



Assessing the Impact of Education on the Uptake of Health Insurance at the Cape Coast Technical University, Ghana.

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ABSTRACT

Historically, health financing in Ghana was cash and carry from the 1980s until the year 2005 when National Health Insurance Scheme (NHIS) started operation. Due to the barriers surrounding the “out-of-pocket” (OOP) regime on healthcare, Ghana adopted health insurance as an alternative for financing healthcare. The National Health Insurance Scheme was thus introduced in 2003 as a step towards achieving universal health coverage. This was aimed at bringing hope, better health and easing the financial burden on the entire population of Ghana especially the most vulnerable and poor. The study assesses the impact of education on the uptake of the National Health Insurance Policy among the staff of Cape Coast Technical University and its policy implication in achieving universal coverage. A descriptive research design and quantitative research approaches were adopted in this study. A survey of 200 staff of Cape Coast Technical University was conducted using a proportionate stratified sample technique to ensure a smooth representation of individuals. Questionnaires were used to collect data for this study. The results of the ordinary least square regression proved that level of education statistically influenced the uptake of health insurance. The study recommends that policymakers should continue to invest in the education of Ghanaians.

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INTRODUCTION

The issue of health care is a major concern of both developed and developing countries; big and small, rich and poor. This is because good health and well-being promote productivity and economic growth. Bryne explains that health is not always about good life but it is also a pillar of any country's economic growth and development.¹ In view of this, access to universal health coverage has been a strong pillar of the work of the World Health Organisation (WHO) since its foundation in April 1948.² Therefore, the importance of health has been pursued by the United Nations and in recent times gained prominence in the Sustainable Development Goals (SDGs). SDG three (3) aims at ensuring good

¹ David Bryne, Enabling Good Health for All: A reflection process for a new EU Strategy, 2004. Enabling Good Health for all A reflection process (europa.eu)

² World Health Organisation. “The Bangkok charter for health promotion in a globalised world.” *Health*, (2009): 168-71.

health and promoting the well-being of each and every individual regardless of their age by 2030.³ It is argued that modern economic development has been built by healthier and more productive humans.⁴ Health financing systems have been one of the major challenges facing both developing and developed countries in ensuring households have access to quality health care with financial protection to promote the achievement of SDGs and the eradication of poverty.⁵

Consequently, several countries have adopted the “out-of-pocket” health finance scheme to allow them to raise sufficient funds to operate health systems to break financial barriers to healthcare.⁶ According to WHO, more than half a billion people have been pushed into extreme poverty because of health care financing.⁷ In addition, WHO indicates that the introduction of “out-of-pocket” in the health system pushes at least one hundred (100) million people into extreme poverty each year.⁸ Similarly, it has been argued that the ‘out-of-pocket’ expenditures prevent millions of households from seeking the necessary healthcare and those who do seek healthcare are challenged with tremendous financial burdens, especially among the poor and vulnerable groups.⁹ Similarly, Carrin, Mathauer, Xu, David and Evans argue that the lack of available funds has been a hindrance to reaching universal health coverage (UHC).¹⁰ The implementation of the ‘out-of-pocket’ system has enhanced the quality of health delivery in some countries, despite the difficulties presented by this system.¹¹ The challenges attached to the ‘out-of-pocket’ led to the search for alternatives for financing health systems globally for the achievement of UHC.¹²

Health insurance schemes have thus, gained popularity as an alternative to ‘out-of-pocket’ health funding. Historically, Germany has the longest national scheme of social health care in the whole world. Countries such as Costa Rica, Colombia, Mexico, Thailand and Turkey have also reached the peak of universal coverage for wellbeing.¹³ In Africa, the arrival of the Social Health Insurance Schemes (SHI) emerged as a solution to health funding to achieve universal health coverage. Ghana, Tanzania, Rwanda, Nigeria, Kenya and Senegal are undertaking different health insurance programmes for social and community health which generate adequate expedient to finance healthcare.¹⁴ There has been a tremendous success since the introduction of the policy in some African

³ United Nations, “World population prospects: The 2015 revision.” *United Nations Econ Soc Aff*, 33(2), (2015): 1-66.

⁴ Michael Grossman, “On the concept of health capital and the demand for health.” *Journal of Political Economy*, 80(2), (1972): 223-255.

⁵ Stefan Bauernschuster, Anastasia Driva, and Erik Hornung, “Bismarck’s health insurance and the mortality decline.” *Journal of the European Economic Association*. (2017).

⁶ Guy Carrin, Inke Mathauer, Ke Xu, & David B. Evans, “Universal coverage of health services: tailoring its implementation.” *Bulletin of the World Health Organization*, 86, (2008). 857-863.

⁷ World Health Organization. *Universal Health Coverage*. News release Dubai/Geneva/Washington. (World Health Organization, 2021).

⁸ World Health Organization. *Universal Health Coverage*.

⁹ Eddy Van Doorslaer, “Inequalities in access to medical care by income in developed countries.” *Cmaj*, 174(2), (2006): 177-183; Ke Xu, David B. Evans, Kei Kawabata, Riadh Zeramdini, Jan Klavus and Christopher J. Murray, “Household Catastrophic Health Expenditure: A Multi-Country Analysis.” *The Lancet*, 362(9378), (2003): 111-117; World Bank, *Education in Rwanda: Rebalancing resources to accelerate post-conflict development and poverty reduction*. (Washington: World Bank Publications, 2004).

¹⁰ Carrin, Mathauer, Xu, & Evans, “Universal coverage of health services: tailoring its implementation.” 857-863.

¹¹ Mylene Lagarde, and Natasha Palmer, “Evidence from systematic reviews to inform decision making regarding financing mechanisms that improve access to health services for poor people.” *Geneva: The Alliance for Health Policy and Systems Research*, 67 (2006).

¹² Philip A. Dalinjong, & Alexander S. Laar, “The national health insurance scheme: perceptions and experiences of health care providers and clients in two districts of Ghana.” *Health economics review*, 2(1), (2012): 13

¹³ World Health Organization. *The World Health Report 2008: Primary Health Care Now More Than Ever*. (Washington: World Health Organization, 2008).

¹⁴ Joseph Mensah, and Joseph R. Oppong, *Maternity protections and health insurance in Africa: Comparative overview of Ghana, Kenya, Rwanda, and Tanzania*. External collaboration report for the Social Security Department of the International Labour Office. Geneva. (2007).

countries through taxation, social health insurance or a blending of both.¹⁵ Currently, Rwanda and Ghana in sub-Saharan Africa (SSA) have made impressive strides by taking health insurance to a greater feat, scope and coverage.

Historically, health financing in Ghana was cash and carry in the 1980s. Due to the barriers surrounding the OOP regime (cash and carry) on healthcare, Ghana adopted health insurance as an alternative for financing healthcare.¹⁶ Ghana introduced the NHIS in 2003 which was a step towards achieving universal health coverage. This was aimed at bringing hope, better health and ease the financial burden on the entire population of Ghana especially the most vulnerable and poor.¹⁷ The policy as of 2018 and 2019 had 10.8 million and 12 million active members out of the population of the country respectively.¹⁸

Several studies have been done on the policy since the adoption of the NHIS. Some of these studies include the understanding of households and their consequences for NHIS enrolment.¹⁹ Okwan also looked at the multivariate study to determine the efficacy of the NHIS in Ghana.²⁰ The NHIS and child health care delivery were investigated by Asah.²¹ Badu, et al also studied the socio-demographic profile of households as predictors of health insurance uptake and service usage using a cross-sectional survey in the Upper Denkyira East Municipality.²² Using a logit model for data analysis, Alesane and Anang's study analysed the adoption of rural poor health insurance in the Awutu Senya West District in the Central Region of Ghana.²³

While several studies have been conducted around the demographic influence on the uptake and service utilisation of NHIS, Cape Coast has two Public Universities, two Nurses Training Institutions, several secondary and other government institutions whose employees are mandatorily required to make premium contributions. In this regard, their premium contribution is deducted from the source yet enrolment of NHIS in Cape Coast is below 50%.²⁴ The study, therefore, seeks to assess the impact of education on the uptake and utilisation of the National Health Insurance Policy among the staff of Cape Coast Technical University (CCTU) and its policy implication in achieving universal coverage by 2030. This is important at a time the government of Ghana has introduced free secondary education to improve the literacy rate among Ghanaians. Specifically, the research examines the level of uptake of health insurance at CCTU. It also seeks to assess the influence of the level of education on the uptake of NHIS at CCTU.

¹⁵ Guy Carrin, Maria-Pia Waelkens, and Bart Criel, "Community-based health insurance in developing countries: a study of its contribution to the performance of health financing systems." *Tropical Medicine & International Health*, 10(8), (2005): 799-811.

¹⁶ Paul Ekman, "Emotions Revealed." *Bmj*, 328 (Suppl S5) (2004); D.M. Dror, & C. Jacquier, "Micro-insurance: extending health insurance to the excluded." *International social security review*, 52(1), (1999): 71-97; Sara Bennett, Andrew Creese, and Robert Monash, Health insurance schemes for people outside formal sector employment, Geneva; WHO Division of Analysis, Research and Assessment; ARA Paper No. 16, 1998.

¹⁷ World Health Organisation. "The Bangkok charter for health promotion in a globalised world." *Health*, (2005): 168-71.

¹⁸ National Health Insurance Authority, *2020 Annual Report*. (Accra, Ghana: NHIA, 2020).

¹⁹ Enas M. Ahmed, "Hydrogel: Preparation, characterization, and applications: A review." *Journal of Advanced Research*, 6(2), (2015): 105-121.

²⁰ Derick Okwan, "Role of radiation therapy as immune activator in the era of modern immunotherapy for metastatic malignant melanoma." *American Journal of Clinical Oncology*, 38(1), (2015): 119-125.

²¹ Flora Asah, "Computer usage among nurses in rural health-care facilities in South Africa: obstacles and challenges." *Journal of nursing management*, 21(3), (2013): 499-510.

²² Eric Badu, et. al., "Perceived satisfaction with health services under National Health Insurance Scheme: Clients' perspectives." *The International Journal of Health Planning and Management*, 34(1), (2019): e964-e975.

²³ Aaron Alesane, and Benjamin T. Anang, "Uptake of health insurance by the rural poor in Ghana: determinants and implications for policy." *The Pan African Medical Journal*, 31(2018).

²⁴ National Health Insurance Authority, *2020 Annual Report*.

LITERATURE REVIEW

Conceptual Issues

History of Health Financing in Ghana

In 1957, Ghana achieved independence from the British and became the first Sub-Saharan African (SSA) nation to attain the feat. In spatial structure, nevertheless, much of the economic activity was somewhat close to that of the colonial period. The majority of government decision-making and economic activity was strongly concentrated in Accra, the national capital. A split connecting the north and south (and the inner-city and countryside) that started with the colonial era continued in the post-independence period, and the process of stratification of social space also became a process of stratification of geographical space.²⁵ A Series of attempts have been made to overcome this: Nkrumah's post-independence policies have freely universalised education and wellbeing, establishing good roads and other infrastructure services.²⁶

Although these measures led to an improvement in education acquisition and a decrease in infant mortality rates in 1970,²⁷ the overall prospects for those living in the Northern and Upper Regions were approximately 25% of those residing in the Physical Quality of Life Index (a mixture of literacy rates, infant mortality rates and one-year life expectancy) as calculated by the Physical Quality of Life Index. For the bulk of the time, little was done to address past inequalities, except for more lucrative investment in the southwards and the rise of a wealthier social elite, the deprived northwards remained largely ignored.²⁸

Ghana, like most SSA countries, had been close to collapsing into recession during the 1970s and 1980s. Most of these issues have probably been rooted in colonial underdevelopment and an export-oriented economy (cocoa, gold) and it is therefore highly reliant on importing what it needs. In 1983, an overvalued currency, political instability, corruption, inept leadership and injustice led to Ghana appealing to the International Monetary Fund (IMF) and the World Bank to provide aid to help resolve the economic crisis.²⁹ According to Konadu-Agyemang, in exchange for significant loans, the IMF recommended a package of steps known as the Structural Adjustment Programmes. This included currency devaluation, a decline in inflation and a decline in the public sector, privatisation of public goods, promotion of exports, and drastic decreases in health and education.³⁰ It is popular to address the impacts of systemic change.

Although reducing rates of inflation and generating steady gross domestic product (GDP) growth at the macro level, the micro-level effects have been very dangerous for many.³¹ Others were unemployed people and poorer people, at the same time as declines in public programmes that would have traditionally helped them. The sector of health, for example, had tremendous struggles in Ghana during the SAP period. Employee layoffs and pay declines prompted an exodus of qualified medical professionals to nations with a stable economy. Those left to 'borrow' personal-use materials were left to 'borrow' and take on second or third jobs to meet ends.³²

Ultimately, Ghana carried out the use of fee for service scheme to try and recover costs and avoid the overuse of facilities. This fee for the service scheme was generally referred to as 'cash-and-

²⁵ Jacob Songso, *Regional Development in Ghana: the Theory and the Reality* (New Edition). (Accra: Woeli, 2011), 154.

²⁶ Kwadwo Konadu-Agyemang, "The best of times and the worst of times: structural adjustment programmes and uneven development in Africa: the case of Ghana." *The Professional Geographer*, 52(3), (2000): 469-483.

²⁷ Donald I. Ray, *Ghana: Politics, Economics, and Society*. (London: Burns & Oates, 1986).

²⁸ Songso, *Regional Development in Ghana: the Theory and the Reality*, 154.

²⁹ Konadu-Agyemang, "The best of times and the worst of times."

³⁰ Konadu-Agyemang, "The best of times and the worst of times."

³¹ Kwadwo Konadu-Agyemang, "A survey of housing conditions and characteristics in Accra, an African city." *Habitat International*, 25(1), (2001): 15-34.

³² J.R. Oppong, and J.R. Toledo, "The Human Factor and the Quality of Health Care in Rural Ghana." *Review of Human Factor Studies*, 1(1), (1995): 80-90

carry' and as a reaction to its implementation; many were delayed or went entirely without care.³³ The influence on the rural poor was even more negative, with little choice but to seek support from traditional practitioners or self-treatment facilities.³⁴ Regular procedures, including blood checks and STD diagnoses, have no longer been dealt with by the government. Together, infectious disease transmission increased.³⁵

While all over Ghana the health care system was struggling, spatial disparities persisted. Hospitals and other urban-based health services gained far more government funding. As a result, greater changes were made in rural health centres to fund urban services. The health care system relatively ignored rural residents in conjunction with the fuel costs which dissuaded workers from travelling.³⁶ Under Structural Reform, the proportion of the poor in rural areas increased.³⁷ Ghana had steady GDP growth of 4-6 percent after 16 years of structural reform, a high rate of real-life growth of over 2 percent, and enchanted foreign international capital in telecommunications, banking, extraction and utilities. Yet it obtained loans so heavily that by the year 2000, it was also ranked among the world's 41 heavily indebted poor nations (HIPC). Most of the export revenue went to servicing debt.³⁸

At the turn of the 21st century, 'this rate fell dramatically and the debt burden was too high and undermined the state's capacity to meet educational, health and other needs in a substantial way.'³⁹ Therefore, in 2003, the government implemented the NHIS.

Health Insurance in Ghana

Three types of health insurance are found under the National Health Insurance Act, Act 852 of 2012.⁴⁰ They are; the Private Mutual Health Insurance Scheme, Private Commercial Health Insurance Scheme, and NHIS. The NHIA states that Private Mutual Health Insurance (PMHIS) is a system of health insurance which operates solely for the benefit of its members.⁴¹ The PMHIS is usually social in character although the scheme does not receive any government allocation to support its operations. It is either established by an individual or group of people for social benefit.⁴² In addition, NHIA provides that under no circumstance shall an employer impose membership of PMHIS on employees.⁴³

The Private Commercial Health Insurance Policy (PCHIS) is a type of health insurance which focuses on business ideas and works for profit.⁴⁴ A PCHIS is benefit-based insurance, according to NHIA.⁴⁵ PCHIS Premiums are based on the calculated risks of being subscribed to by different groups and individuals. It is instructive to note that a corporation and shareholders are the owners of the private commercial health insurance system.⁴⁶ Thus a PCHIS is owned by its shareholders. In spite of its social characteristics, it is more business-like in nature and focuses on profit-making or market principles. It is based on the risks estimated for a specific group or person subscribing to the policy. Although the

³³ Catriona J. Waddington, and K.A. Enyimayew, "A price to pay: The impact of user charges in Ashanti-Akim District, Ghana." *The International Journal of Health Planning and Management*, 4(1), (1989): 17-47.

³⁴ Charles A. Anyinam, "The social costs of the International Monetary Fund's adjustment programmes for poverty: the case of health care development in Ghana." *International Journal of Health Services*, 19(3), (1989): 531-547.

³⁵ Christine Oppong, "Globalization and the disruption of Mother Care." *Institute of African Studies Research Review*, 17(1), (2001): 25-47.

³⁶ Oppong, "Globalization and the disruption of Mother Care." 25-47.

³⁷ Konadu-Agyemang, "A survey of housing conditions and characteristics in Accra, an African city."

³⁸ Konadu-Agyemang, "A survey of housing conditions and characteristics in Accra, an African city."

³⁹ Konadu-Agyemang, "A survey of housing conditions and characteristics in Accra, an African city," 27.

⁴⁰ National Health Insurance Act, (Act 650). Government of Ghana. (2012).

⁴¹ National Health Insurance Act, (Act 650). Government of Ghana. (2012).

⁴² National Health Insurance Act, (Act 650). Government of Ghana. (2012).

⁴³ National Health Insurance Act, (Act 650). Government of Ghana. (2012).

⁴⁴ National Health Insurance Act, (Act 650). Government of Ghana. (2012).

⁴⁵ National Health Insurance Act, (Act 650). Government of Ghana. (2012).

⁴⁶ National Health Insurance Act, (Act 650). Government of Ghana. (2012).

PCHIS has social characteristics, it does not receive any government subsidies to run its affairs for the benefit of its citizens. The NHIS usually enters into a contract with health providers who have accreditation (private, public, and church-based) and are willing to provide health services to members of the policy so that NHIA will pay them back after services are rendered to the members.⁴⁷

The last type of health insurance is the National Health Insurance Scheme which was implemented in 2003. Its introduction was a response to increasing demand for an alternative to the cash and carry scheme (OOP). The NHIS goal was to expand health insurance coverage and risk protection of schemes to increase access to healthcare, and financial protection as well as to generate adequate resources for the health sector.⁴⁸ The NHIS as an alternative healthcare financing in Ghana seeks to break healthcare barriers to ensure households have access to quality and affordable healthcare when the need arises.⁴⁹

Influence of Education on Health Insurance uptake-The context of other countries

A study investigating factors connected to several health insurance policies was carried out with the representation of the American sample. The data collection used the National Health Interview Survey of 1966, which gave an accurate description of socio-demographic characteristics like age, education, health status, and occupation. The sample included 31,527 families with 22,970 who had full health insurance coverage, 4,597 partly covered and 3,960 without health insurance protection.⁵⁰ There was a strong association between socio-demographic variables and health insurance coverage in the results of this study. There was a positive, important correlation between the level of education and full coverage of insurance. For instance, families constituting individuals with at least a minimum of secondary education qualification, it was respectively 1.6 times and 1.24 times more likely than households of people who did not obtain secondary education to be partly or entirely covered by health insurance.

Conversely, households of people that have university or higher educational qualifications are about 1.88 times more likely to be protected in full healthcare compared to households with lower levels of education. In the Darjeeling district of India, using secondary data in a report on awareness and ability to pay for health insurance, Ghosh explained that individuals with formal educational backgrounds were able to afford the cost involved in the purchase of health insurance.⁵¹ However, the literate individuals or households which had soaring incomes and other saving systems that fetched them excessive payback did rely on the purchase of health insurance. This is because; they believe they can afford the “out-of-pocket” mode of health care when they face health crises.

Similarly, Bending, Arun and Arun also found in their study of enrolment determinants in microfinance institutions (MFIs) and health insurance that, household leaders with no formal primary or secondary education were statistically less likely to engage in health insurance in Sri Lanka. Those with lower qualifications were more likely to protect their households because of their lower wages and reduced income earning opportunities to avoid future financial burdens on health care.⁵² Ndugu in accessing factors influencing the uptake of health insurance in the informal sector in Kenya, using a questionnaire to acquire primary data argues that demographic factors inform individuals decision to

⁴⁷ National Health Insurance Act, (Act 650). Government of Ghana. (2012).

⁴⁸ National Health Insurance Authority, *2015 Annual Report*. (Accra, Ghana: NHIA, 2015).

⁴⁹ Ekman, “Emotions Revealed.”

⁵⁰ Mohammed Abdel-Ghany, and Min Q. Wang, “Factors associated with different degrees of health insurance coverage.” *Family and Consumer Sciences Research Journal*, 29(3), (2001): 252-264.

⁵¹ Rajashi Ghosh, “Mentors providing challenge and support: Integrating concepts from teacher mentoring in education and organizational mentoring in business.” *Human Resource Development Review*, 12(2), (2013):144-176.

⁵² Thankom Arun, Mirko Bendig, and Shoba Arun, “Bequest motives and determinants of micro life insurance in Sri Lanka.” *World development*, 40(8), (2012): 1700-1711.

uptake NHIS. He explained that education has a great influence on the decision to enrol, however, the higher individuals' educational background, the higher likelihood to purchase health insurance.⁵³

Again, the higher the educational level the higher generation of adequate income which makes affordability of health insurance premiums easy. On the contrary, education has no negative influence on enrolment such that having low education still permits individuals to understand basic things which include understanding the concept of National Health Insurance, which was evident among the study population. Examining women's ownership of health insurance in Ghana, Kumi-Kyere and Amo-Adei, using both primary and secondary data compared adoption in northern, central and coastal areas, in women's insurance subscriptions, and found socio-economic and specific differences. The main result was that, relative to the less qualified and poorer Ghanaians, women who had well-educated and wealthier husbands were more likely to purchase health insurance. This is because of their educational background and higher income level, they have the opportunity to understand the basic concept and benefits of the NHIS policy.⁵⁴

RESEARCH METHODOLOGY

A quantitative research approach was utilised for this study due to the nature of the variables. Quantitative research as defined by Boateng is research that seeks to determine the existence of a relationship between aspects of a phenomenon by quantifying the variables.⁵⁵ Another dimension of the research approach was the type of data used in the investigation. This study employed a questionnaire to assess the impact of age, gender, education and marital status on the uptake of health insurance. The data was primarily because the researchers obtained the information from respondents for the first time.

A descriptive design was employed in the study for a well-structured collection and presentation of data on the demographic factors militating against the uptake of the NHIS at CCTU. This helped the researchers acquire a better understanding of the subject. The bone backing the use of descriptive design was to have a better understanding of the behaviour, attitude and opinion of the people under study concerning the subject.⁵⁶ The descriptive research design was used because of its ability to provide a snapshot of the current state of affairs.

The targeted population for this study was CCTU. Cape Coast Technical University is a tertiary educational institution located in Cape Coast, the capital of the Central Region. The University runs Bachelor of Technology (B.Tech) degrees in relevant academic disciplines in addition to Higher National Diploma (HND) and Diploma programmes. Currently, Cape Coast Technical University has 120 academic staff and 280 non-academic staff which give a total of 400 employees with 185 senior members (subdivided into teaching and non-teaching staff 118 and 67 respectively), 77 senior staff and 138 junior staff.⁵⁷ Based on the purpose of the study, the probability sampling design was deemed appropriate and was employed for the current study. Furthermore, a stratified random sampling technique was used for the study. This sampling technique is ideal for ensuring that most sections of the population are represented.⁵⁸ Specifically, a proportionate stratified sampling technique

⁵³ Munene Stephen Ndugu, *Effects of financial competitive environment on the performance of SACCOS in Meru County, Kenya* (Doctoral dissertation, KeMU, 2015)

⁵⁴ Akwasi Kumi-Kyereme, and Joshua Amo-Adjei, "Effects of spatial location and household wealth on health insurance subscription among women in Ghana." *BMC Health Services Research* 13(1) (2013):221. DOI: 10.1186/1472-6963-13-221

⁵⁵ Isaac A. Boateng, *Quantitative Case Study of Transformational Leadership Characteristics of Valley View University in Ghana* (2014).

⁵⁶ F.K. Amedahe, *Fundamentals of Educational Research Methods*. (UCC, Cape Coast Mimeograph, 2002).

⁵⁷ Cape Coast Technical University, Staff Records and Statistics. Directorate of Human Resources (2020).

⁵⁸ Francis Mhere, "Health insurance determinants in Zimbabwe: case of Gweru urban." *Journal of Applied Business and Economics*, 14(2), (2013): 62-79.

was utilised to draw 200 employees from Cape Coast Technical University. The sample size was proportionately allocated to the 3 main categories of employees, and further classification of senior members was also considered.

RESULTS AND DISCUSSION

The section presents the analysis of the impact of education on the uptake of health insurance at Cape Coast Technical University. Table 1 presents the descriptive statistics based on frequency and percentages for the demographics of two hundred (200) respondents from Cape Coast Technical University.

Table 1: Descriptive Statistics of demographics

Demographics	Frequency	Percentages (%)
Sex		
Female	92	46.0
Male	108	54.0
Highest Educational Qualification		
Secondary	15	7.5
Diploma	38	19.0
Bachelor's Degree	52	26.0
Post-graduate Certificate	95	47.5

Source: Field Survey

A quick glance at the descriptive statistics for demographics in Table 1 reveals that most of the respondents are males constituting about 54% of the entire responses. Males can therefore be quantified at 108 of the total 200 responses. On the other hand, females constitute about 46% of the total responses which suggests the minority gender group. They are made up of 92 of the total 200 respondents. It is believed that males are industrious and would contribute greatly to output at the workplace. However, the presence of females in the workplace promotes gender diversity and eliminates all sorts of discrimination in the workplace. Both males and females, coupled with their distinct needs should uphold the benefits that NHIS come with. This will help improve the health status of individuals at work in order to maximise productivity.

Based on the sample, 95 Post-graduate Certificates from Cape Coast Technical University were obtained for the study. They constitute a majority (47.5%) of the total responses for the study. Staff with Bachelors' Degrees ranked second, constituting about 26% of the entire responses. Individuals with lower qualifications also form part of the staff of the University, and this is evidenced by the fifteen (7.5%) individuals with Secondary school qualifications. The number of respondents with a Diploma (38) however exceeded individuals with lower qualifications (Secondary). In general, individuals with lower qualifications were not as many as individuals with at least a degree or diploma which constituted the total sample for this study. That is most respondents considered for this study are educated with at least a degree or diploma representing a total of about 92.5% (185).

Uptake of Health insurance at Cape Coast Technical University

From Table 2, Bartlett's Test of Sphericity with $p < 0.05$ shows that the correlation matrix is not an identity matrix which indicates that the items can form a construct because they have some form of a linear relationship. The sample size was satisfactory to conduct factor analysis as the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.841 with a total variance explained of 48.596% which contains the total variance accounted for by all factors.⁵⁹ Using a five-point Likert scale to measure Uptake of Health Insurance “ranging from 1- Strongly disagree to 5- Strongly agree, each of the five items loaded well on the Uptake of Health Insurance. The construct had a mean greater than 2 and an overall mean of 3.8618 which indicates that in general, the Uptake of Health Insurance is high.

The outcome of Ordinary Least Square (OLS) Modelling also requires an assessment of the model to determine its fitness by assessing the construct reliability (as per Cronbach’s alpha) and indicator reliability. Construct reliability was tested using composite reliability. Table 2 results indicate that, in all cases, the construct has composite reliability beyond the threshold of 0.7, an indicator that the constructs are stable.⁶⁰ A cursory look at the item, Cronbach’s Alpha from Table 2 also showed that the minimum cut-off of 0.7 was accurate for the indicator.⁶¹ Nearly all indicators loaded above 0.6, and as a rule of thumb, it is considered to be very high. Hair, Sarstedt, Hopkins and Kuppelwieser point out that the factor loadings must be 0.6 and above to provide convergent validity.⁶²

Table 2: Summary of Measurement Scale

Statements	Mean	Std. Deviation	Factor Loadings	Cronbach’s Alpha
Construct				
Uptake of Health Insurance	3.8618	0.854488		0.845
Items				
I use NHIS in accessing health care.	3.9250	1.16885	0.683	0.821
My family members utilise healthcare facilities with the NHIS	3.8250	1.05829	0.675	0.822
I have reasonable knowledge regarding the details and benefits of the NHIS	3.9600	.97630	0.795	0.806
The renewal process is less stressful	3.9400	1.13704	0.649	0.826
There is low Health Insurance premium cost	3.7750	1.13615	0.668	0.824
There is good quality of available health services	3.7450	1.32239	0.703	0.819
“Total Variance Explained”				48.596%
“Kaiser-Meyer-Olkin Measure of Sampling Adequacy”				0.841
“Bartlett's Test of Sphericity (sig value)”				0.000

Source: Field Survey

⁵⁹ Brett Williams, Ted Brown, and Andrys Onsman, “Exploratory factor analysis: A five-step guide for novice.” *Australasian Journal of Paramedicine* 8(3) (2010):1-13.

⁶⁰ Detmar W. Straub “Validating Instruments in MIS Research,” *MIS Quarterly*, Vol. 13, No. 2, (1989): 147-169.

⁶¹ Jörg Henseler, Christian Ringle, and Rudolf Sinkovics, “The Use of Partial Least Squares Path Modeling in International Marketing.” *Advance in International Marketing*, 20, (2009): 277-319.

⁶² Joseph F. Hair, Marko Sarstedt, Lucas Hopkins, and Volker G Kuppelwieser “Partial Least Squares Structural Equation Modeling (PLS-SEM) an Emerging Tool in Business Research.” *European Business Review*, 26, (2014): 106-121.

RESULTS

Analysis

The analysis was performed based on the objectives of the study. In the following sections, the researchers sought to assess the impacts of education on the uptake of health insurance by employing correlation, regression and tests of different analyses.

Research Objective One: To examine the level of uptake of health insurance in Cape Coast Technical University.

From table 2 above, using a five-point Likert scale to measure the Uptake of Health Insurance among the staff of Cape Coast Technical University “ranging from 1- Strongly disagree to 5- Strongly agree, each of the five items loaded well on the Uptake of Health Insurance. The construct had a mean greater than 2 and an overall mean of 3.8618 indicating that in general, the Uptake of Health Insurance is high. It can therefore be concluded that uptake of health insurance is high among the staff of Cape Coast Technical University. This confirms studies by Wielen, Falkingham and Channon and Kumi-Kyere and Amo-Adei.⁶³ Wielen, Falkingham and Channon argue that individuals with a higher educational background understand the policy better than those with lower educational background.⁶⁴ Similarly, Kumi-Kyere and Amo-Adei note that women who have a better social status like good education were highly likely to purchase health insurance relative to the less trained Ghanaians.⁶⁵

Research Objective Two: To assess the influence of Educational Qualification on the uptake of health insurance at Cape Coast Technical University

Tables 3-8 below illustrate the regression and test of differences using ANOVA statistical analysis.

Table 1: Model Summary of Educational Qualification on uptake of health insurance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.171 ^a	0.029	0.024	0.84378	1.396
a. Predictors: (Constant), Highest educational qualification					
b. Dependent Variable: UHI					

Source: Field Survey

From 3, the relationship between the level of education and uptake of health insurance is positive (0.171) and significant at 5%. The R-Square explains approximately 2.9% of the variations in the uptake of health insurance; the same can also be said of the adjusted R-Square which explains 2.4%. The remaining variations are explained by other variables.

⁶³ Nele van der Wielen, Jane Falkingham and Andrew Amos Channon, “Determinants of National Health Insurance enrolment in Ghana.” *International Journal for Equity in Health* (2018); Kumi-Kyereme, & Amo-Adjei, “Effects of spatial location and household wealth on health insurance subscription among women in Ghana.” 221.

⁶⁴ Wielen, Falkingham, and Channon, “Determinants of National Health Insurance enrolment in Ghana.”

⁶⁵ Kumi-Kyereme, and Amo-Adjei, “Effects of spatial location and household wealth on health insurance subscription among women in Ghana.” 221

Table 2: ANOVA Summary of Educational Qualification on uptake of health insurance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.260	1	4.260	5.983	0.015 ^b
	Residual	140.968	198	0.712		
	Total	145.228	199			
a. Dependent Variable: UHI						
b. Predictors: (Constant), Highest educational qualification						

Source: Field Survey

The F-statistic ($F(200) = 5.983$, $p\text{-value} < 0.05$) indicates that the data set fits well in the regression model.

Table 5: Coefficients of Educational Qualification on uptake of health insurance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.391	0.201		16.849	0.000		
	Education	0.150	0.061	0.171	2.446	0.015	1.000	1.000
a. Dependent Variable: UHI								

Source: Field Survey

In the light of the Ordinary Least Square (OLS) regression, the final regression model in table 5 can be illustrated as: $UHI = 3.391 + 0.150L_e$. The standard errors of closer to zero indicate that the sample is representative of the overall population. On the other hand, the hypothesis on the level of education is supported by a positive and significant coefficient ($\beta = 0.150$, $p\text{-value} < 0.05$). The respondents' level of education came out to have a significant positive effect on the uptake of health insurance in the University. This was in agreement with the expected sign of the parameter which was positive. It can be inferred that as individuals increase their educational level, they are better enlightened based on activities pertinent to their family's wellbeing. Moreover, individuals may have invested much in their education to obtain higher qualifications, and taking chances on their health issues may not be plausible. Again, individuals as part of their learning programmes may have included some aspects of health care and health insurance matters. This implies that those who are with higher educational backgrounds understand the policy better than those with lower educational backgrounds.

Table 6: Descriptive

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
Secondary	15	3.2667	1.18824	0.30680	2.6086	3.9247
Diploma	38	3.8070	0.85996	0.000	3.5244	4.0897
Bachelor's Degree	52	3.9103	0.90053	0.12488	3.6595	4.1610
Post-graduate	95	3.9509	0.73251	0.07515	3.8017	4.1001

Source: Field Survey

From table 6, the mean for the level of education on the uptake of health insurance is greater than three. There seems to be less dispersion in the means of level of education with regards to answering questions on the uptake of health insurance, as shown by the standard deviation which is less than 1, except for the Secondary level of education.

Table 3: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
4.122	3	196	0.007

Source: Field Survey

From table 7, since the sig value of Levene's test is greater than 5% (sig = 0.007), the null hypothesis is rejected. This means that equal variances do not exist within the groups, as a result, the Welch corrected test will be used to determine the t-test equality of means.

Table 4: Robust Tests of Equality of Means

	Statistic	df1	df2	Sig.
Welch	1.676	3	50.411	0.184

Source: Field Survey

From Table 8, since the sig value of the T-test for equality of means is greater than 0.05 (sig = 0.000), the null hypothesis is rejected. This suggests that there is a significant difference in the level of Uptake of Health Insurance (UHI) for the levels of education of respondents at Cape Coast Technical University.

A one-way between groups analysis of variance was conducted to explore the level of Uptake of Health Insurance (UHI) for levels of education at Cape Coast Technical University. Subjects were divided into five groups to their respective level of education in the firm (Group 1 Secondary, Group 2 Diploma, Group 3 Bachelor and Group 4 Post-graduate Certificate). There was a significant difference in the level of Uptake of Health Insurance (UHI) for levels of education in Cape Coast Technical University respondents' educational level [$F(200) = 1.676, p > 0.05$]. The mean scores for Group 1 (M = 3.2667, SD = 1.18824), Group 2 (M = 3.8070, SD = 0.85996), Group 3 (M = 3.9103, SD = 0.90053) and Group 4 (M = 3.9509, SD = 0.73251) are not significantly different from each other.

The hypothesis on the level of education was supported by a positive and significant coefficient. That is, as the level of education of respondents increases, the level of uptake of health insurance would also increase. In other words, the level of education of respondents contributes to a larger extent in explaining the uptake of health insurance at Cape Coast Technical University. There exists a positive and significant relationship between the uptake of health insurance and the level of education. However, differences did not exist in the mean level of uptake of health insurance. This suggests that generally, the level of education influences the uptake of health insurance at Cape Coast Technical University. This is due to the rate at which information spreads as a result of being educated.

Also, differences did not exist in the mean level of uptake of health insurance with regard to respondents' educational qualifications. In other words, the uptake of health insurance does not differ in the level of education of an individual. That is irrespective of one's educational level, they all enrol and utilise the benefits of NHIS packages in a similar manner. This outcome is not far from the extant

literature. Wielen, Falkingham and Channon assessing the determinants of National Health Insurance enrolment in Ghana across the life course found that education has an impact to inform one's decision to uptake health insurance.⁶⁶ Also, Ndugu in accessing factors enhancing the uptake of health insurance in the informal sector in Kenya argues that education has an influence on one's decision to enrol and the higher individuals' educational background, the higher likelihood of uptake of health insurance.⁶⁷ The discussions above analysed the objectives of the study in relation to the literature. Descriptive analyses were performed to assess the nature of the responses. The results observed a positive and significant effect of the level of education on the uptake of health insurance at the Cape Coast Technical University.

CONCLUSIONS AND RECOMMENDATIONS

Education has a positive influence on the uptake of NHIS at the Cape Coast Technical University. Since education is key to translating information, it informs one to understand the benefits and the packages of the NHIS which finally informs one's decision to uptake health insurance. Also, the study found that people with higher education levels generate adequate income which makes affordability of health premiums easy. Individuals without formal education are less likely to participate in the system compared to those with higher education. It is therefore recommended that the NHIA should institute educational and publicity programmes targeting individuals with low levels of education. This is to inform them about the importance of NHIS and to improve coverage among them. Also, the government and policymakers should continue to invest in the education of Ghanaians. This will ultimately improve the uptake of health insurance in the nearest future for the achievement of universal health coverage and sustainable development goal three.

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⁶⁷ Ndugu, *Effects of financial competitive environment on the performance of SACCOS in Meru County. Kenya*.

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