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Articles and statements

## **Inequalities versus Utilization: Factors Predicting Access to Healthcare in Ghana**

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### **Abstract**

Universal access to health care remains a significant source of inequality especially among vulnerable groups. Challenges such as lack of insurance coverage, absence of certain types of care, as well as high individual financial care cost can be blamed for the growing inequality in the healthcare sector. The concern is worrying especially when people are denied care. It is in this light that the study set to find out what factors are likely to impact the chances of access to health care, so far as the Ghana Demographic and Health Survey Data 2014 data are concerned, particularly to examine the differences in access to healthcare in connection with varying income groups, educational levels and residential locations. The study relied on the logistic regression analysis to establish that people with some level of education have greater chances of accessing health care compared with those without education. Also chances of access to health care in the sample were high for people in the lower quartile and upper quartile of the household wealth index and a local minimum for those in the middle class. It became evident also that increased number of people with NHIS or PHIS or combination of cash with NHIS or PHIS will give rise to a corresponding increment in the probability of gaining access to health care.

**Keywords:** access, health, insurance, care, utilization, inequality, Ghana.

### **Introduction**

Issues concerning health and diseases have been a major concern for humanity since antiquity. The need for good health is no doubt a necessity for survival because of the nature of the human anatomy and the physiological functioning of its parts. Any malfunctioning of its parts causes pain and suffering and sometimes death. Access to health care services will provide the means for people to have access to primary and secondary care, emergency medicine, preventive care, diagnostics and testing, treatment, surgery, public health and other care. These give sufficient bases to research in to factors that are likely to impact the chances of accessing health care.

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Access to healthcare is fundamental in the whole healthcare service delivery system. Access in this respect, implies the provision of health facilities and equipment, the distance or time travelled to the facility, affordability of the service and availability of qualified personnel (Mckeown, Cross, & Keating, 1971). These factors greatly define a meaningful healthcare service delivery system. Access to healthcare remains a challenge and in most countries and social groups, it is unevenly distributed according to place of residence, ethnic group, gender and socioeconomic status (European Commission Report, 2009).

The disparities in the healthcare access across groups are largely accounted for by socioeconomic factors. For instance, individuals who are in the higher income bracket tend to have better health and care because they are able to afford, especially where there is no health insurance. Income is not the only differentiating factor, others such as education, location, occupation and age groups can also influence households' access to healthcare. Theoretically, a positive relationship is seen between socioeconomic indicators and health. These variables are unique in the manner they explain variations in health, even though among themselves they may be related. Some serve both as a cause and an outcome of health status. For example, income may reduce as a result of poor health and poor health may also result from income constraints. This makes income quite unique and more useful for a short run policy instrument compared to education which is generally established relatively early in life and is less likely to be subject to change in health status.

Few studies have shown a relationship between poverty and adverse health outcomes (Braveman, 2007; Cockerham, 1988; Wagstaff, 2002). Poverty generates ill health that keeps the poor in poverty and may lead to diseases, as well as high fertility, that can have major impact on disposable income in households and become factors that can make the difference between being above or below the poverty line. This suggests that the poor need more health care than the rich. According to Whitehead, Dahlgren, and Evans (2001), in all European countries the most disadvantaged groups have the poorest health outcomes and highest mortality. This is reflected in large differences in life expectancy between groups located at both ends of the social scale. Santana (2002) also ascertained that a strong relationship exists between high rates of mortality and morbidity and low educational levels, social class and income and states that the most disadvantaged social groups have weaknesses resulting from economic conditions, which also present additional barriers to health care access, mostly when the care needed is preventive or more specialized.

A World Health Survey report stated that costs related to visiting health care is the most frequent problem in accessing health care. Costs of the visit, inadequate equipment, negative experiences with health care personnel, inadequate skills among health care providers, and direct exclusion (denied care) occur more often among people who are vulnerable and marginalized than those who are not (World Health Organization [WHO], 2010). While as on the international scene, health care is recognized as a universal right that ensures that access does not depend on one's ability to pay, income or wealth and that the need for care does not lead to poverty and financial dependency (European Commission Report, 2007). This is only observed in few European countries and some other rich nations who provide comprehensive social protection system and health care at the highest standard and easily accessible by everyone (International Labour Organization, 2011). On the flip side, there is a wide gap in social health protection coverage and inequities in access to health services experienced by vulnerable groups (Schell-Adlung, & Kuhl, 2011).

Universal access to health care remains a significant source of inequality. Challenges such as lack of insurance coverage, lack of coverage/provision of certain types of care, as well as high individual financial care cost can be blamed for the growing inequality in the healthcare sector. Research interest is getting high especially in the area of access to health care because of the problems faced by vulnerable and marginalized groups in addressing their health needs. This was evident as the United Nations failed to reach its own targets as enshrined in the Millennium Development Goals [MDGs] {2-4}. In this regard the WHO has raised the need to make access to health services, health care and rehabilitation services as both a human right issue and a key development issue (WHO, 2013).

Evidence from the 2015 Ghana Millennium Development Goals report proved a consequential effect of lack of access. The report showed wide margins across regions for universal access to reproductive health care and maternal mortality trends. A large number of

women die annually as a result of pregnancy related complications, such as severe bleeding (haemorrhage), hypertensive diseases, sepsis infections and unsafe abortions ([United Nations Development Programme, 2015](#)). Another effect, according to Craveiro, Ferrinho, de Sousa, and Goncalves (2013) limiting access to pharmaceuticals is a major impact of poverty on women. The incapacity to afford the cost of health care appears as a central aspect of access to health care. Ghana's experience can be attributed to a failing and unsustainable National Health Insurance Scheme (NHIS). A number of media reports in recent past have criticized the government of Ghana for the return of the "cash and carry" health system. People died because they did not have money to pay for their healthcare needs. The health need of an individual was only attended to after initial payment for the service was made, even in emergency cases ([Owusu, 2015](#)). The burden of paying for health services is a growing cause of poverty and social inequality especially among vulnerable groups.

The existence of a socioeconomic status-health gradient is present in all countries and across a wide range of ages. However, the source of this gradient and thus the cause of major disparities in health are much less clear. Crespo (2015) revealed that income disparities are associated, in part, with differences in educational level and the number of assets and wealth index also increase significantly across income quartiles. There are evidences that suggest that family income influence health, but the evidence from independent changes in income is far from clear. Importantly, although much work has been done in an attempt to identify the mechanisms behind the change, it is not possible to fully explain observed differences in health by income. Is it that higher incomes are used to purchase more health, yielding inputs such as better nutrition and housing? That better-educated persons use health care more effectively? That those in higher-prestige occupations face less risk? Or is it that stress and anxiety, tied to low incomes and job uncertainty, result in poor health? The concern is worrying especially when the facility is not available to access. In light of this, the study aims to further advance the knowledge about the relationship between socioeconomic variables and access to health care, particularly to examine the differences in access to healthcare in connection with varying income groups, educational levels and residential locations in the Ghana Demographic and Health Survey (GDHS) 2014 data.

### **Theoretical Framework**

The theory of equity is used in this study to explain the concept of access to health care. In this regard, access represents a broad set of concerns that centre on the degree to which individuals and groups are able to obtain needed services from the medical care system. Because of the difficulties in measuring access to health care, Millman (1993) attributed that, most people equate it with insurance coverage and having enough doctors and hospitals in the areas in which they live. But having insurance or nearby health care providers is no guarantee that people who need services will get them. Conversely, many who lack coverage or live in areas that appear to have shortages of health care facilities do, indeed, receive services.

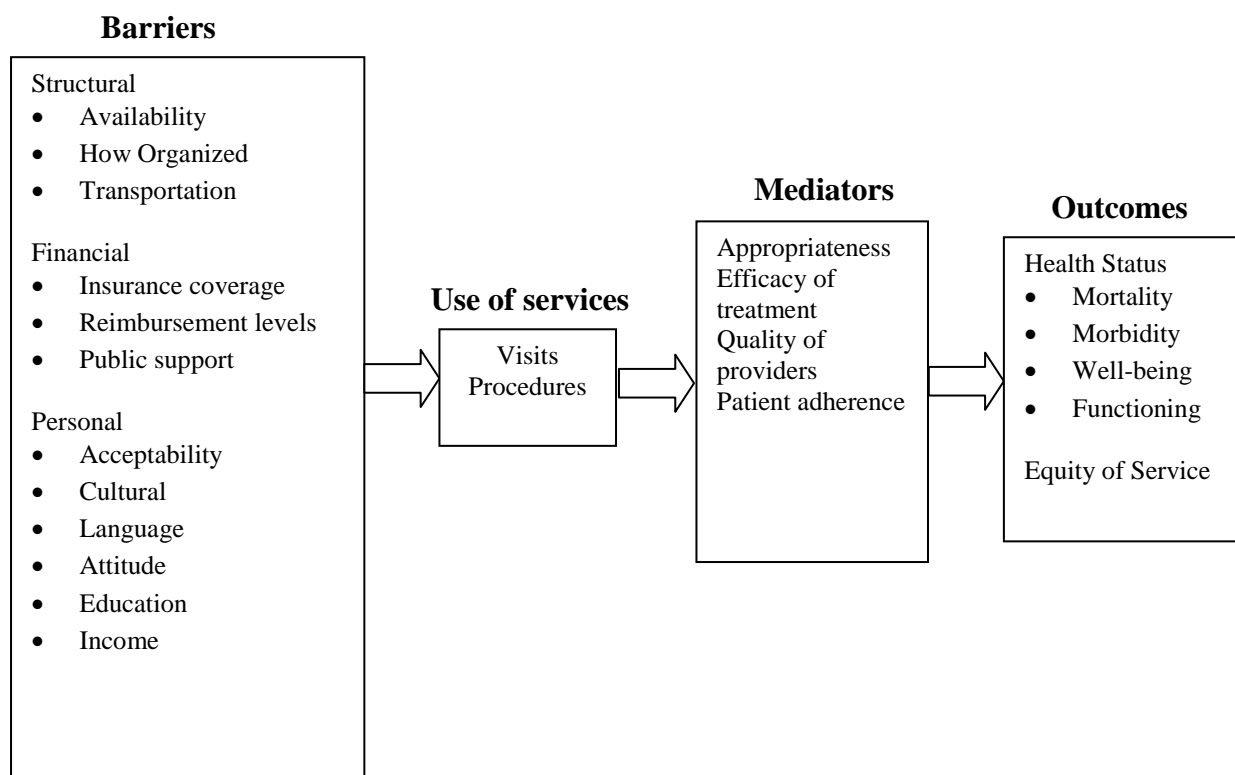
The Andersen's Health Behaviour Model (HBM) ([Andersen, 1995](#)) operationalized the definition of access to be used in health services research. It states that access is the actual use of personal health services and everything that facilitates or impedes the use of personal health services. The Canada Health Act (CHA) also defined access as one of its five main tenants stating that "persons must have reasonable and uniform access to insured health services, free of financial or other barriers and also no one may be discriminated against on the basis of such factors as income, age, and health status ([Anderson, Aday, & Fleming, 1980](#)).

According to Elinson (1974), equity of access involves determining whether there are systematic differences in use and outcome among groups in society and whether these differences are the result of financial or other barriers to care. Elinson (1974) further made the point that health care services are equitably distributed when health status and demographic indicators of health status are the strongest predictors of who uses health care. Therefore to evaluate the degree of equity, certain indicators of need have to be considered.

As demonstrated in a study by the Employee Benefits Research Institute (1992), in an equitable system, people with equal need will have equal utilization rates and those with less need will have lower utilization rates. Intuitively, it is expected that rural populations have reduced access to health care services compared to urban populations. However, studies comparing access of rural and urban populations have been contradictory and inconclusive. Whether or not

differences between rural and urban populations are observed depends on the measure of access that is assessed, how rural-urban status is classified, and what other factors, such as geographic location beyond rural-urban, are taken into account (Enthoven, 1988).

The gap between vulnerable and marginalized people and those who are not, regarding the socioeconomic status, access to health care and discriminating factors give much concern to worry, about how society's scarce resources can be distributed in an equitable manner. Couple of literatures have debated on these inequalities in access. Discussions on how to define equity in access were based on five key philosophical perspectives: libertarian perspectives, utilitarian approaches, egalitarian theories, communitarian theories and deliberative democratic procedures (Frimpong, 2013). Figure 1 gives the indicators used in modeling access to health care services.



**Figure 1.** Indicators used in modeling access to health care services. Adapted from Millman (1993)

Libertarian perspective focuses on rights, claiming that if everyone is entitled to the goods they possess, a just distribution is whatever distribution results from people's exchange of those goods. Stated alternately, the society simply has no obligation to address social or health inequalities because any measure to do so would imply redistributive policies that ultimately infringe on individual liberties. This was attributed by Rugar (2006). Hence the provision of one's health is an individual responsibility rather than a societal obligation. The Utilitarian theories of health care judge actions to be right or wrong based on their impact on societal utility. Kymlicka (2002) made the point that, morally correct action is the one which produces the greatest amount of happiness for society. Thus, utilitarian theories of health care justice do not consider individual inequities as long as the entire society is better off. The Communitarian theories according to Frimpong (2013), propose that there exist no universal norms of social justice, but rather those that are constructed by each society through a process of social and political evolution. As a consequence, if achieving higher health status is not a priority of a particular society, then it has no responsibility to secure it for its members.

This perspective is guided by Rawls' theory of social justice (1971, p. 12), which proposes that behind a 'veil of ignorance' where no one knows his/her place in society, rational and self-interested individuals would choose the 'difference principle' to govern distribution in society. This principle requires all inequalities to be judged in terms of securing the benefits for the least

advantaged person in society. ‘Equality of opportunity’, described as the prevailing justification for economic distribution in our society (Kymlicka, 2002), requires that people should not be ‘advantaged or hampered by their social background and that their prospects in life should depend entirely on their own effort and abilities’ (Baker, Lynch, Cantillon, & Walsh, 2004, p.25). Inequalities in income, power and other domains are unfair if people are disadvantaged or privileged by arbitrary and undeserved differences in their social circumstances (Kymlicka, 2002).

Finally, the egalitarian theories propose that everyone is entitled to the same level of health achievement and entitled to equal opportunities in achieving good health. Deliberate democratic procedures are defended by those who believe that by espousing the principles of autonomy, political equality and due deliberation within an open public process, justice will prevail. However, they offer little guidance over what principles of justice should take precedence over others, if any (Frimpong, 2013).

## Methodology

### Population

The study population consisted of all women in the age bracket of 15 - 47 and all men of ages 15 to 59 in households in Ghana of which samples were obtained as reported by the Ghana Demographic and Health Survey (GDHS) 2014. This study relied on data collected from the survey. The GDHS 2014 used an updated sampling frame from the 2010 Ghana Population and Housing Census. A multi stage sample design was used to select respondents for the survey according to the report. The first stage involved the selection of Enumeration Areas (EAs) and in the final stage a systematic sampling approach was used to select households.

The study considered 23,112 responses on key variables. The response variable – health insurance cover was used as a proxy for access to health care. This proxy variable is consistent to the extent that it represents access and utilization of healthcare (Craveiro et al., 2013). This implies that once everyone has insurance there will be some degree of equality in the utilization of health care services (Sibley, & Weiner, 2011). Other variables in the study include – wealth index factor score as a measure of income, highest education level and residential location of households. The wealth index factor is an important measure of household economic status or living standard. It is calculated using Principal Component Analysis (PCA) based on a household’s ownership of some selected assets. The wealth index score gives an indication of an increasing quality of each asset, and greater number (either positive or negative) mean that the variable provides more “information” on the household wealth stock. For instance, a greater negative score means a household is deficient or have low number of assets and may be in a relatively lower group compared to a greater positive score implying adequacy in assets and such a household may be in a relatively high group.

### Data Analysis

At the preliminary stage, a descriptive analysis was performed on the variables under consideration to understand their relationship and distributions. The Chi Square test of independence was performed to know whether the classification of the variables showed any independence. The following hypotheses were tested:

- i. There are differences in household wealth indexes across educational groupings.
- ii. People with higher education, better residential location and higher household wealth are able to access health care.

The study further fitted a binary logistic regression model to the data. The model enabled us to estimate the likelihood of gaining access to health care given the impact of some other predictors or factors. The model is specified as:

$$\text{logit}(p) = \ln\left(\frac{p}{1-p}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4$$

By taking exponents on both sides of the equation, we can find the odds (i.e. the ratio of the probability of access to health care, i.e.  $p$ , to its complement.

$$\frac{p}{1-p} = \exp(\alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4)$$

Solving for the probability  $p$  in the logit model gives

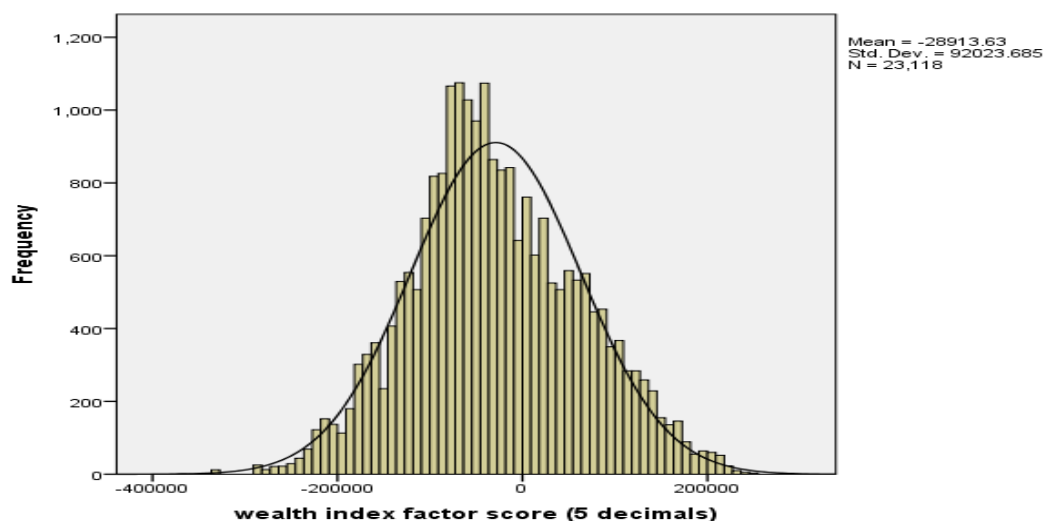
$$p = \frac{\exp(\alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4)}{1 + \exp(\alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4)}$$

Where  $p$  is the probability of access to health care (health insurance cover) coded as 1 and  $1 - p$  is the probability of the other decision.  $X_1$  is the highest level of education attained,  $X_2$  is the wealth index factor score (in five decimal places),  $X_3$  is the residential location and  $X_4$  is how to pay health services.  $\alpha, \beta_1, \beta_2, \beta_3$  and  $\beta_4$  are the parameter estimates, which can be obtained using the maximum likelihood estimation method.

## Results

The study analyzed a total of 23,112 complete responses on the variables under consideration. People who were covered by health insurance (access to health care) constitute about 65.1% of the complete responses. Respondents with no education (42.4%) were high compared to those with primary, Middle/JHS/JSS and SHS/ higher education, 20.4%, 30.2% and 6.9% respectively. The wealth index factor score gave an insight to the quality and quantity of assets households' possess. An average score of -28913.63 was estimated. This large negative value suggested that households sampled in Ghana on the average lack some basic household assets such as toilet facility, electricity for lighting, gas, etc. that were used to construct the wealth index. Bounded on this average score are -366973 and 247752, representing the minimum and maximum wealth index factor score respectively.

The GDHS 2014 data on wealth index score for households in Ghana is approximately symmetric with a skewness statistic of 0.168 and a corresponding standard error of 0.016. In addition, the distribution of the data showed light tails with a kurtosis statistic of -0.194 with a standard error of 0.032. Figure 2 shows a histogram exhibiting the shape and form of the wealth index factor score variable. In terms of residential location, responses analyzed showed that 60.3 % of valid responses of 23,118 were located in the rural areas of Ghana.



**Figure 2.** Histogram of the wealth index factor score variable

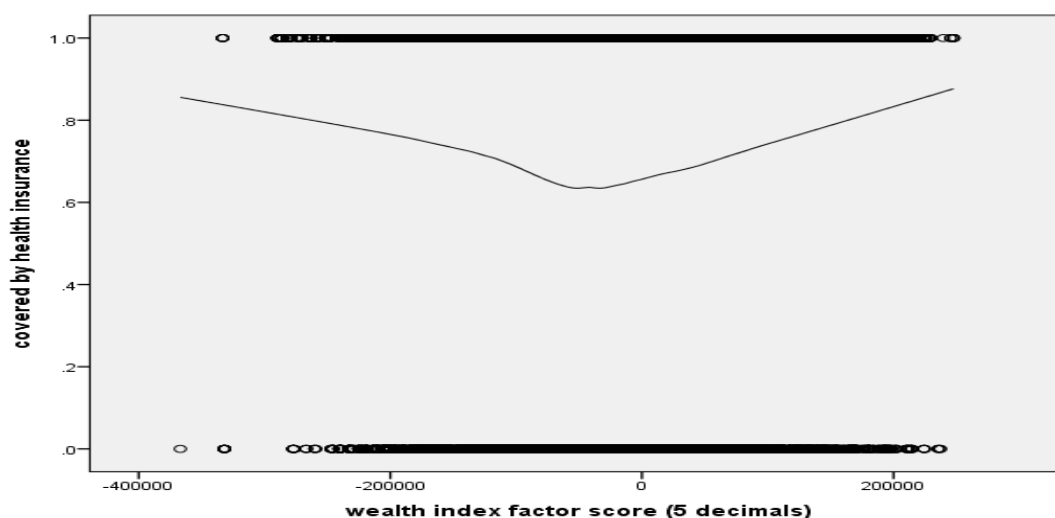
Further comparison between educational level and health insurance cover showed that of the 34.9 % of those who are not covered by health insurance, 41.1 % and 36.0 % have primary and no education respectively, while those who are covered by health insurance, 86.5 % and 67.9 % respectively have higher and secondary education. It can be inferred from this results that people with some level of education have greater chances of accessing health care compared to those without education. Approximately 35.0% of respondents in this study were identified not to have had access to health care.

The study further shows that an increased number of people with at least JSS/JHS or higher education will increase the probability of having access to health care, according to the GDHS

(2014) data. This conclusion is consistent with a survey conducted in America by (Crabtree, 2010), where people with lower household income and lower education levels are considerably more likely to have health problems because they have had less reliable access to health care, than their counterparts further up the socioeconomic ladder. The research reveals the trade-off between education and access to health care. The implication is that the more we neglect the citizenry's right to education, we are not only infringing on their fundamental human rights but we also denying them of their right of access to health care.

In order to examine the connection between wealth index scores and health insurance coverage, a Lowess curve was fitted on a scatter plot of these two variables. Figure 3 displays the resulting graph.

A cross-tabulation of people covered by health insurance against wealth index score grouped into four quartiles affirmed the earlier relationship. It can be observed from Table 1 that of the 65.1% of people who were covered by health insurance, 68.5% and 68.8% fall in the lowest and upper quartile respectively, confirming the fall and rise of the Lowess graph in Figure 3.



**Figure 3.** A Lowess Curve fitted to Health Insurance Cover and Wealth Index Factor Score

The study also found that health insurance coverage is both high in the urban and rural areas of Ghana, 68.3 % and 62. 0% respectively for those who are covered and lived in these two locations. However, for those who are not covered, 64.0% are in the rural areas and 35.9% live in urban centers. Table 1 gives a cross tabulation of health insurance cover against residential location.

**Table 1.** Cross tabulation of Covered by Health Insurance \* type of place of residence

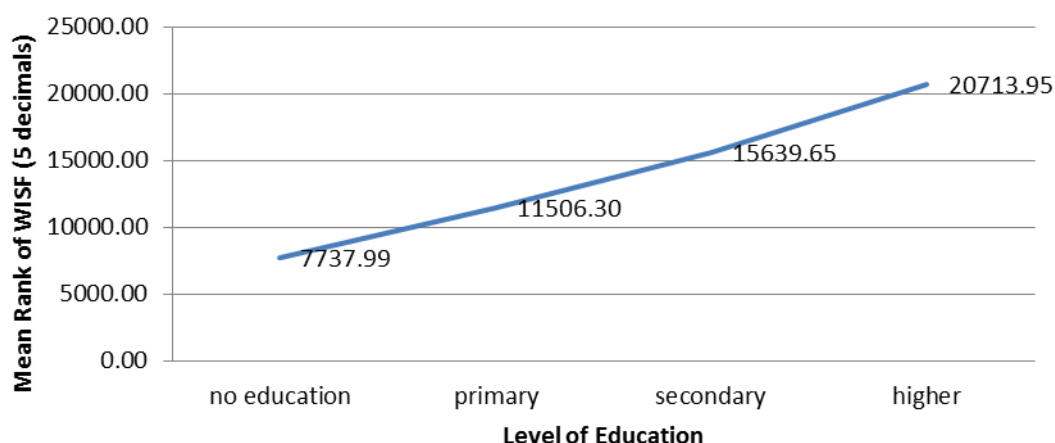
Covered by health insurance		Type of place of residence		Total
		Urban	Rural	
No	Count	2902 <sub>a</sub>	5174 <sub>b</sub>	8076
	% within covered by health insurance	35.9%	64.1%	100.0%
	% within type of place of residence	31.7%	37.1%	34.9%
	% of Total	12.6%	22.4%	34.9%
Yes	Count	6264 <sub>a</sub>	8772 <sub>b</sub>	15036
	% within covered by health insurance	41.7%	58.3%	100.0%
	% within type of place of residence	68.3%	62.9%	65.1%
	% of Total	27.1%	38.0%	65.1%

Total	Count	9166	13946	23112
	% within covered by health insurance	39.7%	60.3%	100.0%
	% within type of place of residence	100.0%	100.0%	100.0%
	% of Total	39.7%	60.3%	100.0%

Each subscript letter denotes a subset of type of place of residence categories whose column proportions do not differ significantly from each other at the .05 level.

In examining the differences between household wealth across educational levels attained, a non-parametric test (Kruskal-Wallis Test) was performed. This test was preferred because assumption of homogeneity of variances was violated in the one way analysis of variance (ANOVA) of wealth index grouped by educational level. A Levene statistic of 44.474 with a p-value of 0.000 and degree of freedom of 3 and 23114 was observed.

The result of the Kruskal-Wallis test showed that there is a statistically significant difference in wealth indexes across the four groups of educational levels. The test indicated a Chi-square value of 7209.362 with 3 degrees of freedom with an asymptotic alpha of 0.000. Inspection of the mean ranks for the groups suggest that people with higher educational level have the highest wealth index score, and those without formal education had the lowest wealth index score. Figure 4 shows the relationship plot.



**Figure 4.** Plot of Mean Ranks of WIFS and Educational Level

A significant positive relationship between educational level and household wealth index was found in this study. Using household wealth index as a proxy for income, the correlation still remains high except that the two factors may independently relate to respondents chances of accessing health care. Within each income category, those with lower education levels are more likely to have less access to health care, and within each education category, those with lower incomes are more likely to do so. The combined effect is sizeable. Table 2 presents the results of the test. It can be deduced from the result that access to health care is not independent of residential location of households. A Pearson Chi Square value of 71.994 with 1 degree of freedom was observed for this relationship at the 0.05 significance level.

**Table 2.** Results of the Chi Square Test of Independent

Variables	Chi Square Test			Symmetric Measure - Nominal by nominal	
	Pearson Value	df	$\rho$	Phi	$\rho$
Health Insurance Cover; against					



Educational Level	187.480a	3	0.001	0.090	0.001
Wealth Index quartile	130.597a	3	0.001	0.075	0.001
Residential location	71.994a	1	0.001	-0.056	0.001

a 0 cells (0.0%) have expected count less than 5. The minimum expected count is 3202.87.

b Computed only for a 2x2 table

What this means is that the proportion of people who have access to health care to those who do not, are not statistically different from urban and rural dwellers at the 0.05 significance level. This proportion can be seen from Table 1. The Phi statistic of -0.05 shows a negatively weak relationship between the two categorical variables. The results also confirmed the relationship between access to health care and household wealth; and the level of education attained and access to health care. These associations are statistically significant with Pearson Chi Square values of 130.597 with 3 degrees of freedom and 192.235 with 3 degrees of freedom respectively. Again, in these two conclusions, the relationships established between access to health care and household wealth; and access to health care and education; are both positively related but weak with Crammer's V values of 0.075 and 0.091 respectively, which are statistically significant at the 0.05 level.

In assessing what factors predict the likelihood of gaining access to health care, a logistic regression analysis was performed. The method enabled us to assess how well the set of predictor variables in this study explained the categorical variable and the relative importance of each predictor variable in the model. The study relied on 5925 complete responses on all the variables used in the logistic regression. The dependent variable "covered by health insurance" as a proxy for access to health care was coded 1 = Yes, meaning a respondent have access to health care and 0 = No, otherwise.

The categorical variables used as predictors include educational level attained, residential location and how to pay for health service. Wealth index score was the only interval scale variable in the analysis. At the baseline level where no independent variable was included in the model, the overall percentage of correctly classified cases was 79.3%. This value suggests that majority of the respondents have access to health care because they answered Yes to the question of whether they are covered by health insurance.

A "goodness of fit test" of the model revealed that overall, the model performed better or more compared to the baseline classification when no predictor variables were added to the model. A Chi-square value of 1190.141 with 11 degrees of freedom with a p-value of 0.000 was observed. The Hosmer and Lemeshow test also support the model as being robust. It gave a Chi-square value of 14.033 with 8 degrees of freedom with a corresponding p-value of 0.081, being less than 0.05, the significant level. This justify that the logistic model was not poorly fitted, an indication that supports the model. The analysis further showed a Cox and Snell R-square and Nagelkerke R-square values of 0.182 and 0.285 respectively, suggesting that 18.2% and 28.5% of variability in access to health care is explained by these set of variables. The variation observed as a result of the inclusion of the predictor variables accounted for the improvement in the logistic model. As a result, the model correctly classified 80.9% of the overall response for Yes (access to health care), an improvement over the 79.3% in the baseline level.

The sensitivity of the model was observed to be 90.3%. This indicates the proportion of people who have access to health care that were accurately identified in the model. However, the model captured 86.21% of those predicted people into the study. Also, the specificity of the model is 44.8%, indicating those who do not have access to health care accurately identified by the model, with a true negative predictive value of 54.67%. These values are displayed in Table 3.

The result explains the contribution of each predictor variable in the model. Educational level was found to be significant (Wald=20.002, p-value = 0.001), specifically those with JSS/JHS and higher education qualification. The parameter estimates of these variables show that an increased number of people with at least JSS/JHS or higher education will increase the probability of having access to health care. The odds for higher education according to the analysis is about three times higher for those with access to health care than those who do not have access to health care, all other things being equal.

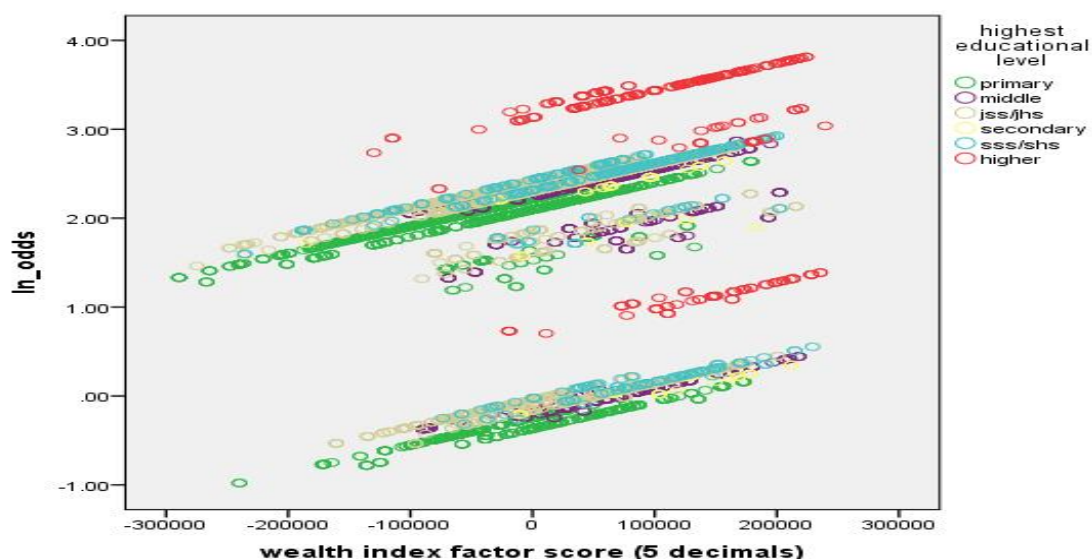
How to pay for health services was found to be another significant predictor of access to health care (Wald=1007.173, p-value=0.000), particularly those with NHIS, private health insurance (PHIS) and combination of cash, NHIS and private insurance. The parameter estimate of these variables reveal that, an increased number of people with NHIS or private health insurance or combination of cash, NHIS and private insurance will give rise to a corresponding increment in the probability of gaining access to health care. Noticeable is the odds ratio for NHIS, 12.705 with a confidence interval of (7.561, 21.349). It means that the odds for a person having access to health care is about 13 times higher for those with NHIS than for a person who does not have access to health care, all other factors being equal. The odd ratios for private health insurance and combination of cash, NHIS and private health insurance were also found to be high.

**Table 3.** Variables in the Equation

Step 1 <sup>a</sup>	B	S.E.	Wald	df	ρ	Exp (B)	95% C.I. for EXP(B)	
							Lower	Upper
<b>Education</b>			20.002	5	.001			
<i>Middle</i>	.146	.117	1.564	1	.211	1.158	.920	1.456
<i>JSS/JHS</i>	.205	.087	5.490	1	.019	1.227	1.034	1.456
<i>Secondary</i>	.072	.315	.052	1	.820	1.074	.579	1.992
<i>SSS/SHS</i>	.222	.152	2.127	1	.145	1.249	.926	1.683
<i>Higher</i>	1.037	.246	17.760	1	.000	2.821	1.741	4.568
<b>How to Pay</b>			1007.173	4	.000			
Cash	.081	.263	.095	1	.758	1.084	.648	1.814
<i>NHIS</i>	2.542	.265	92.157	1	.000	12.705	7.561	21.349
<i>PHIS</i>	1.718	.370	21.620	1	.000	5.576	2.702	11.505
<i>Combination</i>	1.974	.307	41.365	1	.000	7.197	3.944	13.133
<i>Location - Urban</i>	-.119	.093	1.645	1	.200	.888	.741	1.065
<i>HWIFS</i>	.000	.000	26.735	1	.000	1.000	1.000	1.000
<i>Constant</i>	-.329	.265	1.537	1	.215	.720		

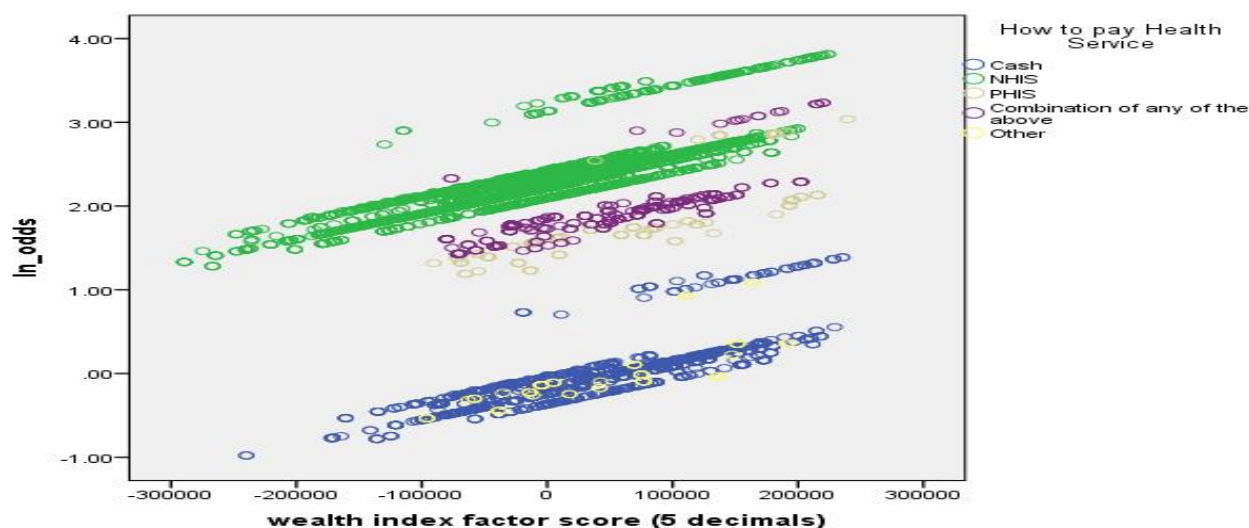
a. Variable(s) entered on step 1: Highest Educational Level, How to pay for health service, Residential location, Household Wealth Index factor Score.

Finally, the result also showed that household wealth (HWIFS) is a determinant of access to health care (Wald=26.735, p-value=0.000). However, household wealth neither increases nor decreases the chances of having access to health care per the result. Plots of log-odds of the access to health care showed a linear relationship with respect to educational level, household wealth and how to pay for health service.



**Figure 5.** Display of log-odds of access to health care and relationship with education and wealth index

As can be seen from [Figure 5](#) and [Figure 6](#), people with higher education are associated with higher logits of access to health care and it increases with respect to household wealth.



**Figure 6.** Display of log-odds of access to health care and relationship with how to pay for health service and wealth index

Similarly, those with NHIS showed a higher likelihood of accessing health care, and the chances also increases with respect to household wealth.

### Discussion

From the results, chances of health insurance coverage in the sample is high for people in the lower quartile of the wealth index and decreases in the middle quartile (with a local minimum) and rises to a high in the upper quartile of the wealth index score. This finding is reasonably so because as rational beings, cost of health care serves as disincentive for people to seek the services of health care providers. A person in the lower quartile of the wealth index will be willing to pay small amount as an insurance premium to access a health care for the entire year than to go and pay huge sums of money for the same service at least once in a year. This is what usually happens to those in the median class of the wealth index. They have less chances of accessing health care because they feel they have the funds to take care of their health needs which usually became too expensive at

the end and therefore may not be able to access the facility. Those in the upper quartile are likely to have high access to health care because they have funds to pay both their health insurance premium and enough cash to pay for any additional health related expenditures. Daly (1992) and Ruspini (2000) projected similar association between extreme poverty and access to social protection which are highly influenced by household characteristics such as size, education level, marital status and income.

As observed from the results, a number of those who do not have access to health care lived in the rural part of the country (64.0%). The finding implies that urban residents have higher chance of getting access to health care. The reason may simply be because health professionals mostly preferred to be stationed at urban centres and cities. This creates distributional problem of health professionals to the disadvantage of residents in most rural communities. This invariably reduces the chances of rural folks from getting regular access to health care. This manifestation is shared by other similar researches also explained that rural residents are more likely to postpone seeking health care until they are economically and socially convenient (Dixon, & Welch, 2000; Elliott-Schmidt, & Strong, 1997; Habicht, & Kunst, 2005).

The absence of health insurance is one of the many hurdles that stand between someone who is sick and needs health care. Just as an ineffective health insurance scheme has the potential to create inequitable circumstances for poor and vulnerable people. The poor and vulnerable people not only do they have much difficulty getting services but also are generally less healthy (Millman, 1993). National health insurance cover may enable them to receive continual, cost effective and quality health care. Equity in access to healthcare is seldom observed in less developed countries where health systems are funded by the state irrespective of the socioeconomic status of the individual. Access to health care which is supposed to be prioritized according to medical needs, where more severely ill patients wait less, both for a given procedure and across procedures with different degrees of severity (Gravelle and Siciliani, 2008), is not the case. The procedure of “first-come, first-served” basis of administering health care irrespective of income and social position is replaced with inequalities such as patient selection, socioeconomic preferences regarding choice of hospital and medical treatment, unconscious bias and “statistical discrimination” by doctors (Balsa, & McGuire, 2001; Van Ryn, & Burke, 2000).

Dozens of literature have proven with empirical evidence that inequalities in the utilization of health care are associated with socioeconomic status of wealthy people (Van Doorslaer, Koolman, & Jones, 2004). There is also well established positive relationship between income and health status in the economic literature (Case, & Deaton, 2006). Studies also suggest that household income has a positive impact on child’s health. One of the mechanisms through which income can affect health is the affordability of medical care. In this way, public provision of health care might play an important role in the health status of poorer households. To this end Currie and Stabile (2003) showed that there is a positive relationship between income and access to health care using universal health insurance coverage in Canada. Universal health insurance coverage has eliminated many barriers to receiving appropriate, high quality health care; however, geography remains a potential barrier to access (Sibly, & Weiner, 2011).

### **Limitations**

The use of health insurance cover as a proxy for access to health care is argued as insufficient. There are several factors that determine the access and utilization of health care as discussed in literature. Health insurance cover is identified as a key and necessary factor in modern-day health delivery system.

It may not be sufficient but forms an integral part of the health care system. It is however an adequate measure of access and utilization of healthcare. The choice is based on the difficulties in getting reliable health data in this part of the world.

### **Conclusion**

Numerous researches about inequity in access to health have showed varied outcomes for methodologies and variables that are most robust for the measurement of healthcare utilization and access. In this study, health insurance cover was used as a proxy for access to health care consistent with (Craveiro et al., 2013).

The study relied on the logistic regression analysis to establish that people with some level of education have greater chances of accessing health care compared with those without education. The study further showed that an increasing number of people with at least JSS/JHS or higher education have increase probability of having access to health care, according to the GDHS (2014) data.

Likewise, the chances of access to health care in the sample were high for people in the lower quartile and upper quartile of the household wealth index and a local minimum for those in the middle class. The study further argued that, the proportion of people who have access to health care to those who do not, are not statistically different from urban and rural dwellers at the 0.05 significance level. It became evident also that increased number of people with NHIS or Private Health Insurance Scheme (PHIS) or combination of cash with NHIS or PHIS will give rise to a corresponding increment in the probability of gaining access to health care.

These findings point to the need to formulate health and social protection policies that ease inequities and other barriers to health care.

### **Recommendation**

Based on the findings of this research, educational authorities especially in Ghana are encouraged to implement at least a compulsory and affordable quality basic and secondary education for all school going age. This is vital because a causal relationship is found to exist between educational attainment and access to health care. What it means is that the more people have educational literacy, the more they are able to break the barriers that prevent them from accessing health care. The research further recommends the implementation of sound macroeconomic policies that will boost employment. For instance, giving tax incentives /holidays to private partners to import equipment that will drive the manufacturing industry of the country. Such factories will employ a lot of unemployed youths and may contribute significantly to the country's growth.

One of the reasons why rural folks do not have access to health care is partly due to the refusal of health professionals to accept posting to such locations. The research recommends the provision of incentives such as rural allowance, decent accommodation, vehicles, etc. to motivate health professionals to accept postings to work in rural communities.

Public and private partnership is encouraged to help in the provision of affordable health facilities and care centres. Not only that, but also giving some tax relief to the private sector to partner in the provision of quality education since the two interlink. Such measures will increase access to health care and reduce inequalities in the system. Finally, the study recommends a reduction in the health insurance premium so that more people can subscribe to the NHIS since such a policy foster accessibility of health care. It will bring to an end the "cash and carry" health service delivery. In addition, the populist should be educated on the benefits of getting health insurance cover. Quite a portion of the population is ignorant about the benefits especially those in the middle quarter of the household wealth index scale.

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