UNIVERSITY OF EDUCATION, WINNEBA

THE IMPACT OF EDUCATIONAL ATTAINMENT ON HEALTH INSURANCE ENROLMENT IN GHANA

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DECLARATION

Student's Declaration

I, EBENEZER ASIEDU, hereby declare that this dissertation, with exception of quotations and references contained in published and unpublished works, which have been identified and acknowledged, is entirely my original work, and that it has not been submitted, either in part or whole, for another degree in this University or elsewhere.

Signature: ……

Date: ……

Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.

Name of Supervisor: DR. ERIC JUSTICE EDUBOAH

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Date: ……

DEDICATION

I dedicate this work to my family. Without their encouragement and support, I wouldn‘t have come this far.

ACKNOWLEDGEMENTS

I am are most grateful to God Almighty for His mercies and grace which has seen me through the thick and thin and I am forever grateful. I wish to express my profound gratitude to my supervisor, Dr. Eric Justice Eduboah for his priceless contribution toward the success of this work. I am particularly grateful for his time, advice and encouragement to ensure that this work comes out more refined. I also acknowledge the support of my family.

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ABSTRACT

Health insurance enrolment in Ghana has become increasingly prominent irrespective of the subscribers educational background. This study was designed to investigate the impact of education attainment on health insurance enrolment; It specifically explores the determinants of Health insurance enrolment in Ghana with particular attention on education attainment; The research further seeks to compare income levels of health insurance subscribers in Ghana; and also to establish the relationship between education background and health insurance enrolment. This study employed Logit and Probit Models to investigate the factors that influence Ghanaians to enrol with the scheme. The results from the logit and probit models indicate that educational level, number of years spent in school, specific health condition, age and income were strong factors in influencing one's decision to join the scheme. Again the marginal effects and odd ratios gave a further indication that there is relationship between educational attainment and health insurance enrolment as people climb the educational lather, their demand for health insurance falls, people with high incomes do not enrol to national health insurance programs that people with high incomes do not enrol to national health insurance programs. This research is of the view that any public education aimed at increasing enrolment should be guided by these factors.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

According to Cutler D., and Lleras-Muney A(2011), educational attainment refers to the highest level of education that a person has successfully completed. Successful completion of a level of education refers to the achievement of the learning objectives of that level, typically validated through the assessment of acquired knowledge, skills and competencies. At the primary and secondary school level, educational attainment refers to the highest grade completed or whether or not the person has obtained a secondary school (high school) diploma or equivalency certificate.

At the postsecondary level, it refers to postsecondary certificates, diplomas or degrees awarded by accredited educational institutions. It also includes educational certificates or diplomas awarded to the person by provincial/territorial or federal authorities, such as the journey person designation in the trades. Educational attainment can also include the partial completion of a postsecondary qualification.

Ghana established a National Health Insurance Scheme (NHIS) through an Act of Parliament (Act 650) and it began full operations in 2005. The core objective of the NHIS is the provision of quality health services for all Ghanaians without any out-of pocket (OOP) payments at the point of care. The NHIS is functional in all metropolitan, municipal, and districts in Ghana. It is mandatory for all Ghanaians to register with the NHIS, to be able to have access to health services when needed, although this is hardly enforced. Financing sources of the NHIS include contributions from informal sector workers, the National Health Insurance levy, (a 2.5% top up on the value added tax), 2.5% deduction from the contributions of formal sector workers

to the Social Security and National Insurance Trust (SSNIT), and returns on investment from the National Health Insurance Fund.

The minimum and maximum contributions from the informal sector to the NHIS is between GH¢7.20 and 47.70 ($8–$53). (National Health Insurance Authority (NHIA). Annual Report 2011,)

However, vulnerable groups such as pregnant women, pensioners, children below the age of 18 years, and adults above the age of 70 are all exempted from premium payment. Despite such policies, studies on health insurance programs in Africa have revealed that the poor are not covered. In Ghana for instance, evidence showed that the NHIS is not pro-poor, despite the fact that the NHIS was established as part of a poverty reduction strategy and subsequently provided exemptions for the poor.(NHIA. Annual Report 2011. Page 18)

Poverty has been shown to be a profound barrier to registration with the NHIS in the three regions of Northern Ghana (Upper West region, Upper East region, and Northern region) which are considered as rural and poor, compared to the rest of the country. There is limited knowledge on the effect of the NHIS on utilization of health services from rural poor communities, particularly whether health insurance enables higher utilization. Thus, this study examined the utilization of both outpatient and inpatient health services in a rural poor setting after a decade of the implementation of the NHIS. (National Health Insurance Authority NHIA. Annual Report 2011.)

The findings will assist to understand the progress made so far in the move towards universal health coverage (UHC), particularly the extent to which the poor have access to health services. The results are also essential for policy makers in their formulation of interventions for the poor and vulnerable. (NHIA. Annual Report

2011). ―Experts have long recognized that adults with a high school degree or less face significant health disparities compared with those who attended or completed college," a spokesperson for the Urban Institute wrote upon the release of its report, ―Education and Health: Long-Term Trends by Race, Ethnicity, and Geography, 1997-2017." According to Healthy People 2020, an initiative of the Office of Disease Prevention and Health Promotion, ―Those aged 25–64 years with an advanced degree had the highest rate of health insurance coverage among educational attainment groups, 96.2% in 2018.

According to Healthy People 2020, approximately one in five Americans lacks medical insurance

1.2 Problem Statement

The high cost of charges that characterized private and public hospitals has far reaching consequences. Due to this high cost involved in the ―cash and carry system", people were not able to pay their hospital bills which resulted in a situation where people die in their various homes because they could not afford to pay the hospital bills. Patients also absconds from the health facilities without paying their bills and drug abuse was on the rise because people preferred self-medication than going to the hospitals for treatment due to the high cost involve in going to the hospital for medical treatment which was highlighted in page 13 of Ghana health service annual report 2016. There was also a conflict of economic efficiency and social justice. People also showed negative attitude towards the scheme by not registering under the schemes and they believed the scheme to be politically influence and also the educated elite have issues with National Health Insurance Scheme (NHIS) so it has become necessary to investigate in to the socio - economic impact of National Health Insurance Scheme (NHIS).

Many people are with perception that people with high education attainment do not subscribe to health insurance scheme in Ghana. This has resulted in some rural folks and those with lower education attainment also do not trust and enrol to NHIS. The problem to be investigated seeks to find out the impact of education attainment on health insurance enrolment in Ghana. Also, a study conducted by Solari et al in 2019 which investigated the determinant of health insurance enrolment in Ghana refused to talked about the effect of educational attainment on health insurance, hence this study.

1.3 Objective of the Study

The general objective of this study is to determine the impact of education attainment on health insurance subscription of people of Agona West Municipality. However, to achieve the main objective of the study, the study has the following specific objectives:

1. To establish the relationship between education attainment and health insurance enrolment.
2. To determine the effect of income level of health insurance subscribers in Ghana.

1.4 Research Hypotheses

To achieve the objectives of this study, the following hypothesis to be tested:

1. Ho: There is no relationship between educational level and health insurance enrolment in Ghana.

   H_1: There is relationship between educational attaiment and health insurance enrolment in Ghana.

2. *Ho*: Income level influences health insurance enrolment in Ghana

   H_1: Income level does not influence health insurance enrolment in Ghana.

1.5 Significance of the Study

The findings of this study would help the government to have fairer and more independent analysis of the National Health Insurance Scheme (NHIS) an educational attainment. Based on the findings of the study other policies could be suggested to the National health insurance authority.

It could also help the government, and policy makers in their decisions. The findings of the study would increase knowledge of the impact educational attainment on health insurance subscription of the insurance scheme which will subsequently increase enrolment to the scheme.

1.6 Organization of the Study

This report is made up of five chapters. Chapter one consist of the introduction background, research questions, research problem, and objectives of the study, significance of the study, justification of the research, research hypothesis and scope and limitations of the research.

Chapter two evaluates related and relevant literature. It looks at certain macroeconomic variables that affect the subscription of health insurance and also examine some evidence from other countries or continents. Chapter three looks at the methods used. It also includes the limitations. Data analysis and presentation are contained in chapter four. The use of different statistical tools is also found in this chapter. Chapter five which is the final chapter provides answers to the research questions by way of identifying the impact of educational attainment on health insurance enrolment following what has been uncovered in the findings.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0 Introduction

Educational attainment refers to the highest level of education that a person has successfully completed. Successful completion of a level of education refers to the achievement of the learning objectives of that level, typically validated through the assessment of acquired knowledge, skills and competencies. Although there has been some publications and literature on the introduction of health insurance and the impact educational attainment has on it, there seems to be very little literature on the effects of the educational attainment on health insurance subscription in Ghana. This will therefore focus on theoretical literature, conceptual definitions overview of insurance development in Ghana, description of health insurance in Ghana, administration of health insurance development in Ghana, review of empirical review, and the impact of educational attainment on health outcomes

2.1 Conceptual Definitions

Health:

According to WHO, ‗‗Health is a complete state of physical, mental and social wellbeing, and not merely the absence of disease or infirmity‘‘ (WHO, 1948 as cited by Jakab, 2011, p. 1).

Knowledge:

According to oxford learners dictionary, Knowledge means awareness, understanding and problem-solving capacity.

NHIS:

National health insurance scheme

Educational attainment:

According to Wikipedia**,** Refers to the highest level of education that a person has successfully completed. Successful completion of a level of education refers to the achievement of the learning objectives of that level, typically validated through the assessment of acquired knowledge, skills and competencies.

NHIA:

National health insurance authority is a body charged with responsibility of managing the scheme.

NHIS enrolment:

According to NIA, NHIS enrolment refers to the number of people enrolled at National health insurance.

Person:

According oxford learners dictionary, a person refers to an individual and is the unit of analysis for most social statistics programmes.

Educational attainment is usually measured with respect to the highest education program successfully completed, which is typically certified by a recognized qualification.

At the primary and secondary levels, educational attainment can be used to present data in terms of the highest grade category completed in the highest educational attainment classification.

At the postsecondary level, it can be used to measure partially completed qualifications in the class "Some postsecondary education (highest)" in the Highest educational attainment classification, which includes persons who have received some

education that can be counted towards a postsecondary qualification but have not received any postsecondary qualification. The Highest certificate, diploma or degree classification refers only to the highest education program successfully completed. As a result, categories of the two classifications below the level of completed postsecondary qualifications are not directly comparable.

Information on educational attainment is typically presented for persons aged 15 years and over.

Educational attainment can be collected directly from a single question referring specifically to the highest certificate, diploma or degree obtained by the person. It can also be derived from responses to a set of questions, each of which ask whether the person has obtained a specific certificate, diploma or degree. It can also be derived from a single question which asks for all certificates, diplomas or degrees the person has obtained. Information on the highest partially completed qualification, if included, can be derived by combining information on the highest certificate, diploma or degree obtained with one or more questions on whether the person has completed some education at a given level.

This standard is consistent with the definition of Educational attainment provided in the International Standard Classification of Education (ISCED) 2011, published by the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (2012, p. 20, paragraph 81):

The educational attainment of an individual is defined as the highest ISCED level completed by the individual. For operational purposes, educational attainment is usually measured with respect to the highest education programme successfully completed, which is typically certified by a recognised qualification.

ISCED classifies educational programs and includes a classification of the levels of educational attainment. This standard includes classifications other than the ISCED classification in order to reflect the language used to describe education levels in Canada.

This standard is also consistent with ISCED 2011 in its definition of "successful" completion, and in its inclusion of certificates awarded by provincial or federal authorities that recognize the skills gained by means of informal learning as equivalent to formal educational qualifications.

With the adoption of the ISCED 2011 definition of Educational attainment, this standard is no longer fully consistent with the definition of Educational attainment found in the United Nations' Principles and Recommendations for Population and Housing Censuses, Revision 2, 2008. The UN document broadly defines Educational attainment as "the highest grade completed within the most advanced level attended," implying that partially-completed credentials are necessarily included in its measurement. By comparison, the ISCED 2011 definition does not require that partially-completed credentials be included in the measurement of educational attainment; in fact their inclusion is an exception to the usual practice. ISCED 2011 specifies that, "(f) or operational purposes, educational attainment is usually measured with respect to the highest education programme successfully completed, which is typically certified by a recognised qualification," while acknowledging that the inclusion of partially-completed credentials is another option for classification of the concept. This standard includes the 'Highest certificate, diploma or degree' classification that does not include partially-completed credentials in its measurement. The UN concept of Educational attainment does not include credentials conferred by professional organisations. (Source: Principles and Recommendations for Population

and Housing Censuses, Revision 2, 2008). Such credentials are excluded from the current standard.

2.2 Overview of Health Insurance Scheme in Ghana

Health is defined by the World Health Organization (WHO) 1993 as a state of a complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. The WHO also states that health is one of the fundamental rights of every human being without distinction of sex, race, religion, political belief and economic or social conditions. It also states that, health is a fundamental right, that is, the attainment of important social goals which can be achieved through effective health care delivery. The Oxford English Dictionary also defines health as the condition of a person‘s body and mind.

2.3 Insurance Programme

Insurance is something done to protect oneself against some occurrence in the future. It means paying an agreed premium to insure oneself against any future event. Insurance provides a payment mechanism that is necessary for greater private involvement in providing curative care of property.

The ―cash and carry" system, made it compulsory for everybody to pay money immediately before and after treatment in our hospitals, clinics, etc which was not within the means of most Ghanaians where many were not going to our hospitals, resulting in needless deaths. Therefore it became necessary for the government in power to introduce an insurance scheme to cover their health care since they needed healthy Ghanaians to contribute immensely to develop our dear nation hence, the introduction of the National Health Insurance Scheme (NHIS).

National Health Insurance Scheme is defined as a health care cost over a group of subscribers Health Insurance Act 2003 (Act 650). Thus, the cost of treating a patient will be drawn from the fund into which all subscribers to the scheme pay their premium. In other words the pooling of resources will provide the financial bedrock required by members of the scheme who are unfortunate enough to fall sick. By this, the subscribers become each other's keeper. Even though, reference is often made collectively to the National Health Insurance Scheme (NHIS), there are indeed three types of schemes under section II if the Act:

a. The District Mutual Health Insurance Schemes.
b. The Private commercial Health Insurance Schemes.
c. Private Mutual Health Insurance Schemes.

The different insurance schemes run by different groups or associations will be registered under each of the three t ypes of schemes by the National Health Insurance Council, the authority designated for that purpose by sections 13 and 14 of the Health Insurance Act (2003).

The Government does not want to take chances and has therefore decided to support the District Mutual Health Insurance Scheme concept to ensure that:

- Opportunity is provided for all Ghanaians to have equal access to the functional structures of Health Insurance.
- Ghanaians has moved from an unaffordable –eash and carry" system to another affordable Health Insurance scheme.
- A sustainable Health Insurance option is made available to all Ghanaians.
- The quality of health care is not compromised under Health Insurance (NHIS questions and answers).

The District Mutual Health Insurance Schemes have been programmed to allow the payment of very low premiums affordable by the poor in society while still ensuring adequate coverage of basic Healthcare needs. The low premiums also mean that contributions received from premiums will not be able to cover the cost of provision of the ―basic health care needs" which have been defined for the District Mutual Health Insurance Schemes. In this respect, the gap will be funded by subsidy from the National Health Insurance Fund by the National Health Insurance Council under the provisions of section 33 of the Act which provides for such subsidy.

The National Health Insurance Scheme (NHIS) is in such a way that contributions are payable in line with one's ability to pay, because the socio – economic condition of all residents in Ghana are not the same therefore the contributions must be affordable to all to ensure that nobody is forced to remain in the ―cash and carry system". The premium contribution is not standard for all, this means that premium payment varies from one district to the other as the disease burden is also not the same in all the districts.

As stated earlier, contributions are payable in line with one's ability to pay. For the informal sector, community health insurance committees are to identify and categorize resident into social groups to enable individuals in each group to pay line with the ability to pay. By law, the poor or the indigent who are considered as adults and unemployed and receive no consistent financial support from identifiable sources will be exempted from contributing the health insurance scheme. Children under 18 years whose parent(s) or guardian(s) pay their own contributions are exempted from paying any contribution. The poor or very poor who are employed or unemployed but receive identifiable and consistent financial support from sources of low income

contribute GH¢7.20 per year but due to financial constraint, they are allowed to pay in monthly installment of GH¢0.60 per month.

The middle income adult is also to contribute GH¢18.00 and the rich and very rich also contribute GH¢48.00per year which is subject to renewable every 13 month. (National Health Insurance Act).It must also be noted that, all Ghanaians are going to pay 2.5% Health Insurance levy on selected goods and services to be put into a National Health Insurance Fund to subsidize all fully paid contribution to the District Health Insurance Scheme. This is to give a wider scope and coverage that will help to generate more revenue and also to ensure that the poor also contributes when they procure goods and services (Health Insurance Act 2003).

The Government has come with a minimum benefit package of diseases which every district – wide scheme must cover. This package covers about 95% of diseases in Ghana. Diseases covered include among others Malaria, Diarrhea, Upper Respiratory Tract Infection, Skin Diseases, Hypertension, Diabetics, Asthma, and a lot of other diseases ranging from head to toe. However, all district – wide schemes have the right under the law to organize their schemes to cover as many diseases and services as they desire, provided it is approved by National Health Insurance Council.

Certain diseases are however excluded from the benefit package. This is mainly because it may be too expensive to treat those diseases and therefore other arrangements are being considered to enable people get these diseases treated. Diseases currently not covered are: optical aids, hearing aids, treatment of chronic renal failure, Dentures, Beautification surgery, supply of AIDS drugs, treatment of Heart and Brain Surgery, etc. all these constitute only 5% of the total number diseases

that attacked us. (National Health Insurance Scheme Levy questions and answers booklet).

2.4 Types of Health Insurance Schemes

The Act 650 and the LI 1809 define types of Health Insurance Schemes namely, Social–type Health Insurance and Private Commercial Health insurance schemes operational in Ghana. There are two types of the Social -type which are District Mutual Health Insurance Schemes and Private Mutual Health Insurance Scheme.

All these types of health insurance shall have governing boards which shall be responsible for the direction of policies of the schemes .They shall be registered under the Companies code, Act 1973 as either limited by guarantee or Liability. There is no restriction on the number and the type of scheme that one can join.

2.4.1 The district mutual health insurance scheme

The District Mutual Health Insurance Scheme (DMHIS) is a fusion of two concepts, the traditional Social Health organization for the formal sector and the traditional Mutual health organizations for the informal sector with a district focus. Thus the District Mutual Health Insurance Schemes will incorporate members from both the formal and informal sector of the economy. It is a decentralized system with ownership belonging to the members who have contributed their required contribution. It is social in character because it is no-for –profit.

The DMHIS has been designed to ensure transparency, build subscribers confidence and in particular bring insurance to the door steps of residents. However, it will be in partnership with the government in that the DMHIS will receive subsidy from government in the form of risk equalization and reinsurance for catastrophic events.

2.4.2 Private mutual health insurance scheme

This is the type that may be established and operated by any group of people as private Health Insurance Scheme .This shall not necessarily have a district focus but may either be a community -based or occupational or faith- based. It is also social in character but will not receive subsidy from the government.

2.4.3 Private commercial health insurance scheme

The Private Commercial Health insurance refers to Health Insurance that is operated for profit based on market principles. Premiums are based on the calculated risk of particular groups and individuals who subscribe to it. Thus, those with higher risk pay more premiums. Commonly, the ownership of the private commercial type resides with a company and stake holders and the stocks of the company can be traded on the market as any company. The private commercial insurance Companies will play the role of offering the minimum benefit package and supplementary insurance plans as an add-on for those who so desire and can afford to pay.

The DMHIS schemes shall be governed by Board of Directors responsible for the enforcement of the constitution of the Schemes approval of budget render operational and financial accounts and appoint Management staff.

2.5 Evolution of Health Insurance in African Countries

Formal health insurance Schemes emerged only recently in African countries. Historically, Africans relied on informal, kinship, and other communal networks and associations for mutual support and solidarity during illness, bereavement, and other contingencies. At independence formal health care systems in African countries favored privileged elites and urban residents because they were intended to serve the Europeans and their immediate dependents and employees. Independent African

countries extended the reach of their formal health care systems with sizeable investments in health care, training indigenous health personnel, and strategies to redress the inequalities of the colonial era. In fact, most African countries embraced the primary healthcare strategy outlined at the historic *Alma Ata Conference* in 1978 that emphasized community-based care and resolved that comprehensive health care was a basic right of citizens and a responsibility of government. Thus, most countries provided free and publicly-funded health care with virtually no out-of-pocket payments. These efforts were quite successful in increasing not only the numbers of health professionals employed in the public sector and the health care infrastructure, but also extended care to areas and populations previously without access. In Tanzania, for example, the government succeeded in expanding access to health care (Yudkin, 1999). Amidst rapid population growth and economic decline, such free universal health care systems quickly became unsustainable (Criel, 1998).

During the OPEC oil crisis of the 1970s most African governments were compelled to reduce their budget allocations to social services, including health. The worsening economic circumstances of the 1980s compounded the problems and forced most African countries to seek financial assistance, in the form of loans and grants, from international financial institutions such as the World Bank and the IMF. As a major funding conditionality, these governments were required to switch from their socialist-based development policies toward open-market reforms under the Structural Adjustment Programs (Mensah, 2006). Removal of government subsidies and imposition of user-fees for social services such as education and health care became common requirements by the early 1990s (Mensah, 2008a and 2008b). Suddenly, out-of-pocket payment for health care services, which used to be the exception in the

early post-independence years in Africa, became the rule (Mwabu, 2008; Vandemoortele et al., 1997)

2.6 Health Insurance Development in Ghana

The independence of Ghana of Ghana in 1957 brought about; among others ―free‖ health care for all its citizenry. This meant that there was no direct out-of-pocket payment at point of consumption of health care. Financing of health was, therefore, entirely through government tax revenue .With a decline in the economy, the sustainability of―free‖ health care became problematic given competing demands on the countries resources.

User fees were introduced in 1969 , when the first law, Hospital Fees Decree, 1969(NLCD360),enabling the collection of fees for health service was enacted .This was nationwide to the extent that by 1977 more than three-quarters of Tanzanians lived within 5 km of a health care facility followed in later years by a number of other laws, the Hospital Decree ,the 1969(Amendment) Act,1970 (Act 325) ,the Hospital Fees Act 1971,Act(387) and their resultant Legislative instrument particularly the Hospital Fees regulation 1985 (LI1313) thus mandated fees to be charged for consultation, laboratory and other diagnostic services ,medical surgical and dental services, medical examination and hospital accommodation. Drugs were to be charged to patients at full cost. The introduction of the user fee was noted to have resulted in decline in delivery of health services in the economy. In spite of this, the government went ahead to institute full cost recovery for drugs as a way of generating revenue to address the shortage of drugs. The payment mechanism which was put in place was termed Cash and Carry .The implementation of the Cash and Carry compounded the health delivery problem by creating some financial access barrier to access health delivery. Government still recognizing the problem associated with the Cash and

Carry thought of abolishing this out-of –pocket payment for health care at the point of service.

To offset the negative effects of the Cash and Carry system, especially its consequences on the poor ,the government commissioned various studies into alternatives, principally, insurance-based ones .Initially a lot of efforts were invested into investigating the feasibility of National health Insurance Scheme. Proposal to set up a National Health Insurance Scheme (NHIS) have in fact been around for long time. Since early 80s, various experts (Local and International) were contracted by Ministry of Health (MHO) to study and make recommendations for setting up and running a National Health Insurance Scheme organization. The International Labour organization (ILO), World health Organization (WHO), European Union and London School of Hygine and Tropical Hygiene all visited and provided technical advice at the request of the Ministry. In 1997, the NHIS pilot project was formally launched in the Eastern region intended to cover for districts.

The objective were stated in the Presidential sectional address (The president of the fourth republic of Ghana Flt Lt Jerry John Rawlings 1997) of that year as ….the national Health Insurance will contribute to resolving the cost of health delivery. This year a pilot Insurance Scheme will be implemented in Eastern region to test the work done so far. Its performance will be studied as well as the existing rural health Insurance Schemes so that problems can be identified and eliminated before the implementation can be done on National scale.

The very first District-wide Mutual Health Insurance Scheme in the country is the Nkoranza Health Financing Scheme in the Brong Ahafo region, established in 1992 (Sabi, 2005; Heyen-Perschorn, 2005). The Scheme was started at a mission hospital in

Nkoranza as an alternative means of financing healthcare to curtail out-of-pocket payments by clients, many of whom were poor and had difficulties making the payments to keep the hospital afloat. The success of the Nkoranza Scheme provided the impetus for the establishment of other such Schemes in Ghana.

2.7 Description of National Health Insurance Schemes in Ghana (NHI)

Upon assumption of office in 2000, the Government sought to replace the existing cash-and-carry system of healthcare payment with the incipient National Health Insurance Scheme (NHIS), following intense consultations with Ghana_s international health development partners (e.g., WHO, DANIDA, DFID, and ILO) and relevant national agencies and NGOs. A Ministerial Task Force on Healthcare Financing was established in March of 2002 to conduct further studies and recommend an appropriate Scheme for Ghana. The Task Force_s recommendations were submitted to parliament in 2003, culminating in the passing of the National Health Insurance Act of 2003 (Act 650), and the official birth of the NHIS that same year.

The stated mission of Ghana_s NHIS is to ensure equitable universal access for all residents of Ghana to an acceptable quality of essential health services without out-of-pocket payment being required at the point of service use‖ (Ghana Ministry of Health, 2004a). *Act 650* identifies three major types of health insurance in the country. These include: *(a)* District-wide Mutual Health Insurance Schemes; *(b)* Private Mutual Health Insurance Schemes; and *(c)* Private Commercial Health Insurance Schemes. All these Schemes have to register with the government to be able to operate legally in the country. However, the government provides direct financial support only to the District-wide Mutual Health Insurance Schemes, as part of its ongoing Poverty Reduction Strategy. In fact, the NHIS is structured around the District-wide Mutual

Health Insurance Schemes as the dominant form, with minor variations to accommodate special variations.

2.8 Administration of National Health Insurance in Ghana

Ghana_s NHIS is regulated by the National Health Insurance Council (NHIC), headquartered in Accra. Regional and District offices of the NHIC have been set up to decentralize the operations of the Scheme. The Council manages the National Health Insurance Fund (NHIF) through the collection, investment, disbursement, and administration of the Scheme. The Council also undertakes the licensing, regulation, and accreditation of healthcare providers. By the end of 2007, the NHIS had accredited 800 private healthcare providers in addition to government health facilities (Ghana Ministry of Health, 2008). It is expected that this system of accreditation will eventually raise standards and quality of health care throughout the country for both insured and uninsured citizens. At the District level, there are Health Insurance Assemblies which comprise all members of the respective District Schemes in good standing. The District Schemes are governed by Board of Trustees and Scheme Managers. The management teams at the various districts usually include an Administrator, Accountant, Publicity and Marketing Manager, Claims Managers, Accountant, Data Control Manager, and Data Entry Clerk (Ghana Ministry of Health, 2004; Sabi, 2005).

2.8.1 Premium and benefits package

NHIS premiums are generally based on clients‘ ability to pay. District Health Insurance Committees identify and categorize residents into four main social groups viz., the core poor or the indigent; the poor and very poor; the middle class; and the rich and very rich and vary their respective contributions accordingly. The *core poor* (or the indigent), together with people who are 70, or more, years of age, or former

Social Security and National Insurance Trust (SSNIT) contributors who already are in retirement, are exempted from paying any premiums. While premiums vary slightly from District to District, generally members pay no less than GH¢7.2 (US$8.00i), per annum. For members in the formal sector, 2.5% of their contribution to SSNIT is deducted monthly as their health insurance premium.

Workers in the formal sector are automatic members of the NHIS, but they still have to register with their respective District Mutual Health Insurance Schemes. Those in the informal sector, as well as the self-employed, pay between GH¢7.2 and GH¢48.0 yearly, depending on their income. All contributors' premiums cover their children and dependents below age 18. Thus, NHIS registrations of children were linked to those of parents. Some schemes insist that both parents must be registered (except in single-parent households) before a child can be registered, while others only require the mother to be registered. Consequently, parents with larger families had better coverage since all their children were covered as well, but children whose parents were uninsured had no coverage. Stories of infants detained at health facilities due to their parents' inability to pay for the surgery that delivered them, or that they needed as neonates, were widespread. Following intense public outcry, this coupling of parents' coverage with their children officially ended in September 2008 (Sulzbach, 2008). In 2004, the government introduced a 2.5% sales tax (i.e., Health Insurance Levy) on selected goods and services to fund the NHIS. Other notable sources of funding for the Scheme include money from the government_s budget and donor contributions (Sabi, 2005).

The benefits package of the NHIS includes general out-patient services, in-patient services, oral health, eye care, emergencies and maternity care, such as prenatal care, normal delivery, and some complicated deliveries. Diseases covered include malaria,

diarrhea, upper respiratory tract infections, skin diseases, hypertension, asthma, diabetics etc. According to the Legislative Instrument which accompanied *Act 650*, about 95% of all common health problems in Ghana are covered (Ghana Ministry of Health, 2004a and 2004b)—how this estimate was ascertained is, however, difficult to establish. The government has a specified minimum benefit package to which all District-wide schemes should adhere. Some services, such as HIV antiretroviral therapy, hearing aids, dentures, and VIP accommodations are excluded from the health benefit package, either because they are considered too expensive, non-medical, or because there are alternative national arrangements for them.

2.8.2 Exclusion list, Ghana NHIS

These are services that will not be covered under the NHIS. Note that exclusion is used loosely here, as insurance Schemes have the freedom to decide whether or not they will offer these services as additional benefits to their members. According to the Ghana Ministry of Health and NHIA (2003), the following are excluded from the service covered under NHIS.

- Rehabilitation other than physiotherapy
- Appliances and prostheses (optical aids, hearing aids, orthopedic aids, dentures etc)
- Cosmetic surgeries and aesthetic treatments.
- HIV retroviral drugs (symptomatic treatment of opportunistic infections and other AIDS related diseases will be covered).
- Assisted Reproduction (e.g., Artificial insemination) and gynecological hormone replacement therapy.
- Echocardiography
- Angiography

- Dialysis for chronic renal failure
- Organ transplantation
- All drugs that are not listed on the NHIS drug list
- Heart and Brain Surgery (other than those resulting from accidents and Cancer treatment (other than breast and cervical)
- Mortuary Services
- Diagnosis and treatment abroad
- Medical examination for purposes other than treatment in accredited health facilities (e.g., visa applications, education, institutional, driving license etc.
- VIP ward (Accommodation). **Source: Ghana Ministry of Health, *National Health Insures Policy*, 2003.**

By the end of August 2007, 55% of the total national population had registered with the NHIS. The largest numbers of enrollees, in absolute term, were in the Brong Ahafo Region (1.4 million), the Eastern Region (1.2 million), and the Northern Region (1.0 million). Surprisingly, only 24.1% of Greater Accra_s population had enrolled in the NHIS by August 2007. This reflects the growing number of transients, slum-dwellers, and rural-urban migrants who have come from outside the region in pursuit of the ever-dwindling employment opportunities in Accra (the national capital) and its surroundings. Available data show that of the total number of Ghanaians enrolled by June 2007, some 7.4% were over 70 years of age; and 1.9% were indigents all of whom are exempted from premium payments. (Global Development Network, November, 2009).

Undoubtedly, we cannot get a full picture of Ghana_s NHIS and of its sustainability without some insight into its cost effectiveness and funding mechanisms in the

context of health care financing in the country. Unfortunately, though, as in many African countries, it is highly difficult to obtain a comprehensive overview of the funding to Ghana_s health sector, in general, and to the NHIS, in particular, due to the lack of a reliable data, which is in turn attributable to the fragmentations in funding sources, uses, and flows. Moreover, mismatches between the funding captured on-plan by the nation_s Program of Work,‖ on-budget via its Medium Term Expenditure Framework,‖ and on-account through its Financial Statement‖ have also undermined the reliability of data on health care financing in the country (Ministry of Health, 2008).

Also, while there has been some progress in the Health Care Budget Management Center_s reporting of internally generated funds from out-of-pocket sources and from NHIS subsidies from the government, this is still incomplete and therefore unreliable for any meaningful analysis at the national level (Ministry of Health, 2008). Notwithstanding these data problems, we know from the 2006 National Budget that some 13% of Ghana_s national expenditure of GH¢2.8 billion then was allocated to the health sector (Government of Ghana, 2006). Similarly, of the total planned national expenditure of GH¢3.9 billion slated for January to December of 2007, some 11.46 % was allocated to the health sector Government of Ghana, 2006). According to the Independent Review of the Health Sector Program of Work for 2007, the total expenditure on health as a percentage of GDP stood at 4.4% in 2006, and the estimated per capita total expenditure on health was about US$25.4 the same year (Ministry of Health, 2008). Moreover, estimates from the Ministry of Health (2008) show that spending on the National Health Insurance Scheme, as a share of the nation_s health care sector financing.

2.9 Policy Guidelines of National Health Insurance Schemes (NHIS)

Ghana has adopted the use of Health Insurance as one of the national fundamental systems for financing health service .This policy guided the enactment of the National Health Insurance Act 650(2003) and the LI 1809.The Act provides the legal frame to secure the provision of at least a standard health care package for all persons resident in the country through mutual and private health insurance schemes

The provision is articulated in the following main principles

- Health service will be provided through a prepaid mechanism that incorporates risk sharing and risk equalization and ensures equity.
- Regularly compulsory contribution will be made from population groups that have the means and ability to pay minimum premium
- Service comprised of standardized ,minimum benefit package of quality service
- Subsidy will be provided for poor and venerable who do not have the ability to pay

2.10 Principles underlying the Design of Health Insurance in Ghana

Available statistics indicates that about 70 percent Ghanaian are in the non-formal sector of the economy. There are two main problems associated with this sector. The first one is the difficulty that may be encountered in collecting contribution. This means that tradition mechanism for organizing communal contributions needs to be examined and factored into the design of the schemes. The second problem, which is critical one, is that, most people at least 40 percent are below the poverty line and as such may not be able to afford higher premium. Thus the Health Insurance Schemes have been designed with the aim to offer health care access to the poor and the

vulnerable in society. Thus, the design would take into account the following principles risk equalization, cross-subsidization, solidarity, quality care, efficiency in premium collection and claims administration, community or subscriber ownership, partnership reinsurance, sustainability.

2.11 Determinants of viable Health Insurance Schemes

Before the introduction of Health Insurance in Ghana, Ghanaians like other people living in developing countries, Health insurance was for the upper class people. The poor could not afford such type of social protection. For most people living in poor developing countries ,illness still represents a permanent threat to their income earning capacity .Besides the direct cost for treatment and drugs, indirect cost for the labour force of the ill and the sick persons have to be shouldered by the household. Health insurance schemes are increasingly recognized factor as tool to the people for health care service of good quality and extreme underutilization of health service in several countries. It has been argued that Social Health Insurance may improve the access to health care of acceptable quality. Against this background, the Centre for Development Research (ZEF-BONN TANZANIA 2008) in bulletin on world health organization in November 2008 analyzed within his research programme on social security systems in rural areas, the prospect and limitations of innovative health Insurance Schemes, conducted an empirical studies currently in Ethiopia, China, Ghana, India, Senegal and Tanzania to estimate the demand for health care health Insurance and factors of successful health Insurance scheme. The following points summarizes the important findings on the determinants of a viable Health Insurance Scheme.

2.11.1 Flexibility in paying procedure (premium)

Flexibility here means that there should be various possibilities to adopt paying procedure to the local level requirements. This includes payments in bits and the role of the state the possibility for demand targeted subsidies. One other important determinant of willingness to join schemes is affordability of the premiums which often depends on the time of collection. Health insurance schemes target the marginalized in the society, the premium rates need to be affordable. It has been found out that health insurance schemes which target formal sector workers most of the time collect monthly contributions from members while in the informal sector collection of contributions is done during harvest season when cash incomes are regular. Because widespread absolute poverty is believed to restrict potential members from joining health insurance schemes, there should be flexibility in payment of premiums by the poor. It also implies that collection of premiums should be done during the seasons when cash incomes are highest (Development and Corporation, 2001).

2.11.2 Existence of viable health care provider and quality health care

The success or failure of Health Insurance Scheme is largely dependent on the existence of viable health care providers. For example hospitals that offers services to the insured. Decisions taken and activities by health care providers have an impact on the financial balances of the Schemes. For example in the case of NHIS in Ghana the administration of the hospitals have recognized that their ultimate target group the poor, are not able to pay their fees but it is not possible to allow for general exception of fees for the poor. The type of services from health providers has a direct relation with the premium paid by insured clients since people compare the -value for money –to the service they receive to the services they receive to motivate them to register

with a scheme. Desmet et al (1999) studies showed that quality of delivery equally plays an important role in the willingness to join a scheme. Quality of delivery defined in terms of rapid recovery, good health personnel, quality of drugs and attitude of health personnel, In 12 focus group discussions (FGDs) organized to evaluate the Meliando Scheme in Guinea with 137 persons, these very features were mentioned 383 times by participants as an important factor which determines to a large extent willingness to join a scheme**.** In Ghana quality of care to insured clients is questionable.

The attention now has been the NHIA s ability to pay providers promptly. In the operation manual of NHIA for example, three visits have been fixed when a patient is supposed to be completely healed. Desmet et al (1999) studies have also shown that in some settings it is not possible to set up viable insurance schemes and mobilize demand if the people feel that they cannot get the best health care services possible. The implication is that the benefit package should include basic services designed to take into account the health delivery needs and preferences of the target populations. Health facilities will also have to be well equipped to collect patient data for reimbursement. Experiences with exemption policy for under- five year old and aged being treated at the hospital for free have not been pleasant. There have been difficulties in reimbursement of monies and resources spent on this category of people to the health facilities.

2.11.3 Community and household characteristics and solidarity

The demand for health Insurance is a crucial factor if the benefits expected from community financing schemes are to be realized. The demand of household health insurance depends not only on the quality of care offered, the premium and the benefit package, but also on the socio economic and cultural characteristics of household and

communities. Widespread absolute poverty among potential members can be serious obstacle to the implementation of insurance. Community involvement can be exclusionary as well as inclusionary. In Senegal, it was found out that traditional solidarity in the community setting plays a major role in the success of a health insurance scheme. Jutting et al, (2001) realized that 15% of those studied became members of the scheme for the sake of solidarity.

- **Public Information on the Health Insurance Schemes.**

Most of the people in the informal sector and those in the rural areas are often unable to read and write therefore careful thought has to be given to what information the members need in other to be convinced. Jutting et al (2001) studies in the Thies Region of Senegal showed that 70% of members studied had become members of the insurance scheme because they had received clear and persuasive information about the benefits of becoming a member of the scheme. Public information can come in various forms as simple handouts, posters, video films and discussion groups. However, in most part of the continent where most people cannot read and write the use of handouts and posters may tend to give different interpretations to the message designed for the target population. In such an instance, focus group discussions may be more important to allow the target population to share their views on the scheme.

2.12 Analytical Overview of Health System and Health Insurance in Ghana

The World Health Organization released a bulletin (World Health Organization 2008, McIntyre et al.2008), on analytic overview of health systems in Ghana, South Africa and the United Republic of Tanzania. Various features were reviewed on the health system and operation of health insurance. Below is the overview on the Health system in Ghana and the implementation of Health in Insurance in Ghana.

- **Revenue Collection Premium Payment**

The source of fund for health system in Ghana is significantly donor funding, accounting for about 20% of total health-care funding. The burden of domestic funding is on companies and households, but households ultimately bear the major burden. There are some exemptions from contributions (e.g. the lowest income group does not pay income tax and income less than eighty four Ghana cedis does not attract income tax) .In payment of premium in NHIS in Ghana children less than 18 years the aged are exempted from national health insurance contributions if both parents have paid their premiums, and the elderly aged more than 70 years do not have to pay user fees and health insurance Premium. Pregnant women as well do not pay premium and there is no fee for leprosy and TB treatment). User fee waivers apply to indigent people, but it has been difficult to clearly define and identify this group.

- **Contribution Mechanisms**

General tax revenue is generated from personal income tax (11%), company tax (15.4%), VAT (25.4%), petroleum tax (18.3%), import tax (16.5%), earmarked tax for national health insurance (5.1%) and a range of other taxes accounting for 8%.

Personal income tax is structured progressively with low-income earners being exempted and the marginal tax rate ranging from 5% for the lowest income taxpayers to 28% for the highest.

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- **Out-of-pocket payment:**

User fees are not differentiated according to income in Ghana. Before the introduction of the NHIS, majority of people paid out-of-pocket for their health care needs in public and private health facilities, pharmacies and traditional healers. Collecting organization taxes are collected by three main bodies in Ghana: The Internal Revenue Service collects personal and company income tax; the VAT secretariat collects domestic VAT, excise duties and part of the NHI levy. The Customs, Excise and Preventive Service collects import duties, import VAT, petroleum tax and part of the NHI levy. All of these taxes are then pooled by the Revenue Agency Governing Board of the Ministry of Finance and Economic Planning. Health insurance contributions are made by both formal and informal sector workers. Formal sector workers contribute via SSNIT, a body that manages retirement funds. These funds are sent to the DMHIS according to the number of formal workers/ SSNIT contributors that a scheme registers. Those outside the formal sector pay their contributions directly to their respective district mutual health insurance Scheme (DMHIS).

Risk pooling, coverage and composition of risk pools

The NHI scheme has been implemented through a network of DMHISs. Each district has a scheme, with the larger districts (in metropolitan areas) having more than one. There are already 138 DMHISs in the country. By December 2007, 55% of the population was registered under the NHI scheme, although only 44% of the population had received their membership cards due to administrative problems. Although some of the poor have been enrolled in the NHI scheme through government subsidies, the majority of members are from higher income groups.

Even though legislation makes provision for setting up private insurance schemes, they cover less than 1% of the population. The majority of those not covered by NHI uses public sector health facilities and pay user fees and a small number pay out-of-pocket to access health services from the private sector.

- **Allocation mechanisms**

There is no risk-equalization between the individual DMHIS at present. The NHI scheme secretariat merely allocates funds to DMHISs based on the number of SSNIT registered members as well as indigent members that have been registered as well as the exempt group. Taxes are centrally collected and allocated to regional and district levels using a needs-based resource allocation formula.

- **Benefit package**

The benefit package of the NHIS is quite comprehensive, covering outpatient and inpatient services at accredited facilities, as well as the community-based health planning services. The benefit package is the same for all DMHISs. Those using publicly and user-fee funded services also have access to a comprehensive range of services, which is primarily limited by the ability-to-pay user fees.

- **Provider payment mechanisms**

Public and some not-for-profit private (e.g. Christian Health Association of Ghana) facilities are allocated budgets and staff are paid salaries. The DMHISs pay providers on fee-for-service basis (FFS).Private for-profit practitioners are paid on a fee-for-service basis. There are no out-of-pocket payments for insured clients

2.14 Financing Health Care in Ghana

How health care should be financed has been a major concern of many well-meaning citizens in Ghana. Ghana spent much of the years paying off debt and enacting

austerity measures designed to shore up its economy. The country's health sector noticeably suffered under the economic cutbacks, resulting in staff shortages and poor maintenance of health facilities (Oppong, 2001:337-70). In order to curb the deterioration of health services and to boost the quality of health care delivery, Ghana eventually implemented a pay-per-service health care model commonly referred to as the –cash and carry system."

However, the" cash and carry system ended up discriminating against Ghana's most vulnerable communities rending health services unaffordable to them. A substantial decline in the number of people accessing health care services in hospitals became evident shortly after, with estimates suggesting at least (25%) twenty five percent drop in usage. The greatest declines were recorded among the poor, elderly, women, and rural residents (Anyiman 1989; 531-47; Hutchful 2002:129-40; Konadu – Agyeman 2000:475-81; Waddington and Enimayew, 1990:287-312).

The failure of the –cash and carry system" to cater for the health care needs of the country's most vulnerable populations placed health care services and delivery improvements on top of the country's development agenda. This system could be best described as –stinking and dehumanizing" because patients who did not have the ability to pay for medical services were turned away from hospitals only to die at home. The physically challenged, poor and accident victims were being asked to pay on the spot before getting medical attention.

However, it was deduced by the researcher that it was for the purpose of deciding how to finance health care and to address the underlying inequalities and also provide equal opportunities for the people to use that brought about NHIS. In 2003, the National Health Insurance Act was approved by parliament, followed by the launch of

the National Health Insurance scheme (NHIS) in 2004. The NHIS was designed to offer affordable health care to the country‘s poor, with adult contributing minimal annual payment in comparison with the value of their potential health care usage.

In Ghana today, almost everyone recognizes the fact that ―cash and carry" system of health care financing presented a strong barrier to health care access for majority of Ghanaians‘ and that if the health of the population is to be secured, then there is an urgent need to replace it with the National Health Insurance Scheme which will enhance utilization of health facilities.

Health insurance is a risk pooling system arrangement by which the cost of health care to any single individual becomes a collective responsibility of all the people in the society. Thus, it is an arrangement which best suits the current socio economic circumstances in our country. According to Griffin (1992) if the insurance scheme is well administered, it is believed that the following would be achieved.

It will allow the government to diversify the sources for health sector.

Provide a payment mechanism that is necessary for greater private sector involvement in providing curative care.

The NHI programme also aims to salvage any eventualities. A Health Insurance Scheme (HIS) as instituted under section (2) of the National Health Insurance Act 2003, (Act 650) is a health care payment arrangement that spreads the risk of health care cost over a group of subscribers. Thus an insured patient does not pay directly from his or her pocket for health services at the time of use when, most probably, the patient is not in a position to pay for consultation, treatment and hospitalization.

As individuals begin to pay into the scheme, the immediate impact of health insurance fee can translate into a decrease in funds for food, communication or transportation expenditure.(KochandAlaba, 2010:180-81).with the implicit tradeoff between basic necessities, well-functioning and accessible health care system, Ghana must take steps to address the disproportionate under- enrolment of the poor in the NHIS. The National Health Insurance Authority (NHIA) has begun investigating into the possibility of a single payment for lifetime membership. It is argued that the government can assure unhindered financial access to health care for residents of the country through a One-Time Premium Payment. (NHIA, 2010:17)

2.14.1 Users charges

Crease (1970) sees, user charges as pay as you use and shifting the burden of payment on the user of healthcare in the form of charges at the time of use.

In another development, Hardwick, Khan and Langue (1990) also see a user charge as the price charged on individual users for the facilities provided by the public sector and has in its opinion in the benefit principle of taxation as a way of financing public spending. The user charges were to enable government to provide better health services to her people since they are paying for the facilities they use at the public hospitals.

2.15 Theoretical Literature

The health belief model (HBM), theory of reasoned action, and social cognitive theory are some of the theories that influence peoples‘ behavioural towards enrolment of health insurance. However, the study used the theory of planned behaviour which is an extension of the theory of reasoned action and social learning theory.

This chapter discusses summaries of recognized authorities and previous researches done on the effects of the introduction of health insurance on the impact of health delivery service .The first part looks at, the development of Health insurance in Africa and Ghana as compared to two other African countries,(South Africa, Tanzania), description of Ghana National Health Insurance Scheme, administration of Ghana Health Insurance ,principles of a viable Health insurance and overview of Ghana health system and health insurance. The other side looks at the nature and definitions of the impact of educational attainment, approaches to the impact of health delivery service and theories of the impact of health delivery service.

At the primary and secondary school level, educational attainment refers to the highest grade completed or whether or not the person has obtained a secondary school (high school) diploma or equivalency certificate. At the postsecondary level, it refers to postsecondary certificates, diplomas or degrees awarded by accredited educational institutions. It also includes educational certificates or diplomas awarded to the person by provincial/territorial or federal authorities, such as the journeyperson designation in the trades. Educational attainment can also include the partial completion of a postsecondary qualification.

2.16 Review of Related Empirical Literature

There are a number of studies which have been carried out to find more humane, affordable and reliable mechanism of financing healthcare with the introduction of the national health insurance scheme. However findings of these studies tend to give conflicting results. Some studies have shown that sex, marital status and cost of curative care were strong factors in influencing one‘s decision to join the scheme.

According to Morton et al (2016), the first large study of the relevance of educational ment in moderate to severe CKD, we observed consistent and significant gradients in vascular risk and mortality across 6 education levels. These gradients were substantially attenuated following adjustment for available effect mediators (ie, lifestyle factors, comorbid conditions, and CKD stage). Educational level was not associated with progression of CKD in this population.

Important behavioral differences were observed across education groups. People with higher educational attainment were much less likely to be current smokers and, among those who are or have been smokers, were more likely to have quit smoking than those of lower educational attainment. Lower education level was associated with obesity, although this association was much weaker than for smoking. These associations are likely to affect both vascular and nonvascular mortality directly. However, alcohol consumption was more common among those with higher educational attainment. Although alcohol consumption might be a marker of ~~"b~~better health" (ie, consumption may decrease with deteriorating health), our data are limited in their ability to test this hypothesis. Contrary to other studies, we did not find a significant difference across education levels in adherence to study medication or a significant difference by educational attainment in proportions who withdrew from the study (including for reasons of no adherence) between initial screening and final randomization (trend $\chi^2 = 2.30$; $P = 0.1$). In our analyses, the inclusion of all available likely effect mediators explains most of the effects of educational attainment on adverse health outcomes in CKD; however, separating the contribution of these potential mediators is not possible due to the complex relationships between them.

It was unknown a priori whether educational attainment would be associated with CKD progression. A greater rate of progression to ESRD in patients with high

educational attainment has previously been reported,[23] although the potential for selection bias in this small study that excluded patients at high risk of CKD progression was substantial. A second study of patients with CKD stages 3 to 4 reported no significant effect of educational attainment on progression to ESRD.[24] However, the lack of an education gradient in CKD progression in our study was consistent across a number of outcomes and unlikely due to a competing mortality risk (i.e., participants with lower educational attainment are more likely to die before progressing). First, there was no education gradient in progression to ESRD or doubling of creatinine level (Figs 3 and S4). Second, rates of decline in eGFR (a continuous marker of CKD progression with increased statistical power) were similar by stage of CKD, irrespective of educational attainment (Fig S5). Finally, there was also no evidence for trend in progression to ESRD or death from kidney failure specifically across education levels in a Cox proportional hazards analysis adjusting for age, sex, ethnicity, and study treatment assignment and stratified by country ($\chi^2 = 1.72$; $P = 0.2$). The marginally significant interaction in education gradient in CKD progression by study treatment assignment ($P = 0.02$) was in the absence of any overall effect of allocation to simvastatin plus ezetimibe on CKD progression in the study.

Highest educational attainment was selected as the primary measure of socioeconomic status because it is less likely than other measures, such as income or employment, to have been influenced by disease at study entry (because it is usually completed in early life, before such disease emerges).[25] Our analyses are therefore unlikely to be susceptible to reverse causality bias. Furthermore, highest educational attainment is considered the optimal indicator of socioeconomic status when the mechanism of effect on health outcomes is thought to be through knowledge and health behaviors

and when an older population is studied.[25] Household income data within 4 country-specific categories were collected; however, these data were not used in the main analyses because 33% of participants did not provide reliable income data at baseline, and income is likely to mediate the effects of educational attainment. However, in sensitivity analyses, the inclusion of household income in the residual effects models did not affect results for any of the outcomes. In a further sensitivity analysis, the tertiary and completed high school levels of educational attainment were combined to control for the possibility that access to tertiary education might be income dependent; trends across educational categories remained similar. *P* values for trend across these 5 education levels, after adjustment for age, sex, black ethnicity, and study treatment assignment and stratifying by country, were $P < 0.001$ ($\chi^2 = 13.93$) for vascular events, $P = 0.001$ ($\chi^2 = 10.90$) for vascular mortality, and $P < 0.001$ ($\chi^2 = 26.79$) for nonvascular mortality, suggesting that the gradients we report are unlikely to be unduly influenced by tertiary-educated individuals.

Strengths of this study include its large size and inclusion of a wide range of patients with moderate to severe CKD and well-documented adverse health outcomes during the nearly 5-year median period of follow-up. Use of well-defined categories of educational attainment enabled assessment of a graded relationship across the 6 education levels, which was more powerful than the dichotomous exposure variables used in other studies.23, 24, 26. We used valid statistical methods to determine RRs of all outcomes and provided a clear rationale for adjustment of potential confounders, while avoiding over adjustment for potential effect mediators.

Limitations of the study include potential selection bias due to study inclusion criteria (i.e., excluding people with prior major coronary disease, severe respiratory disease, or recent cancer may have prevented less educated and potentially sicker patients

from participating). However, the likely impact of such bias would be that the effect of low educational attainment on mortality outcomes might be underestimated. In addition, an inverse association between risk factors and educational attainment may have been created through the deliberate selection of participants with CKD into SHARP that would not be present in an unselected population. This is a special case of ―collider bias"[27] that occurs when an outcome (e.g., vascular death) shares common risk factors with developing CKD; this can result in the associations being biased toward the null. Such selection bias may explain at least in part the lack of association between education level and CKD progression in SHARP. While we attempted in our analyses to control for potential confounders and also to estimate associations before and after adjustment for potential effect mediators, it remains possible that biases due to residual confounding or due to unmeasured factors associated with both the effect mediators and outcome could still exist. Finally, further socioeconomic indicators such as participant income, employment level, or health insurance status, if available, may allow investigation of the extent to which these indicators modify the education-morbidity gradient. Further research into the causal mechanisms for the observed education-mortality gradient in people with moderate to severe CKD is needed.

The strong association between educational attainment and morbidity and mortality in moderate to severe CKD is consistent with findings in other chronic diseases (i.e., heart failure, diabetes, and chronic lung disease).28, 29, 30, 31. We have shown that known risk factors, more prevalent in individuals with lower levels of education, are likely to mediate most of these effects. The implications of our study for clinical practice and policy are that, although risk factors for disease risks are similar irrespective of educational attainment, approaches to prevention might need to be tailored to be effective among people with lower levels of education (e.g., literature to

help smokers quit written at upper primary school level). Such targeted interventions also include improved communication from health professionals about chronic disease self-management and personal risk., A direct link between low educational attainment and health literacy is known and recent research has highlighted different perceptions of personal risk among people with low compared to high health literacy.

Low educational attainment is associated with increased cardiovascular risk and mortality for people with moderate to severe CKD. Modifiable lifestyle factors (e.g., cigarette smoking) and prior diseases explained much of the observed association. Educational attainment was not associated with increased risk of CKD progression. These findings suggest that educational attainment should be taken into account when implementing interventions to reduce risk of adverse health outcomes in CKD.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

In order to have reliable information for this study, effective and efficient research techniques were used. This chapter discusses the various research methodologies employed in obtaining the necessary information for the study. It deals with the various data collection techniques used.

The use of primary and secondary sources of data, sample size determination and the targeted population among others are all considered in this chapter.

3.1 Research Design

The present study employed a mixed research design. That is, the study employed both qualitative and quantitative research designs the quantitative design supported the interpretation of the text by providing both descriptive and inferential statistics to make the discussion more vivid. As Fraenkel and Wallen (2000) note, the qualitative research designs help researchers to understand people's beliefs, experiences, attitudes, behaviours, and interactions towards a phenomenon. The qualitative research design was relevant for this study because it helped me to achieve b. The research design also helped me to answer my second hypotheses which is to understand how education attainments affect NHIS. The quantitative research paradigm was used to analyse data in numerical terms. I used both descriptive and inferential statistics to help me triangulate the findings. The descriptive statistics used in the study involves the use of percentages and frequency counts while the inferential statistics include a Pearson chi-square analysis to test the statistical significance of the variation in the resources used across the three disciplines. Again, given that

identifying the engagement resources is meaning-based and could be subjective, an inter-rater reliability test was carried out to examine the validity of types of the engagement resources identified in the data.

3.2 Theoretical Model Specification

The logit and probit models employed to analyze binary outcomes, assume that all alternatives are equally uncertain and influenced by a probability distribution. With this binary logistic regression, the dependent variable is a dummy and coded 1 or 0. This gives the respondents a clear idea to choose their relative preference between any couples of alternatives based on the inherent characteristics of the phenomenon under consideration. These models are simply a non-linear transformation of the linear regression. The logistic regression has an S-shaped distribution function and it is similar to the standard normal distribution except that the tail is considerably heavier–resembling a t-distribution. This constrains the estimated probabilities to lie between 0 and 1. The error term is assumed to have a standard logistic distribution with mean 0 and Var $(\varepsilon/ x) = \pi^2/2 \approx 3.29$. The specific value assumed for the variance is arbitrary in the sense that it cannot be disconfirmed by the data used. This model is identical to probit model except that the former has logistic distribution error term. Both models prove that the predicted probability lie between 0 and 1 as discussed by.

Logit and probit models give different predictions when a sample contains very few responses of Y = 1 and very few responses of y = 0, and also when there are wider variations in the independent variables. These models estimate coefficient results that give _sign' or direction of effect of change in the explanatory variable on the probability of success. Positive estimated coefficients suggest that it is more likely that an additional unit of the explanatory variable will lead to an increase in the dependent variable (dummy) under estimation whilst holding other explanatory

variables constant. Negative coefficient shows that an additional unit increase in the explanatory variable considered is less likely to influence the dependent variable whilst holding other explanatory variables constant. All parameter estimates are consistent, efficient and asymptotically normal so that the analogue of the regression t-tset can be applied. To test the significance of all or a subset of the coefficients of the logit and probit models, the likelihood-ratio test is applied, whilst the pseudo R squared measures ―goodness-of-fit". The pseudo R-squared is unlikely to be close to 1 when binary choices are involved. The models update the starting value to a new set of coefficient estimates till _convergence' is achieved, which signifies the elimination of multicollinearity in the estimated model. This is usually achieved via iteration.

The analyses of data involved the investigating the impact of educational attainment on health insurance enrolment. Descriptive analysis, logit and probit analyses using STATA have been employed to analyze the data. The models report logs likelihood function, which is inversely related to iteration. The likelihood function increases at each level of iteration up to a final value, where P-value is zero, indicating log transformation of variables that assume a better fit. The marginal effect is obtained by finding the derivative of the probability of success with respect to one element of the independent variables whilst holding other explanatory variables constant. The marginal effect has been captured using probit model, which is identical to the logit model. This identifies how significant the influencing factors can predict individuals' demand for health insurance. The functional form of the demand for health insurance equation is presented as; Hm = g (Age, Aq, Sex, Ms, Nys, Inc, Es, Hs Pre, IB). Where: g = log likelihood, Hm = health insurance membership, Age = Age, Agesq = Age squard, Sex = Sex (Male = 1, Female = 0), Ms = Marital status. (Maried = 1, Single/others = 0), Nys = Number of years of schooling, Inc = Income of the

individuals, Es = Employment status. (Private-sector employee = 2, Government employed = 1 Self-employed/Informal sector-employee = 0), Hs = Health status. Hfm = Health facility mostly attended. (Private Hosp/Clinic = 1, Government/others = 0), Sf = Size of the family, Cuc = Current expenditure Medical care. (Curative care plus preventive care), EL= Educational level and IB = Insurance benefit. The dependent variable-health insurance membership (dummy variable), takes the value of 1 if one is a member of health insurance scheme and 0 otherwise. The logit model, which is based on probability distribution, is expressed as;

$$M_i = E(Y = \frac{1}{Xi}) = \frac{1}{1+e^{-(B1+B2Xi)}} \quad (1)$$

Where e = 2.71828 Put differently,

$$Mi = \frac{1}{1+e^{-zi}} \quad (2)$$

Where

$$Zi = B_1 + B_2X_i \quad (3)$$

Zi ranges from - ∞ to ∞ and Mi ranges from 0 to 1. Xi is a vector of factors (explanatory variables) that influence enrolment into health insurance. The probability of having health insurance is given by; $Mi = \frac{1}{1+e^{-zi}}$ (4)

Equations 1 to 4 represent a situation where individuals have preconceived idea about payment of premium that will permit them to enjoy medical cover. The probability of having no health insurance is also given by;

$$1 - M_i = 1 - \frac{1}{1+e^{-zi}} = \frac{e^{-zi}}{1+e^{-zi}} \quad (5)$$

Equation 5 is individuals are assumed to have no insurance cover. Under such a situation, the best option is to maximize expenditure on preventive efforts. Therefore,

the probability of having health insurance cover divided by the probability of no insurance cover is expressed as:

$$\frac{Mi}{1-mi} = \frac{1}{1+e^{-zi}} * \frac{1+e^{-zi}}{e^{-zi}} = \frac{1}{e^{-zi}} = e^{zi} \quad (6)$$

Taking the natural logarithm of the odd ratios, the result is given by

$$Li = 1n\left(\frac{Mi}{1-Mi}\right) = Zi = B_1 + B_2X_1 \quad (7)$$

The left hand side of the equation is the log odds ratio, or _logit'.

$\frac{M_i}{1-M_i}$, is the odd ratio of the probability of individual having health insurance to the probability of not having health insurance. U-i is the error term. This model can be estimated in STATA, SPSS and LINDEP

3.3 Empirical Model Specifications

$Hm=B_1+B_2Age+ B_3Aq+ B_4Sex+ B_5Ms+ B_6Nys+ B_7Inc+ B_8Es+ B_9Hs$

Where: Hm=Health insurance membership

Age = Age. It estimates the effect of age on health insurance enrolment.

Aq = Academic qualification. It estimates the effect of academic qualification on health insurance enrolment.

Sex = Sex (Male = 1, Female = 0). It estimates the effect of sex on health insurance enrolment.

Ms = Marital status. (Maried = 1, Single/others = 0). It estimates the effect of marital status on health insurance enrolment.

Nyc = Number of years of schooling. It estimates the effect of Number of years of schooling on health insurance enrolment.

Inc = Income of the individuals. It estimates the effect of Number of years of schooling on health insurance enrolment.

Es = Employment status. (Private-sector employee = 2, Government employed = 1 Self-employed/Informal sector-employee = 0). It estimates the effect employment status on health insurance enrolment

Hs = Health status. It estimates the effect of health status on health insurance enrolment.

El= Education Level. It estimates the effect of education level on health insurance enrolment.

3.4 Target Population

This research is aimed at finding the impact of educational attainment on health insurance enrolment in Ghana focusing on the people of Agona west municipal as a case study. This centred on the people of Agona Abodom within the municipality. The researcher therefore decided to use certain group of people as the targeted population. The study targeted all persons within the community irrespective of their educational background including those with no education qualification and type of occupation.

Since the aim of the study was to find the impact of educational attainment on health insurance enrolment in Ghana, only a primary data was employed to make analyses of the data gathered.

3.5 Sampling Techniques

Sampling is the process of selecting a few from a large group to become the basis for estimating or predicting a fact, situation or outcome regarding bigger group.

Quota sampling was used for this study. Quota sampling is not a pre- selected but was chosen by the interviewer on the spot up to the levels of quota. To avoid undue bias, the quota is subdivided into various categories, mexample, and nurses, teachers, accountants, farmers, and the general public. This is because this method is simple and reasonably effective.

3.6 Sources of Data

The data is primary data. Questionnaires were administered to obtain data on variables such as income, age, sex, number of years of schooling, family size, employment status, marital status, expenture, educational background, and health insurance membership. The target groups were people employed in both formal and informal sectors of the economy. The Agona west municipal was the study area. The main area is Agona Abodom within the municipality. The majority of the workers at Agona Abodom are employed in the informal sector, mostly farmers and agriculture product dealers. 200 sets of questionnaires were administered in the area. The researchers administered 200 questionnaires. Respondents were initially briefed on the operation of health insurance, bringing out its advantages and disadvantages irrespective of educational attainment. They were then given the chance to pose questions where necessary and these were answered accordingly. Some of the respondents who had prior knowledge about health insurance were engaged in open discussion before responding to the questionnaire. The questionnaire administration took 4 weeks. 200 set of questionnaires were administered and 200 people responded and gave the necessary details. Those interviewed in the formal sector include administrators, teachers, lecturers, sales personnel, banking officials, and accountants who work with both private and government establishments. The informal sector

employees interviewed included artisans, businessmen or women, petty traders, bakers/caterers, food sellers and many others.

3.7 Estimation Technique

In STATA, the logistic regression use Maximum likelihood estimator (MLE) to generate the logit (logistic regression coefficient, which corresponds to the Natural log of the Odds Ratios (ORs) for each one-unit increase in the level of the regressed variable. The interpretation of the logit coefficients is made more intuitive by using the ORs. The ORs measures the probability of the event occurring divided by the probability of the nonevent. In a more technical term, Odds ratio is the exponential of the (B). The odds ratio indicates conditional probability of random responses falling into one of the two categories of the variables of interest. Odds ratios equaling 1 means that there is 50/50 chance that the event will occur with a small change in the independent variable. Negative coefficients lead to odds ratios less than 1, implying that the partial effect of the independent variable on the dependent variable will be less in explaining the outcome. The odds ratios analyze the dependent variable as a function of the independent variables. This indicates the conditional probability of random responses used to analyze the relationship between the dependent variable and the independent variables under investigation.

The values of the Odds ratios are more useful in terms of the statistical and substantive interpretations of the results of the variables. They are robust and inform us of whether the classification across an independent variable is useful or not. These are analogous to the partial slope in the multivariate regression because it represents the influence of predictors (independent variables) on the dependent variable. The odds ratio is a summary statistic (expected B) that measures the effect of and a test for significance of a given independent variable on the dependent variable while holding

other independent variables in the model constant. According to them it is advantageous to use odds ratio since statistic cannot be obtained for a given probably, as it is impossible to summarize the impact of a unit change in predictor of interest on the probability in question. They conclude that this is because the probabilities are non-additive due to non-linearity of logit and probit models. The ORs are MLEs of the uniform effect across strata of the model covariates. They are pooled (uniform, common) estimates and thus are adjusted for all regressors included in the model. In effect, the logistic regression yields odds ratios, while the _logit command in stata yields the actual beta coefficients. There is a direct relationship between the coefficients produced by logit and the odds ratios produced by the logistic. A logit is the log base (e) of the odds, i.e, logit (p) = log (odds) = log (p/q). Logistic regression in reality is ordinary regression using the logit as the response variable, i.e, logit (p) $=B_1+B_2X=$ $_{log}$ (p/q). This means that the coefficients in losgistic regression are in terms of the log odds. The values of the logit (Li) and the values of the Xi are needed to enable us estimate the model is presented as; $Hm = B_1 + B_2X$. This means that the coefficients in losgistic regression are in terms of the log odds.

3.8 Chapter Summary

This chapter developed and presented the methodological framework suitable for conducting the study. The model was developed from the theoretical formulations of both probit and logit theories. Marginal effects, odd ratios, maximum likelihood estimation and (MLE) was used for the study. Moreover, MLE econometric methodology was used to generate the logit (logistic regression coefficient, which corresponds to the Natural log of the Odds Ratios (ORs) for each one-unit increase in the level of the regressed variable.

Finally, the chapter used the Granger-causality technique to determine whether there is direction of causality among the variables.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the estimation results and the analysis of the equations specified in impact education attainment on health insurance enrolment.

4.1 Descriptive Statistics

Table 4. 1: Descriptive statistics of variables

Income Level	Summary of NHI subscribers		
	Mean	Std.Dev	Freq.
100-500	1.8	0.20489	111
510-1000	3.5	0.3311	57
1100-2000	8.3	0.4772	24
2100 and above	25	1.875	8
Total	**38.68**	**0.4671**	**200**

Source: Author's computation using field data

From the table, an average 38.68 was recorded for all respondents across all income levels.

Table 4. 1: The table showing the cross tabulation of education level and NHIS subscribers

Education Level	Dou You have NHIS card		Total
	Yes	No	
No Education	40	10	**50**
JHS	35	15	**50**
SHS	30	20	**50**
Diploma/Degree	10	15	**25**
Master degree	5	20	**25**
Total	**120**	**80**	**200**

Source: Author's computation using field data

Table 4. 2: The table shows the cross tabulation of income level and NHIS subscribers.

Pearson chi=146.14 pr=0.0000

Income Level	NHIS subscribers		Total
	With NHIS	without NHIS	
100-500	106	5	**111**
510-1000	50	7	**57**
110-2000	20	4	**24**
2100 and above	1	7	**8**

Source: Author's computation using field data

From the table, there is enough evidence to reject the null hypothesis and conclude that there is relationship between income level and NHIS subscribers since the chi-square value is 146.99 with p-value 0.000 which is less than alpha value of 0.05.

Table 4. 3: Analysis of Variance

Source	ss	df	Ms	F	prob>F
Btn groups	35.7011	3	11.900	122.9	0.00
Within groups	28.24	290			
Total	**63.94**	**293**	**0.218**		

To test whether the relationship between incomes level of NHIS subscribers significant.

The H_0: there is no significant mean difference in income level and NHIS subscribers.

From the table there is enough evidence to reject the null hypothesis and conclude that there is significant means difference in income level NHIS since p-value 0.00. That is less than 0.005.

Probit-Hm, Age, sex, Ms, , Inc, Es, Hs, Hfm, Nys, Es

Iteration 0: log likelihood = -126.50805

Iteration 1: log likelihood = -78.665868

Iteration 2: log likelihood = -74.594707

Iteration 3: log likelihood = -74.354182

Iteration 4: log likelihood = -74.352425

Iteration 5: log likelihood = 74.352425

Probit estimates Number of obs

LR chi (11) =104.31

Prob>chi2=0000

Log Liklihood= 74.3524 PseudoR2=0.4123

Table 4. 4: Result of probit model

Variables	Coef.	Std. Err.	z	P > |z|
Age	0.107796	.1740228	0.619	0.536
Aq	1.14205	.2000757	5.708	0.000
Sex	0.1954477	.2525539	0.774	0.439
Ms	0.1909129	.4288694	0.445	0.656
Nys	0.1049973	.0482895	2.174	0.003
Inc	0.0360188	.012576	2.864	0.004
Es	0.321400	.131500	2.4441	0.006
Hs	0.48229	.1433156	3.3345	0.004
cons	-6.44199	1.29351	-1.891	0.000

Source: Author's computation using field data

The models are free from multicollinearity since the iteration ends at 5. Also Prob > chi2 = 0.0000 reports a null hypothesis of no monotonic association between health insurance enrolment and the explanatory variables, which shows that the F-test has a probability value of (0.0000). The value of the log likelihood function when all coefficients are zero is -73.173147 and -74.352425 for the logit and probit respectively, which justify better fit for the log transformation of variables estimated by the models. The interpretation of the logit and probit models are very important in terms of the direction of effect of the coefficients estimates, marginal effects and the odds ratios couples patronized the health insurance policy than non-married people, which may result from the many responsibility the former has over the latter. The

results also showed that people with higher levels of education also enrolled with the scheme on the grounds that they may probably understand the scheme better. People who have spent more years in school registering negative coefficients imply that, hospital and large family are less likely to influence individuals to buy health insurance. With the exception of those who have underlying health condition, all the other influencing factors specified in the models conform to the expected values.

4.2: Coefficients of Logit and Probit Models

The coefficient estimates measure the values that maximize the log likelihood function of health insurance membership. Both logit and probit models show that age, sex, marital status, number of years of schooling, educational attainment, employment status and ill-health were positively related to demand for health insurance. The ages of respondents ranged from 22 to 56 and showed a positive relationship with health insurance membership. However the coefficient of age squared was negative. This shows that the demand for health insurance was more likely to increase at a decreasing rate as people's age attain a maximum limit (which is dependent on the individuals' judgment), after which the demand falls with increasing age. The implication is that policy makers and insurers could target the people with less educational attainment for any form of health insurance packages. Sex being positive implies that males are more likely to buy health insurance than females. This may probably be due to the fact that men normally were the breadwinners of their families in Ghana, hence they insure in order to concentrate on other expenses. Married an insured will attend private hospital. This holds in the sense that if the quality of health care delivery is the same in private and government hospitals, people will prefer government hospital where fees charged tend to be relatively moderate.

4.3 Marginal Effects

The marginal effect which is analogous to the elasticity gives the percentage change in the probability of a success in response to a percent change in the explanatory variable. The marginal effect and odds ratios have been estimated to assess how the influencing factors will predict individuals‘ choices to enrol with the national health insurance. Using a linear extrapolation of the estimated coefficients, a 10% increase in individuals‘ age below the maximum limit will contribute to 0.32% increase in the probability of being a health insurance member whilst holding other explanatory variables fixed. However the interpretations of the dummy explanatory variables are different. A change from 0 to 1 or 1 to 0 represents 100% change in probability. Hence if the number of married couples increase by 100% (married = 1, unmarried/single = 0) it will probably lead to 5.3% increase in health insurance membership. The same 100% increase will lead to 7.1% decrease in the probability that health facility mostly attended will influence health insurance. This could also be interpreted as; equal expansion or improvement in private and government hospitals will lead to 7.1% decrease in the probability that an insured will attend private hospital. This holds in the sense that if the quality of health care delivery is the same in private and government hospitals, people will prefer government hospital where fees charged tend to be relatively moderate.

Table 4. 5: The results of marginal effects of education attainment on health insurance enrolment

Probit-Hm, Age, Aq, Sex, Ms, Nys, Inc, Es,Hs

Variable	dF/dx	Std. Err.	z	P > |z|
Age	.0317227	.051173	0.62	0.536
Aq	.3360877	.0553875	5.71	0.000
Sex*	.0567176	.0724081	0.77	0.439
Ms*	.0534367	.1140974	0.45	0.005
Nys	.0308991	.0139285	2.17	0.003
Inc	.0105998	.0037199	2.86	0.004
Es	.30028019	.0735919	4.608	0.001
Hs	-8.91e-08	3.08e-08	-2.91	0.004
Obs. P .3233831, p.2176692				

Source: Author's computation using field data

Note: (*) dF/dx is for discrete change of dummy variable from 0 to 1 z and P > |z| are the test of the underlying coefficient being 0

Table 4. 6: The result of odds ratios of the logit model

Logit-Hm, Age, Sex, Ms, Nys, Inc, El, Hs, Hfm, El

Variable	Odds Ratio	Std. Err.	Z	P > |z|
Age	1.25655	.3785308	0.758	0.448
Aq	0.9659834	.0550	2.9291	0.008
Sex	1.710391	.7862067	1.168	0.243
Ms	1.22787	.894917	0.282	0.778
Nys	1.208267	.0818	6.7090	0.000
Inc	1.073648	.025128	3.036	0.002
Es	8.293818	3.284411	5.342	0.000
Hs	0.3830	.0100	38.3000	0.000

Source: Author's computation using field data

4.4 Odds Ratios

The Odds Ratios (ORs) show that age, sex, marital status, income, employment status, health status and number of years of schooling were all more than 1. This implies that, a change in any of these variables was more likely to influence people's ability to join the national health insurance. The result shows that, a unit increase in age will increase the demand for health insurance by 25% up to a maximum limit beyond which health insurance membership will fall approximately by 0.24% assuming that respondents hold other explanatory variables constant. This is in conformity with and postulation that individuals demand for health insurance tends to fall above a maximum age limit. Sex registering 1.710391 odds ratio implies that males (1) were 70% more likely to join the health insurance than females (0) when other independent variables remain the same for both sexes.

Furthermore, married couples were about 23% more likely to patronize health insurance than unmarried individuals. People with longer years of schooling were also 21% more likely to insure against sickness than people with lower years of schooling if other explanatory variables remain unchanged. This confirms the expectation that people with higher education tended to understand the operation of health insurance schemes and register. The result also shows that respondents' earning higher incomes were on the average 7% more likely to take up health insurance than respondents' with low income. On the issue of health status, the model predicts that respondents who on the average more frequently visit their doctors for medical attention will be 18% more likely to insure than respondents who less frequently seek for medical care, other variables remaining stable. Health facility mostly attended (private hospital = 1, Government/others = 0) has odds ratio of 0.6900448 indicating that respondents who attended government hospital are 31% more likely to insure if quality of health care in

the two hospitals are upgraded equally. Put differently, if quality of health care perceived by individuals is the same for both private and government hospitals, then the insurer will expect 31% shift of their clients from private health providers to government health providers. Health insurance providers could then contract more government hospitals or physicians in their network system. This could reduce premium contributions by the insured if other influencing factors of the scheme remain unchanged. This could be deduced from respondents, who reported that fees charged in the government hospitals are relatively moderate than in private hospitals.

The odds ratio for family size was 0.9659834 showing that people with large family sizes were less likely to buy health insurance in the study areas. As the size of the family increases, heads of the family will be 3.4% less likely to be insured. The result can also mean that there is approximately 49/51 chances that respondents with large family sizes will buy a health insurance package. The opposite reveals that there is 51% chances that people with smaller family sizes will insure when other explanatory variables are held constant. Large family sizes expose family heads to many responsibilities. In the instances where partners are unable to support their spouses financially, family responsibilities such as provision of food, children's education among others add to the burden of these heads, which may constrain them to take up health insurance. Cost of medical care (both preventive and curative cares from the past one year to the date of interview) gave odd ratios of 0.9999994 indicating that individuals who incur more medical care on their family is 0.00006% less likely to be insured. This deviates from the expected value. However, using the bivariate correlation, the Pearson 2-tailed test established that curative care was significant at 1%, but preventive care was neither significant at 1% nor 5% level. The effect of the cost of preventive care could account for the deviation.

4.5 Chapter Summary

The main focus of this chapter was the estimation of the logit and probit model and the presentation and apparent discussion of its results. The chapter began with presentation of the descriptive statistics then proceeds with the tests for association between health insurance enrolment and the explanatory variables.

The coefficient estimates measure the values that maximize the log likelihood function of health insurance membership. Both logit and probit models show that age, sex, marital status, number of years of schooling, educational attainment, employment status and ill-health were positively related to demand for health insurance.

The marginal effect which is analogous to the elasticity gives the percentage change in the probability of a success in response to a percent change in the explanatory variable. The marginal effect and odds ratios have been estimated to assess how the influencing factors will predict individuals‘ choices to enrol with the national health insurance.

The Odds Ratios (ORs) show that age, sex, marital status, income, employment status, health status and number of years of schooling were all more than 1. This implies that, a change in any of these variables was more likely to influence people‘s ability to join the national health insurance.

However, using the bivariate correlation, the Pearson 2-tailed test established that curative care was significant at 1%, but preventive care was neither significant at 1% nor 5% level.

The study, in conclusion found that there is a relationship between educational attainment and health insurance enrolment.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECONMMENDATIONS

5.0 Introduction

This chapter presents the summary of the entire work as well as drawing conclusion from what has been done so far. It presents policies, recommendations concerning ways in which National Health Insurance Scheme for health service can benefit patients and improve the finance, efficiency and quality of the health system.

5.1 Summary of Major Findings

The main objective of the research was to determine the impact of education attainment on health insurance enrolment of people of Agona West Municipality. Also to ascertain general determinants of Health insurance enrolment in Ghana

It is quite an undeniable fact that with the inception of the National Health Insurance Scheme (NHIS), the enrolment has increase. However, suffice to mention here that the other factors will influence peoples‘ decision on enrolment to the scheme.

In comparing the income level of NHIS subscribers it was reveal that 90% of respondent who income between 100 Ghana cedis to 500 Ghana cedis have enroll national health insurance scheme, again 70% of the respondent whose income were between 600 Ghana cedis to 1,000 cedis have enroll to national health insurance scheme, also 42% of the respondent whose income were between 1,100 Ghana cedis to 2,000 Ghana cedis have enroll to the national health insurance scheme. And also 20% of the respondent whose income were between 2,100 Ghana cedis and above have enroll national health insurance scheme.

Finally, in establishing the relationship between education background and health insurance enrolment, we found out that the number years as more years people spend

in school their demand for National health insurance card goes down drastically as they understand the system very well.

5.2 Conclusions

From the findings in the study, we can draw the following conclusions: generally, our analysis provides much confidence to conclude that educational attainment number of years spent in school, specific health condition, and age and income level are the key determinant of NHIS in Ghana.

Also, analysis of the study helps us to conclude that there is relationship between educational attainment and health insurance enrolment. That is as people climb the educational lather, their demand for health insurance falls.

Finally, in comparing the income level of national health insurance subscribers, the study reveal that people with high incomes do not enrol to national health insurance programs.

5.3 Recommendations

The suggestions here are made with the outcome of the study in mind. They are mainly related to the measures that should be taken to increase enrolment.

- The rich and those with high income level should be educated by National Health Insurance Authority (NHIA) that health insurance is not for only the poor and the vulnerable.
- The National Health Insurance Authority (NHIA) should educate the public on the benefits of Health Insurance.
- Similar researches that may be conducted should be able to identify why highly educated persons do not patronize the health insurance.

- The National Health Insurance Authority (NHIA) and Ghana Health Services (GHS) should bring out health insurance packages and policies that will induce individuals to enroll or enjoy medical cover. Creating people's awareness about the existence and the operation of health insurance is very crucial. People should be enlightened through the mass media on the operation of the insurance scheme.

5.4 Limitations of the Study

The study was conducted in the Agona Abodom in the West Municipal Area of Ghana. The restricted study area may limit the universal applicability of the results especially in terms of national generalization. Secondly, the study used primary data that posed some limitations. Hence the researcher omitted these two variables when estimating the demand for health insurance. Furthermore, because the study used data collected from the field, the sample size may be biased. Furthermore, the analyses of data involved pure descriptive statistics, using logit and probit models to report the findings of the study. This may thus make the interpretation of the results too technical. Despite these limitations, we believe that the results of the study will generally be useful to policy makers, insurance companies, communities, individuals and those in academia on the factors that influence demand for health insurance.

5.5 Direction for Further Research

This study covered the people of Agona Abodom within the Agona West Municipality in the Central Region. To generalize these findings to all the districts in Ghana, there should be a replicate of the study in all other districts in Ghana.

Future researches should also focus attention on why persons with sound income level do not patronize the health insurance which is not captured in the current study.

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APPENDEX

QUESTIONNAIRE

The purpose of this research is to have an overview of impact of educational attainment on health insurance enrolments in Ghana. You are assured of confidentiality of responses, so you are kindly requested to answer the questions as candid as possible.

Biographic data

1. Gender **a.** Male ☐ **b.** Female ☐

2. Age group 16-19 ☐ 20-29 ☐ 30 and above ☐

Marital status **a.** Single ☐ **b.** Married ☐ **c**. Others ☐

3. Occupation **(Please state)**

……

4. Type of occupation **a** formal ☐ **b.** none formal ☐

5. Education level ☐ **a.** No education ☐ b. Primary ☐

jhs/middle ☐ d. diploma/degree ☐masters and above ☐

Health insurance

6. Have you subscribe to health insurance Yes ☐ no ☐

7. What type of health insurance do you prefer **(Please state)……..**

8. Do you have any health condition? Yes ☐ no ☐

Income level

9. How much do you spend last month? (Please State)……..

10. Do you receive any income from any source? Yes ☐ no ☐ prefer not to say ☐

11. List all the sources of your income

I…….

II……..

III…….

IV……

12. How many days do you work in a week? (Please State)…….

13. How much are you able to save in a month. (Please State)…….

Education Level

14. What is the highest level education you have completed? A. no formal education ☐

b. completed primary school ☐ c. completed JHS/Middle school ☐

d. completed SHS ☐ e. completed vocational school ☐ f. completed tertiary ☐

15. What is your academic qualification? BECE ☐ SSSCE/WASSE ☐

DIPLOMA ☐ DEGREE ☐ MASTER DEGREE ☐

PhD ☐

16. Number of years spent in school (Please State)…….

17. Program studied in school (Please State)……

18. Profession (Please

State)…….