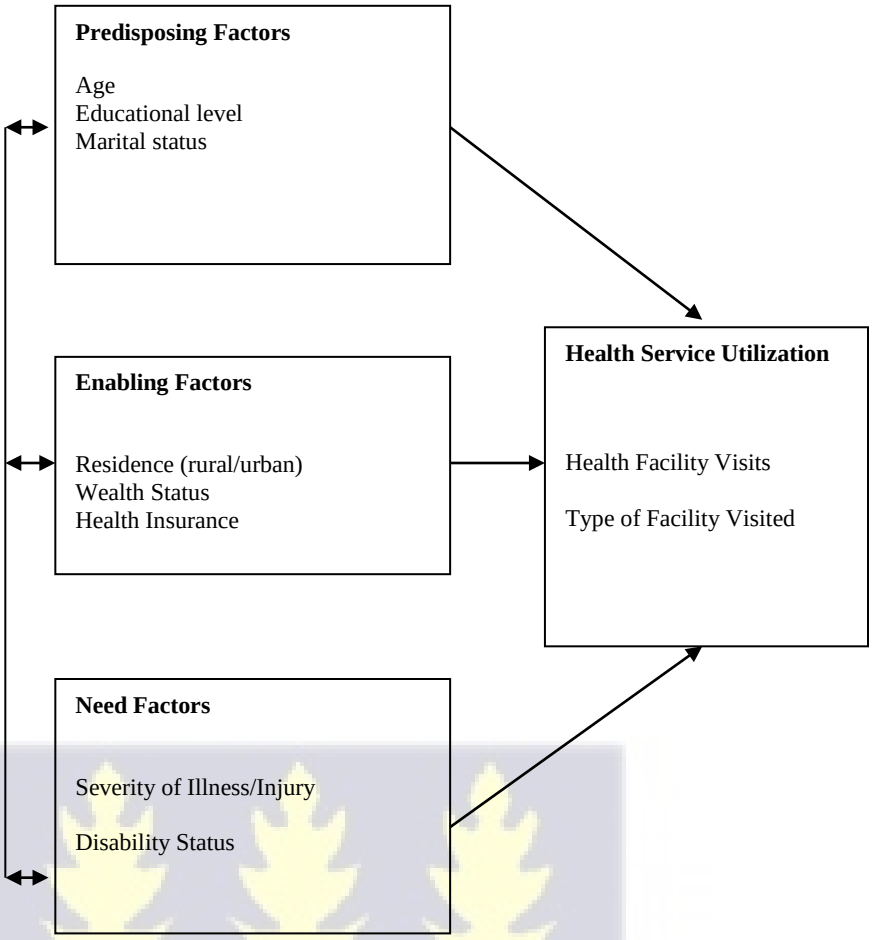

Figure 1: Conceptual framework

Source: Adapted from Andersen (1995)

The framework shows that sex, age, level of education, and marital status are factor which could predispose one to use healthcare services. These are sociodemographic factors at the individual level which could predict their probability to visits a health facility for health services (illness, injury, preventive care etc.), as well as the type of facility they eventually visit, should they decide to seek such care from a healthcare facility. As suggested in the framework, one's residential context, wealth status and health insurance membership status could offer conditions that enable one to

seek care by visiting a health facility or choosing to seek care in one type of health facility over the other. Severity of illness/injury and disability status are considered as need factors in this study, given their ability to generate the need to utilize health services.

This conceptual framework essentially posits that, all three categories of factors interact to determine whether one will visits a health facility for care (illness, injury, preventive care etc.), and the type of facility they'll visit thereof. Understanding the individual or interactive effects of these factors on health service utilization could provide insights on where to focus interventional efforts aimed at improving service utilization.

CHAPTER 3

METHODS

3.1 Introduction

This third chapter covers the various methods applied in arriving at the results of the study. Specifically, the chapter provides an overview of the study area, study design, data source for the study data and the analytical approaches applied in the conduct of the study.

3.2 Study area

Ghana is a country located south of the Sahara, along the West African coast. Ghana has about 238,537 square kilometers of land area, and shares borders to the east, west, north and south with Togo, Cote d'Ivoire, Burkina Faso and the Gulf of Guinea, respectively. Ghana has 16 administrative regions, which have further been divided into 261 metropolitan, municipal, and district assemblies. According to the Ghana Statistical Service (2021), Ghana's population from the 2021 Population and Housing Census (PHC) is estimated to be around 30,832,019, with an annual inter-censal growth rate of 2.1%.

Females (50.7%) outnumber males (49.3%) in all regions, making the overall sex ratio 95 males to 100 females. The region with the highest share of Ghana's population is the Greater-Accra region (17.7%), compared with the Ahafo region with the least share of about 2.8%. The population of Ghana can be described as youthful, with a median age of 21.0 years, (21.0 for males and 22.0 for females). It is estimated that 35.3% of the population fall within the 0-14 year group while about 38.2% are within the 15-35 year group. The distribution of Ghana's population by type of locality shows that more people reside in urban (56.7%) compared with rural (43.3%) settings.

In terms of education, about seven in ten (69.8%) persons 6 years and older are literate in any language with higher rates among males (74.1%) than females (65.6%). At the time of the 2021 PHC, about four in ten of the population 18 years and above were attending school at the tertiary level while another 13% had than so prior to the 2021 PHC. Agriculture remains the most dominant area of economic activity in the country employing about three-quarters of those 15 years and older. Other sectors that follow include forestry and fishery (32.0%), services and sales (26.5%) and craft and related trades (16.1%). Females (81.3%) have higher representations than males (68.9%) across all sectors (GSS, 2021).

3.3 Study design and data

The study is based on an analysis of cross-sectional secondary data obtained from the seven waves of the GLSS. The GLSS is Ghana's customized edition of the Living Standards Measurement Study (LSMS) project which began in 1980 by the World Bank's Policy Research Division for developing countries. The GLSS is a nationally representative survey designed with the aim of providing reliable comprehensive indices and statistics for the monitoring and evaluation of the effects of development policies on the standards of living and wellbeing of Ghanaians. The first GLSS was conducted in 1987, following which six other rounds have been conducted in 1988, 1991/92, 1998/99, 2005/06, 2012/13 and 2016/17.

All seven rounds of the GLSS were based on a cross-sectional design which employed a stratified random sampling technique involving two stages.

The first involved the random selection of enumeration areas to serve as primary sampling units (PSU) across all the administrative regions in the country using probability proportional to the size the population in each region. Households where then

listed in selected PSU which constituted the secondary sampling unit in the second stage, following which a number of households were then systematically randomly sampled from each PSU. The combination of both sampling stages resulted in the final sample of households to be interviewed in each survey. In the 2012/13 survey, for instance, 15 households were selected in each of the 1200 PSUs which produced a final sample consisting of 18,000 households, from which 16,772 of them were interviewed successfully.

A questionnaire was the main instrument used in collecting data in each of the surveys, with collection of data typically spanning over a 12-month period, allowing for the continuous recording of household consumption, expenditure and other important changing indicators. The data collection was undertaken by trained field teams using the face-to-face interview method with participants within households. There were data capture centres set up for each survey at the regional offices of the GSS to provide support for the data collection processes. The minimum qualification for recruitment of field personnel was a higher national diploma.

All the surveys were designed with the view of providing nationally representative indicators and statistics using similar sampling methods and data collection instruments (questionnaires) covering similar domains including health, education, housing conditions and migration among others. This allows for comparability of indicators and the identification of patterns and trends across time and space from a national perspective.

The GLSS data is publicly available upon request from the GSS. A data request form was downloaded from the website of the GSS, filled and submitted via email (datarequest@statsghana.gov.gh) on 16th November, 2021. The request was subsequently

reviewed by the GSS, following which approval was granted on 19th November, 2021 to download and use the datasets for further analysis from the following web link: https://statsghana.gov.gh/gssdatadownloadspage.php.

3.4 Analytical sample

The seven rounds of GLSS have cumulative data collected on 241,791 individual men women and children across Ghana between 1987 and 2017, ranging from a total sample of 15,064 in the 1987 survey to 58,596 in the 2016/17 survey. Part of the data collected on health across all seven surveys included information on visits to health facilities for services due to illness or injury based on a reference period (two or four week) prior to each survey. With the view of describing the time trends in health service utilization in Ghana, the analytical sample for the each round of the study was restricted to only participants with information on whether they suffered any injury or illness in the period under reference for each respective survey. The final samples arrived at for the purpose of this analysis is shown in Table 1.

Table 1: Analytical sampling for the current study

Survey	Year	Total Sample	Analytical Sample
GLSS1	1987	15064	**5480**
GLSS2	1988	14437	**5751**
GLSS3	1991/92	20302	**4464**
GLSS4	1998/99	25581	**6699**
GLSS5	2005/06	36429	**7258**
GLSS6	2012/13	71382	**10342**
GLSS7	2016/17	58596	**8298**

3.5 Dependent variables

The outcome of the study, health service utilization, was operationally defined for the purpose of this study based on whether a respondent visited a health facility following an episode of illness or injury prior to each of the surveys. This was measured using two dependent variables constructed as a binary outcomes. The first dependent variable measured health service utilization based of visits to health facility due to illness or injury. Those who visited a health facility following an episode of illness or injury prior to each of the surveys were considered to have utilized health services and coded "1", while participants who visited no health facility following an episode of illness or injury prior to each of the surveys were considered otherwise and coded "0".

The second dependent variable was constructed to measure the type of facility visited. This was restricted only to those who utilized health services following an episode of illness or injury. This was based on a follow-on question asking respondents about the type of facility they consulted during the said episode of illness or injury prior to the survey. This was also categorized into private facility (coded "0") and public (coded "1") facility.

3.6 Independent variables

The various background attributes of the respondents constituted the independent variables for the study and were grouped into three broad categories in accordance with the conceptual framework guiding the study. Accordingly, these variables were classified into predisposing (age, sex, educational level, and marital status), enabling (wealth status, residence, and health insurance status), and need (severity of illness/injury and disability status) factors.

Age was measured based on a ten-year interval: 0-9, 10-19, 20-29, 30-39 40-49, 50-59, 60-69, 70-79, 80+. Sex was measured using the biological categorization of persons into male and female, while educational level was defined according to highest level attained and grouped into: none, primary, JSS/Middle/JHS, secondary, higher . Marital status measured at three levels: never married, married/cohabiting, and previously married (divorced/widowed). The GLSS applied principal component analysis approach to determine household wealth according to quintiles using household assets. This measure is was since it has been proven to provide a more accurate and reliable compared with income or expenditure approaches in LMICs such as Ghana (Poirier et al., 2020). Thus wealth status was grouped into the five categories of wealth quintiles: lowest, low, middle, high, and highest.

Given the effect that urbanization can have on access to health services, residence was categorized into rural and urban. Health insurance status measured the ownership (insured) or otherwise (not insured) of a valid health insurance membership subscription. Severity of illness or injury was based on duration of illness or injury and grouped into acute (1-3 days of illness/injury), mild (4 to 6 days of illness/injury), and severe (more than 7 days of illness/injury). Disability status grouped into persons with disability (PWD) and non-PWD.

3.7 Data analysis

The data analysis was conducted mainly using STATA 16.0 software, while Microsoft Excel 2019 was used to construct graphs where necessary. Initial data management involved the selection of the analytical samples of each survey for the purpose of estimating trends in the outcome variables (visit to health facility and type of facility visited). Further analysis to estimate the relationship between independent

variables and the outcome variables were limited to the most recent survey (GLSS 2016/17). This use of the most recent survey offers a better chance for assessing the current state of health service utilization in the country.

The analysis took into account the complex survey design employed in the GLSS data collection including drawing samples using clusters, stratification and unequal weights. Thus, the STATA's in-built *svyset* command was used to specify the variables involved in the complex survey design (clustering at the primary sampling unit, strata and sample weight), followed by the application of the *svy* prefix command in the estimations to ensure that in the analyses produced unbiased standard errors. The analysis was conducted at multiple levels using both descriptive and inferential statistical techniques.

Descriptive statistics were employed at the initial analysis. This involved the use of frequencies and percentages to describe the background characteristics of respondents. A similar approach was used to analyze the outcome variables (visit to health facility and type of facility) across all the seven survey rounds (1987, 1988, 1991/92, 1998/99, 2005/06, 2012/13 and 2016/17). The results were exported into Microsoft Excel to graphically plot the trend of health service utilization for each survey over the 30-year period (1987-2017) of the GLSS surveys in Ghana. Following this, the ordinary least squares regression function in Microsoft Excel was applied to the plotted trend graphs in estimating the equation of the line of best-fit. The dependent variables for this purpose were the rates of health facility visits, and visits to public and private facility. The respective year of GLSS survey were considered as the independent variable. The line of best-fit for each respective outcome was plotted as a dotted line in the trend graph.

Bivariate analysis were conducted next, involving cross-tabulations between each of the outcomes of interest and the various independent variables considered in the study.

Row percentages and the Chi-squared (Pearson's) test were computed and used to describe bivariate associations observed between each independent variable and the two outcome variables of interest.

To determine the factors associated with visits to health facility and type of facility utilized for health service, further analysis involving the use of multivariable binary logistic regression were conducted. Binary logistic regression was chosen mainly because the outcome variables (visit to facility and type of facility) were constructed in binary form ("0", "1"). This regression techniques is quite robust for predicting outcomes without necessarily requiring that variables to be normally distributed. In line with the framework for the study, three binary logistic regression models (Models 1, 2 and 3) were run sequentially for each of the outcome variables.

The first model contained predisposing factors (age, sex, educational level, and marital status). The second model had enabling factors (wealth status, residence, and health insurance status) included to assess their interaction with the predisposing factors. The need variables (severity of illness/injury and disability status) were added to the predisposing and enabling factors in the third model. Bayesian Information Criterion (BIC) and the Hosmer-Lemeshow test of goodness-of-fit were used to assess model fitness in each sequence. The final model (model 3) emerged as the best-fit model for the data and this formed the basis for assessing and interpreting the overall effect of the independent variables on visits to health facility and type of facility utilized for health services (Hosmer & Lemeshow, 2000).

CHAPTER 4

RESULTS

4.1 Introduction

The results from the application of both descriptive and inferential statistical techniques in the analysis of the various rounds of the GLSS data are presented in this chapter. The results are presented using tables and graphs. Frequency tables are used to present the results of descriptive analysis, while odds ratios and confidence intervals are used to present inferential statistics. The chapter initially describes the background characteristics of the sample from the 2016/17 GLSS, followed by the graphical presentation of the 30-year (1987-2017) trend of health service utilization in Ghana. Next is the results on the factors associated with visiting a health facility, as well as the type of facility visited for health services.

4.2 Background characteristics of participants

Table 2 represents the distribution of the attributes of respondents constituting the analytical sample of the most recent survey (2016/2017). The characteristics considered include sex, age, educational level, marital status, type of residence, wealth status, health insurance status, severity of illness, and disability status. Over half (56%) of the respondents were below 30 years, with the proportion of respondents generally decreasing with each age group. There were more females (55%) than males (45%). More than four in ten (45%) of the respondents had no education, while the educated ranged from 23% among those educated at the primary level to 3% among those educated beyond the secondary level.

Table 2: Background characteristics of participants

Characteristics	No.	%
Age group		
0-9	2463	29.7
10-19	1202	14.5
20-29	951	11.5
30-39	940	11.3
40-49	845	10.2
50-59	731	8.8
60-69	524	6.3
70-79	419	5.0
80+	223	2.7
Sex		
Male	3715	44.8
Female	4583	55.2
Educational level		
No Education	3727	44.9
Primary	1894	22.8
JSS/Middle/JHS	1770	21.3
Secondary	656	7.9
Higher	251	3.0
Marital status		
Never married	4283	51.6
Married/cohabiting	2873	34.6
Previously married	1142	13.8
Residence		
Rural	5687	68.5
Urban	2611	31.5
Wealth quintile		
Lowest	2337	28.2
Low	1921	23.2
Middle	1463	17.6
High	1349	16.3
Highest	1228	14.8
Health insurance		
No	4960	59.8
Yes	3338	40.2
Severity of illness/injury		
Acute	5818	70.1
Mild	1794	21.6
Severe	686	8.3
Disability status		
Non-PWD	7985	96.2
PWD	313	3.8
Total	**8298**	**100**

More than half (52%) of the respondent had never been marital union, while about 35% had done so at the time of the survey. The respondents mostly resided in rural (69%) rather than urban (31%) localities. The distribution of respondents seemed to decrease as wealth status increased, reducing from 28% to 15% among those in the lowest and highest wealth quintiles, respectively. Only four in ten (40%) had validly subscribed to the Ghana's health insurance scheme at the time of the survey. With respect to their health, about seven in ten (70%) reported to have experienced an episode of acute illness or injury prior to the survey, while only about 4% reported having had one form of disability or the other.

4.3 Trend of health service utilization in Ghana

This particular section presents a 30-year trend analysis of health service utilization in Ghana from 1987 to 2016/17. The results show a fluctuating trend in the rate of visits to health facilities in Ghana due to illness or injury, with increases and decreases over the period under review. As presented in Figure 2, the lowest (35%) and highest (50%) visitation rates were recorded in 1998/1999 and 2012/13, respectively. Nonetheless, in the 15-year period between 1998/99 and 2012/13 there was an increasing trend in the rate of people who visited health facilities following an episode of illness or injury. This moderately increased by 2% from 35% in the 1998/99 survey to 37% in the 2005/06 survey, and further increased exponentially by 13% to 50% in the 2012/13 before dropping to about 42% in the 2016/17 survey. Estimating the line of best-fit using the ordinary least squares regression technique suggests a rising trend in the rate of visits to health facilities. The trend line (y=0.1524x-263.8) shows that visits to health facility increasing by 0.1524, on average, with each additional year.

Regarding the type facility visited for health services, the trend shows higher rates of public facility visits for health services compared with private facilities across the 30year period (1987 to 2016/17). In the most recent survey (2016/17), for instance, about 27% of those who experienced an episode of illness or injury sought health services in public facilities, whereas just 15% did so in private facilities. Despite variations across the years, the general picture points to an increasing trend in public facility visits for health services. This is further supported by the estimation of the line of best-fit using the ordinary least squares regression technique. The regression line (y=0.2507x-476.29) shows that utilization of health service in public facilities increased by 0.2507, on average, with each additional year. The reverse is observed with respect to private facility visits for health services. Here the regression line (y=-0.0984x-476.29) suggest the association between private facility visits and year is negative. As such, utilization of health services in private facilities decreased by 0.0984, on average, with each additional year.

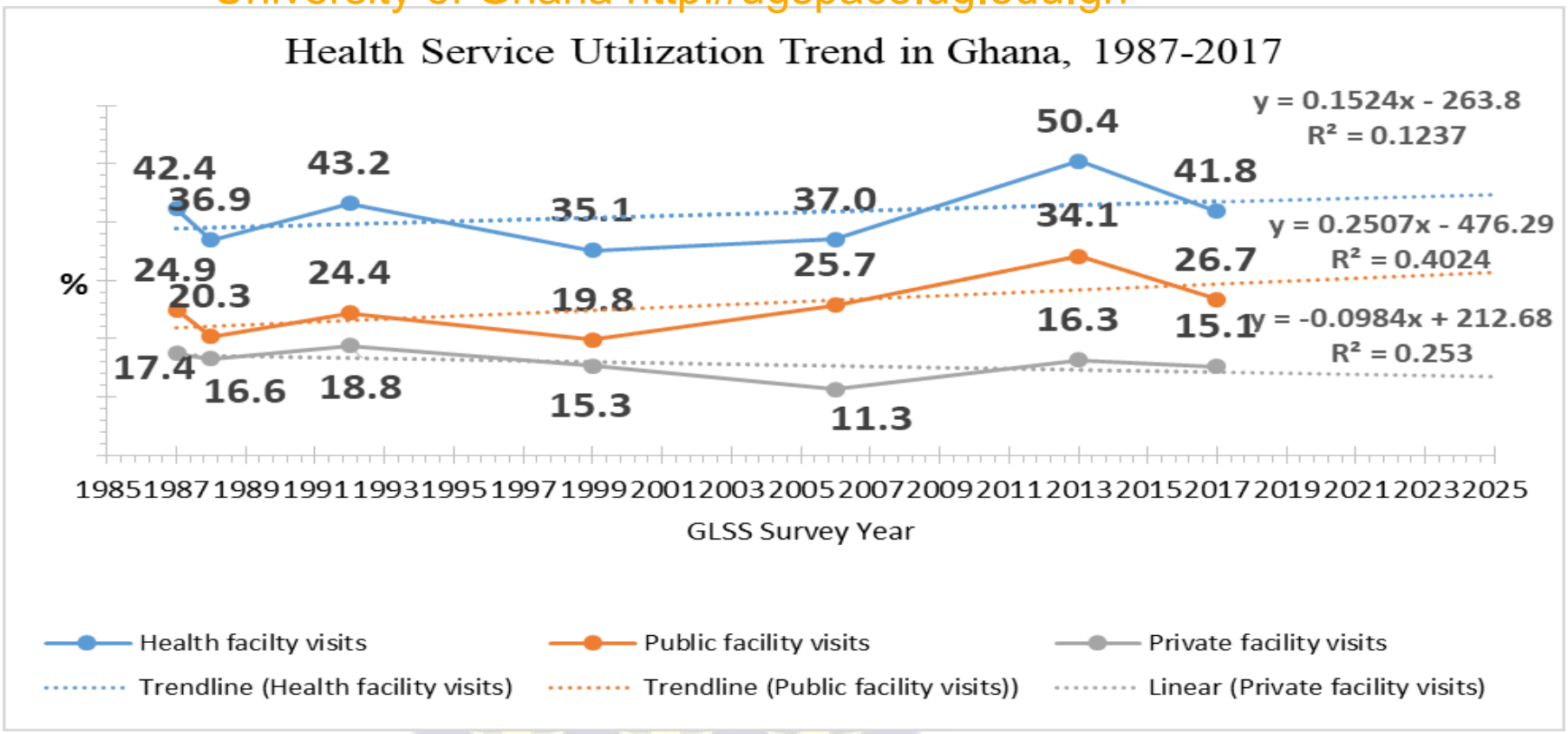

Figure 2: Health service utilization trend in Ghana

4.4 Background factors and health facility visits in Ghana

As shown in Table 3, about four in ten (42%) of respondents visited health facilities for care during an episode of illness or injury prior to the survey. Health facility visits varied across the age groups considered, with higher (49%) rates of visitation among those ages 0-9 years compared with the other age categories. A greater proportion of females (41%) than males (39%) visited health facilities when ill or injured. Health facility visits slightly differed across educational level. For instance, about 44% of those without education visited a health facility compared with about 46% of those with higher education.

With respect to marital status, the proportion of those who visited a health facility was higher among never married (44%) respondents compared with the other categories. Health facility visits were higher in urban (46%) than rural (41%) localities. Health facility visits appeared to increase with wealth status. This increased from 38% among those in the lowest wealth quintile to about 46% among those in the highest quintile. More than half of those with health insurance (57%) visited a health facility compared with about a third of those with no health insurance (31%). More than half (56%) of those with mild or severe conditions visited a health facility when ill or injured compared with 35% of those with acute conditions. No marked differences in health facility visits were observed between PWDs and non-PWDs.

Table 3: Health facility visits by characteristics of participants

Characteristics	Health facility visit %	Total n
Age group (X^2 = 82.3856, P = 0.000)		
0-9	49.0	2463
10-19	39.1	1202
20-29	39.5	951
30-39	38.8	940
40-49	35.9	845
50-59	38.6	731
60-69	42.6	524
70-79	39.4	419
80+	35.4	223
Sex (X^2= 17.6836 P = 0.000)		
Male	39.3	3715
Female	43.9	4583
Educational level (X^2= 14.9490 P = 0.005)		
No Education	43.8	3727
Primary	39.3	1894
JSS/Middle/JHS	39.9	1770
Secondary	41.8	656
Higher	45.8	251
Marital status (X^2= 30.1007 P = 0.000)		
Never married	44.4	4283
Married/cohabiting	40.3	2873
Previously married	36.1	1142
Residence (X^2= 12.5207 P = 0.000)		
Rural	40.5	5687
Urban	44.7	2611
Wealth quintile (X^2 = 21.4583 P = 0.000)		
Lowest	38.3	2337
Low	41.9	1921
Middle	43.3	1463
High	43.0	1349
Highest	45.6	1228
Health insurance (X^2 = 552.1248 P = 0.000)		
No	31.4	4960
Yes	57.3	3338
Severity of illness/injury (X^2 = 305.9328 P = 0.000)		
Acute	35.6	5818
Mild	56.6	1794
Severe	55.5	686
Disability status (X^2 = 0.6545 P = 0.419)		
Non-PWD	41.9	7985
PWD	39.6	313
Total	**41.8**	**8298**

4.5 Predictors of health facility visits in Ghana

Further analysis was conducted using logistic regression models to determine predictors of health facility visits, as shown in Table 4. The following interpretation of the factors associated with visits to a health facility is based on the results of the Model 3 which contains all the three categories of factors posited in the conceptual framework for the study. Compared with those aged 0-9 years, the odds of visiting a health facility were significantly lower across all age groups. The odds seemed to get lower with each subsequent higher age group. For instance, the odds of visiting a health facility ranged from 0.70 (95% CI=0.59-0.84) among those aged 10-19 years to 0.39 (95% CI=0.260.58) among those aged 80 years and above.

Compared with males, the odds of visiting a health facility were 1.25 (95% CI=0.59-0.84) times higher for females. The results revealed the enabling effect of wealth status and health insurance on health facility visits. With reference to those in the lowest wealth quintile, the odds of visiting a health facility significantly increased with wealth status, ranging from about 1.2 (95% CI=1.02-1.33) among those in the low wealth quintile to 1.3 (95% CI=1.16-1.63) among those in the highest wealth quintile.

Again, the odds of visiting a health facility were about three times higher (OR=2.91; 95% CI=0.59-0.84) for those with health insurance membership compared with those without insurance. With respect to need factors, the odds of visiting a health facility seemed to increase with severity of illness or injury. Compared with acute

Table 4: Logistic regression results on predictors of health facility visits in Ghana

	Model 1		Model 2		Model 3	
Characteristics	OR	95% CI	OR	95% CI	OR	95% CI
Age group						
0-9 (Ref)						
10-19	0.610**	[0.518,0.717]	0.711**	[0.600,0.843]	0.703**	[0.591,0.836]
20-29	0.491**	[0.398,0.607]	0.640**	[0.512,0.799]	0.602**	[0.480,0.756]
30-39	0.463**	[0.361,0.594]	0.587**	[0.455,0.758]	0.546**	[0.421,0.709]
40-49	0.425**	[0.326,0.554]	0.523**	[0.398,0.688]	0.485**	[0.366,0.642]
50-59	0.496**	[0.378,0.652]	0.605**	[0.457,0.801]	0.531**	[0.398,0.707]
60-69	0.602**	[0.450,0.804]	0.667**	[0.495,0.898]	0.577**	[0.425,0.785]
70-79	0.564**	[0.418,0.763]	0.586**	[0.431,0.798]	0.497**	[0.360,0.684]
80+	0.497**	[0.346,0.715]	0.512**	[0.350,0.748]	0.391**	[0.263,0.582]
Sex						
Male (Ref)						
Female	1.353**	[1.233,1.484]	1.222**	[1.109,1.345]	1.250**	[1.133,1.380]
Educational level						
No Education (Ref)						
Primary	0.947	[0.836,1.072]	0.892	[0.783,1.015]	0.911	[0.798,1.040]
JSS/Middle/JHS	1.154*	[1.008,1.320]	1.031	[0.893,1.190]	1.037	[0.895,1.202]
Secondary	1.340**	[1.105,1.625]	1.115	[0.905,1.373]	1.127	[0.910,1.395]
Higher	1.574**	[1.200,2.065]	1.062	[0.790,1.427]	1.189	[0.878,1.609]
Marital status						
Never married (Ref)						
Married/cohabiting	1.268*	[1.036,1.551]	1.203	[0.977,1.480]	1.207	[0.977,1.492]
Previously married	0.960	[0.748,1.232]	0.908	[0.703,1.172]	0.935	[0.720,1.215]
Residence						
Rural (Ref)						
Urban			1.010	[0.905,1.128]	1.064	[0.951,1.190]

Table 4 continued

Wealth quintile				
Lowest (Ref)				
Low		1.166*	[1.025,1.327]	1.167*	[1.022,1.332]
Middle		1.234**	[1.070,1.424]	1.212*	[1.047,1.404]
High		1.162	[0.998,1.353]	1.154	[0.988,1.348]
Highest		1.372**	[1.163,1.619]	1.376**	[1.163,1.628]
Health insurance				
No (Ref)				
Yes		2.820**	[2.569,3.096]	2.906**	[2.642,3.198]
Severity of illness/injury				
Acute (Ref)				
Mild				2.545**	[2.272,2.851]
Severe				2.751**	[2.315,3.268]
Disability status				
Non-PWD (Ref)				
PWD				0.816	[0.633,1.052]
N	8298	8298		8298	
Pseudo R^2	0.0132	0.0587		0.0894	
Wald χ^2(df)	148.45(15)	625.71(21)		886.87(24)	
Prob.>χ^2	0.0000	0.0000		0.0000	
Hosmer–Lemeshow χ^2(df)	7.86 (7)	21.34(8)		10.63(8)	
Prob.>χ2	0.3449	0.0063		0.2233	
AIC	11164.13	10662.69		10322.37	
BIC	11276.51	10817.21		10497.96	

OR=Odds ratios; CI= 95% confidence intervals; Ref=Reference category; * p<.05, ** p<.01

conditions, the odds of visiting a health facility were 2.5 (95% CI=2.27-2.85) and 2.7 (95% CI=2.32-3.27) times higher for those with mild condition and severe conditions, respectively.

4.6 Background factors and type of facility utilized for health services in Ghana

This section presents descriptive results on the type of facility (private and public) in which health services were sought among those who visited a health facilities following an episode of illness of injury prior to the 2016/17 GLSS. Table 5 presents the proportion of respondents who utilized health services in either a private or public health facility across the various factors considered in the study. Overall, about 36% and 64% of respondent utilized private and public facilities for health services, respectively.

The type of facility utilized for health services varied with age. A greater proportion of private facility visits observed among those aged 80 years or more (46%), while for public facilities this was the case for those aged 0-9 years (67%). More females (37%) than males (35%) visited private facilities, while the reverse was the case for those visiting public facilities. Public facility visits were higher among those with no education, while private facilities were mostly visited by those with education beyond the primary level.

In terms of marital status, private facilities were mostly visited by the previously married (43%) individuals. Public facilities were patronized mostly the never married (65%). Public facilities were utilized more by rural (68%) than urban (55%) residents. The reverse was observed for private facility utilization (45% urban vs 32% rural)While utilization of private facilities for health services increased with wealth status from 28% in the lowest wealth quintile to about 48% in the highest quintile; that of public facilities

Table 4: Type of health facility visited by characteristics of participants

Characteristics	Type facility visited: Private %	Type facility visited: Public %	Total n
Age group (X^2 = 15.4875 P = 0.050)			
0-9	32.7	67.3	1208
10-19	36.2	63.8	470
20-29	35.6	64.4	376
30-39	38.4	61.6	365
40-49	39.9	60.1	303
50-59	36.9	63.1	282
60-69	41.7	58.3	223
70-79	38.8	61.2	165
80+	45.6	54.4	79
Sex (X^2 = 0.7041 P = 0.401)			
Male	35.4	64.6	1460
Female	36.8	63.2	2011
Educational level (X^2 = 16.4440 P = 0.002)			
No Education	33.5	66.5	1631
Primary	35.0	65.0	745
JSS/Middle/JHS	41.1	58.9	706
Secondary	41.2	58.8	274
Higher	40.0	60.0	115
Marital status (X^2 = 11.4916 P = 0.003)			
Never married	34.6	65.4	1902
Married/cohabiting	36.3	63.7	1157
Previously married	43.4	56.6	412
Residence (X^2 = 60.1700 P = 0.000)			
Rural	31.7	68.3	2305
Urban	45.1	54.9	1166
Wealth quintile (X^2 = 75.2636 P = 0.000)			
Lowest	28.4	71.6	894
Low	31.5	68.5	804
Middle	38.2	61.8	633
High	40.5	59.5	580
Highest	48.8	51.2	560
Health insurance (X^2 = 0.4215 P = 0.516)			
No	36.8	63.2	1557
Yes	35.7	64.3	1914
Severity of illness/injury (X^2 = 1.2858 P = 0.526)			
Acute	36.9	63.1	2074
Mild	35.4	64.6	1016
Severe	34.4	65.6	381
Disability status (X^2 = 0.6069 P = 0.436)			
Non-PWD	36.1	63.9	3347
PWD	39.5	60.5	124
Total	**36.2**	**63.8**	**3471**

reduced with wealth status from about 72% to 51%, respectively. With respect to severity of illness or injury, private facilities were mostly visited by those with acute conditions (37%); while public facilities were mostly visited by those with severe conditions (66%).

4.7 Predictors of type of facility utilized for health services in Ghana

In order to examine the predictors of type of facility utilized for health services, binary logistics regression models were conducted. Given that health care service utilization was higher in public (64%) than private (36%) facilities, the category of the dependent variable (type of facility) predicted in this analysis was public facility utilization with reference to private facility utilization. Similarly, three model were run in succession in line with the three categories of factors stipulated in the framework for the study, beginning with predisposing factors in Model 1, adding enabling and need factors Model 2 and 3, respectively.

As shown in Table 6, the final analysis (Model 3) indicate that the odds of visiting a public health facility were significantly lower for urban compared rural residents. Again, with reference to the poorest wealth quintile, the odds of visiting a public health facility were significantly lower for those in the middle (OR=0.79; 95% CI=0.62-0.99) and highest (OR=0.61; 95% CI=0.47-0.80) wealth quintiles. Severity illness or injury was the only factor found to be a significant positive predictor of utilization of health services in a public facility. With reference to those with acute conditions, the odds of utilizing public facility for health services were 1.3 (95% CI=1.02-1.67) times higher for those with severe.

Table 5: Logistic regression results on predictors of public facility visits for health services in Ghana

	Model 1		Model 2		Model 3	
Characteristics	OR	95% CI	OR	95% CI	OR	95% CI
Age group						
0-9 (Ref)						
10-19	1.030	[0.795,1.335]	0.816	[0.621,1.073]	0.806	[0.612,1.060]
20-29	0.977	[0.690,1.384]	0.829	[0.578,1.189]	0.809	[0.563,1.162]
30-39	0.765	[0.500,1.172]	0.732	[0.475,1.130]	0.711	[0.460,1.100]
40-49	0.700	[0.449,1.092]	0.648	[0.411,1.023]	0.627	[0.396,0.993]
50-59	0.821	[0.518,1.301]	0.878	[0.548,1.406]	0.836	[0.520,1.343]
60-69	0.679	[0.421,1.094]	0.623	[0.384,1.012]	0.593	[0.363,0.969]
70-79	0.749	[0.450,1.248]	0.718	[0.424,1.213]	0.688	[0.405,1.169]
80+	0.573	[0.313,1.048]	0.555	[0.297,1.038]	0.521	[0.277,0.979]
Sex						
Male (Ref)						
Female	0.972	[0.836,1.130]	1.027	[0.879,1.199]	1.037	[0.887,1.211]
Educational level						
No Education (Ref)						
Primary	0.908	[0.745,1.106]	1.079	[0.875,1.331]	1.083	[0.878,1.336]
JSS/Middle/JHS	0.725**	[0.585,0.900]	1.015	[0.800,1.287]	1.013	[0.798,1.285]
Secondary	0.691*	[0.509,0.940]	1.013	[0.728,1.409]	1.016	[0.729,1.415]
Higher	0.764	[0.502,1.163]	1.316	[0.849,2.039]	1.356	[0.873,2.107]
Marital status						
Never married (Ref)						
Married/cohabiting	1.285	[0.908,1.818]	1.178	[0.830,1.673]	1.186	[0.833,1.687]
Previously married	0.992	[0.645,1.525]	0.954	[0.615,1.481]	0.963	[0.619,1.497]
Residence						
Rural (Ref)						
Urban			0.705**	[0.593,0.839]	0.711**	[0.598,0.846]

Table 6 continued

Wealth quintile						
Lowest (Ref)						
Low			1.028	[0.825,1.281]	1.032	[0.828,1.287]
Middle			0.790*	[0.626,0.997]	0.790*	[0.626,0.998]
High			0.810	[0.631,1.038]	0.810	[0.631,1.040]
Highest			0.612**	[0.468,0.801]	0.611**	[0.467,0.800]
Health insurance						
No (Ref)						
Yes			1.037	[0.893,1.203]	1.043	[0.899,1.210]
Severity of illness/injury						
Acute (Ref)						
Mild					1.105	[0.939,1.301]
Severe					1.307*	[1.019,1.676]
Disability status						
Non-PWD (Ref)						
PWD					0.875	[0.593,1.293]
_cons	2.126**	[1.838,2.459]	0.976	[0.711,1.340]	0.920	[0.665,1.271]
N	3471		3471		3471	
Pseudo R^2	0.0073		0.0248		0.256	
Wald χ^2(df)	33.34(15)		109.04(21)		111.96(24)	
Prob.>χ^2	0.0042		0.0000		0.0000	
Hosmer–Lemeshow χ^2(df)	3.01(7)		9.30 (8)		4.01(8)	
Prob.>χ2	0.8837		0.3180		0.8561	
AIC	4543.17		4475.81		4478.20	
BIC	4641.61		4611.16		4632.01	

OR=Odds ratios; CI= 95% confidence intervals; Ref=Reference category; * p<.05, ** p<.01

CHAPTER 5

DISCUSSION

5.1 Introduction

The current study analyzed health service utilization in Ghana by conducting an analysis of secondary data obtained from the GLSS. Specifically, the study relied on all seven rounds (1987, 1988, 1991/92, 1998/99, 2005/06, 2012/13 and 2016/17) of the GLSS to describe the time-trend in health service utilization in Ghana from 1987 to 2017 at the initial stage. Using data from the most recent round (2016/17 GLSS), the study then conducted further analysis to ascertain the predictors of health facility visits in Ghana, and more specifically in public versus private facilities. Informed by the conceptual framework, variables classified into predisposing, enabling and need factors were analyzed to ascertain their magnitude and direction of effect on visiting a health facility, and the type of facility visited for health services using binary logistic regression models.

5.2 Trend of health service utilization in Ghana

The results generally showed a low, but fluctuation trend in the proportion of people visiting health facilities for healthcare in Ghana from 1987 to 2017. Nonetheless, the trend line of best-fit estimated using ordinary least square regression suggests a generally increasing trend in health facility visits in Ghana. There is abundant evidence supporting the importance of health service access (geographic and financial) in determining health service utilization rates. As such the low and fluctuating trend in health facility visit in Ghana observed in this study could plausibly be a mere mimicry of changes in Ghana's health policy landscape relating to health service access over the

period and its ripple effects on health service utilization. Between 1978 and 2005, cost recovery was the policy driving the health system in Ghana (Aikins & Koram, 2017).

This begun with the introduction of "cash-and-carry" system in 1978 which saw the wholesale withdrawal of all government subsidies in the health sector. This required that patients pay for the full cost of care a medication. The Bamako initiative introduced ten years after in 1988 was no different, as it introduced user fees in government health facilities (Johnson et al., 2018).

These cost recovery initiatives restricted access to health services in Ghana, since only patients who could afford to pay for care and medication were visiting facilities for care, as reflected in the low utilization rates revealed in this study. Essentially, the results show health facility visits in Ghana ranging downwards from about 42% in the 1987 survey to about 35% in the 1998/99 survey. The introduction of the CHPS policy in the year 2000 and the NHIS in 2005 with the aim of increasing geographic and financial access to health services in Ghana appear to have impacted positively on health facility visits, given that the results show a reversal in the prior downward trend towards an increasing trend after the 1998/99 survey peaking at 50% in the 2012/13 survey. The subsequent dip in health facility visits in the 2016/17 survey results could be attributed to the problem of increasing out-of-pocket payments as a result of inefficiencies in the management of the NHIS (Akweongo et al., 2021).

If indeed the impact of the changes in health policy in Ghana on health service access is anything to go by, then perhaps the results on trend of type of facility utilized for health services over the period provide an even better representation of the issue.

Considering the trend line, the picture generally shows an increasing trend in heath service utilization in public facilities in contrast to a decreasing trend in private facility utilization as health policy in Ghana evolve from cost recovery policies between 1978 and 2000 to policies aimed at increasing geographic (CHPS) and financial (NHIS) access thereafter (Aikins & Koram, 2017). These findings highlight the possible impact that propoor health policies bordering on access to health services could have on health service utilization.

5.3 Determinants of health service utilization in Ghana

In line with the conceptual framework, the study assessed three categories of factors (predisposing, enabling and need) associated with health service utilization in Ghana using binary logistic regression models. Age and sex were found to be significant predisposing factors for health facility visits. The study found lower odds of visiting a health facility across all the age groups considered. Although similar results were reported by Harvey, (2014) while studying the socioeconomic and cultural antecedents of health service utilization in Ghana, a plethora of studies (Lahana, Pappa, & Niakas, 2011) in the more advanced countries have suggested higher odds of health service utilization with age. These differences in the association between age and health facility visits could be linked with the level socioeconomic development of countries and associated differential access to health services.

In consonance with literature (Bazie & Adimassie, 2017; Girma et al., 2011; Li et al., 2016), this study revealed that females compared with males have a significantly higher probability of visiting health facilities. Females are known to be more perceptive and responsive to issues pertaining to health, which makes them dedicate a lot of time

and attention for their health (Bazie & Adimassie, 2017). This could explain why females in this study have a greater chance visiting health facilities for care. Women are also considered to be more prone to illness given their peculiar sexual and reproductive health needs, including taking advantage to seek treatment for themselves while accompanying their children or other family members to health facilities for care (Bazie & Adimassie, 2017).

The results on wealth status and health insurance membership as enabling factors corroborate the findings of prior studies (Bazie & Adimassie, 2017; Girma et al., 2011; Tenkorang, 2016; Tilahun et al., 2018) on the significant positive impact of socioeconomic resources on health services utilization. The results lend credence to the fact that one's wealth status is linked with their financial ability to pay for the cost of health services and related expenditure which in turn determines their health service utilization behaviour (Tilahun et al., 2018). A number of studies have reported low health service utilization among low income households in contrast to high health service utilization in high income households. For instance, Tilahun et al. (2018) found households classified as rich to have higher probabilities of health service utilization compared with households classified as poor.

Nonetheless, the results on type of facility utilized for health services suggest that private health facilities are significantly less likely to be utilized as people's wealth increases. This finding is consistent with Tenkorang (2016) who found increasing wealth to be more associated with private health facility utilization compared with public facilities. The wealthy are less likely to patronize public facilities because they perceive the care in such facilities to be poor and more because they can afford to pay for the high

user fees in private facilities, where they perceive the care to be much satisfactory (Duku et al., 2018).

The study found health insurance membership to have a very strong positive effect on health facility visits, as in other several other studies (Blanchet, Fink, OseiAkoto, et al., 2012; Duku et al., 2016b; Tilahun et al., 2018). This points to the importance of health insurance as a resourceful conduit for health service utilization. Health insurance schemes have been identified as important strategies for attaining universal health coverage by providing equitable access to essential health services and reducing financial barriers to health service utilization (Boerma et al., 2014; Tilahun et al., 2018). This then manifests in increasing preference for health services provided in health facilities as opposed to resorting to home remedies or traditional healers.

According to Andersen (1995), need factors are the most proximate drivers of health service utilization given that they are typically perceived or evaluated health problems that generate the need to utilize health services. Following from this, the study found severity to illness or injury as a significant need factor predicting health service utilization. Compared with those with acute conditions, the odds of visiting a health facility were significantly higher for those with mild and severe conditions. It is known that those who are severely ill have a greater incentive to seek treatment in health facilities for relief, given the debilitating nature of severe illnesses or injuries (Krumkamp et al., 2013). This corroborates the findings of Bazie and Adimassie (2017) when studying factors linked with modern health care utilization in north East Ethiopia.

Those with severe illness or injury were also more likely to utilize public health facilities. This is perhaps due to the fact in times of severe illness, the urgent need for relief supersedes personal preference of health facility. More so, public facilities

compared with private facilities in Ghana are more geographically accessible and resourced to provide urgent care in times when severe illness or injury is needed. This could also be due to the fact that in Ghana public facilities are the main referral centres for cases beyond the capacity of private facility. These findings by extension are in line with studies reporting higher chances of health service utilization among those with chronic conditions (Li et al., 2016), those who perceive their health as poor (Bazie & Adimassie, 2017; Tilahun et al., 2018).

CHAPTER 6

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The summary of the current study is presented in this final chapter. In addition, the chapter presents the study's conclusions and recommendations based on the findings. Then follows a discussion of some limitations and suggested areas for future research.

6.2 Summary

Using data from the GLSS, the key thrust of the study was to analyze health service utilization in Ghana. The study specifically sought to describe the time-trends in health service utilization in Ghana, and determine the predictors of health service utilization in Ghana. To this end, the Andersen behavioural model (1995) which posits that health service utilization is determined by need, enabling and predisposing factors was adapted as the conceptual model for the study.

Guided by this framework, possible predictors of health service utilization were conceptualized in this study as independent variables and grouped accordingly. The conceptual framework also informed the estimation of three logistic regression models in succession to determine the various predisposing, enabling and need factors associated with visiting a health facility, as well as the type of facility utilized for health services in Ghana.

The study found a fluctuating, but increasing trend in health facility visits in Ghana over the 30-year period from 1987 to 2016/17. The lowest rate (35%) of health service utilization was observed in 1998/1999 while the highest rat (50%) was observed in 2012/13. Public health facilities had higher rates of health service utilization compared

with public health facilities over the period under review. Further the trend line showed an increasing trend in public facility utilization rates in contrast to a decreasing trend in private facility utilization rates.

The regression results revealed age and sex to be significant predisposing predictors of health facility visits in Ghana, with varied effects. Wealth status and health insurance membership emerged as the significant enabling factors predicting health service utilization. In terms of need factors, severity of illness or injury significantly predicted health service utilization from the analysis.

6.3 Conclusions

Health service utilization in Ghana has generally been low and fluctuating over the 30-year period from 1987 to 2017, with higher utilization rates in publicly owned health facilities compared with privately owned health facilities. Despite this 30-year cyclic fluctuations, there is generally an increasing trend in health service utilization is in Ghana. There are, however, variations in health service utilization with respect to type facilities utilized for health services in the event of an illness or injury. Public facilities are utilized more for health service compared with private facilities, and this is further characterized by an increasing trend in visits to public facilities for health services, as opposed to a decreasing in private facilities.

Variations in health service utilization in Ghana are attributable to differences in sex, wealth status, health insurance membership, and severity of illness or injury. The effect of socioeconomic background factors on health service utilization in Ghana cannot be overemphasized – although the wealthier a greater tendency to utilize health services, they are less likely to seek health services in public facilities compared with private facilities.

6.4 Recommendations

- The MOH should scale up both financial and geographical accessibility of public facilities by expanding access to health insurance and increasing the number of healthcare facilities to cater for the growing health service utilization rates.
- The GHS should intensify social marketing and public educational campaign efforts aimed at increasing awareness of available services and patronage of health facilities among Ghanaians by designing messages which reflect the various predisposing (age, sex), enabling (wealth status, health insurance), and need (severity or illness) factors accounting for variations in health service utilization.

6.5 Limitations of the study

Although the study's strengths stem from the analysis of nationally representative survey data to assess the phenomenon of health service utilization in Ghana, some limitations are worth acknowledging. First, the data relied on for the analysis was obtained based on a cross-sectional study design, which limits the ability to make direct causal inferences between the factors accounting for health service utilization in Ghana. Another limitation of the study has to do with the lack of data on a number potential determinants on health service utilization, including chronic disease status of individuals, distance to health facility and perceptions about quality of care a patient satisfaction.

Similarly, lack of data on preventive and promotive service utilization limited the analysis of health service utilization to visits to the facility due to illness or injury. The data did not have variables on the different levels of facilities which characterize the referral system of care in Ghana. Thus, the results should be interpreted in bearing in mind these limitations

6.6 Suggestions for further research

The findings from the study are quite informative on the direction of future research on health service utilization, as follows:

1. The results indicate sharp socioeconomic differences in health service utilization in Ghana, particularly between public and private facilities. Further research on why public health facilities are less preferable choices for wealthier individuals could help inform policy decision-making.
2. Considering the inherent limitations regarding causality when using cross-section data, future research on health service utilization could consider the use of panel data in order better ascertain the casual pathways explaining health service utilization in Ghana.

6.7 Contributions to knowledge

This current study appears to be the first to have analyzed the time-trend in health service utilization in Ghana over three decades (1987-2017) based on high quality nationally representative data. The study therefore, contributes to the growing discourse on health service utilization, particularly in Ghana and sub-Saharan Africa to inform policy decisions aimed at ensuring the attainment of universal health coverage.

The study also contributes to existing knowledge on factors explaining health service utilization as espoused in the literature, particularly with respect to the Andersen model of health service utilization.

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APPENDIX: DATA REQUEST APPROVAL

Data Request <datarequest@statsghana.gov.gh>
To:d anamaale
Fri, Nov 19, 2021 at 11:31 AM

Dear Derek,

With reference to your data request from the Statistical Service, please follow the link below to access the data sets:

https://statsghana.gov.gh/gssdatadownloadspage.php

Kindly, note that you would have to register before you can download the dataset please.

Best regards,

John Amedzro
Officer, Data Service
Communication and Dissemination Directorate
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