

Gender disparities in the Ghana national health insurance claims: An econometric analysis

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ABSTRACT

The objective of this study was to find out the gender disparities in Ghananational health insurance claims. In this work, data was collected from the policyholders of the Ghana National Health Insurance Scheme with the help of the National Health Insurance database and the patients' attendance register of the Koforidua Regional Hospital, from 1st January to 31st December 2011. The generalized linear regression (GLR) models and the SPSS version 17.0 were used for the analysis. Among men, the younger people prefer attending hospital for treatment as compared to their adult counterparts. In contrast to women, younger women favor attending hospital for treatment as compared to their adult counterparts. Among men, various levels of income impact greatly on their propensity to make an insurance claim, whereas among women only the highest income level did as compared to lowest income level. Men, who completed senior high school education, were less likely to make an insurance claim as compared to their counterparts with basic or no education. However it was women who had basic education that preferred using the hospital as compared to their more educated counterparts. It is suggested that the government should consider building more health centers, clinics and cheap-compounds in at least every community, to help reduce the travel time in accessing health care. The ministry of health and the Ghana health service should engage older citizens by encouraging them to use hospitals when they are sick instead of other alternative care providers.

1.0 Introduction

There have been reports of the relative success of social national health insurance schemes in developing countries including developing countries such as Mexico, Costa Rica and South Korea (Karenand James, 2004). However, Dror and Jacquire (1999), proponents of mutual health insurance schemes, argued that these schemes also have the potential to increase access to health care. Mexico has, since the 1980s, implemented various initiatives to extend the coverage of its social health insurance scheme to poorer groups of its population (Frenk et al., 2005). Mexico's supposed success has been paraded as part of current global debates and advocacy for social health insurance. Lloyd-Sherlock (2006) noted that the current popularity of social insurance is related to the fact that it fits into the current development paradigm of social protection and risk management, which highlights the vulnerability of poor households to catastrophic health spending. However, there is some evidence that social/national health insurance alone cannot significantly contribute to increased coverage rates, provide a wider risk pool and hence increase access to health care.

There is equally anecdotal evidence to suggest that poorly designed schemes can have very negative consequences. Studies by Bennett et al (1998), Criel (1998) and Atim (1998) have expressed a similar view and are even less optimistic of community health insurance. They argue that theirriskspools are often too small, adverse selection problems are frequent and the schemes are heavily dependent on subsidies, which are most often infrequent and unreliable. Jütting (2003) notes that the schemes that experience managerial

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and financial difficulties the most are those in the environment of rural and remote areas where unit transaction costs of contracts are often too high. The financial viability of social/national health insurance schemes is also a matter of concern. For example, Mossialos et al. (2000) report that France's social insurance contributions reached an untenable 55% of wage costs and the government had to propose a gradual shiftintaxation, which is being implemented.

Argentina was a major focus of externally funded social health insurance schemes. Lloyd-Sherlock (2006) notedthat the Argentine reforms are now universally recognized to have failed, with the World Bank viewing the large public sector deficits generated by Argentina's insurance schemes as a major factor in the country's financial collapse in 2001. Jütting (2001) in a study of community schemes in Senegal also noted that community health schemes offer financial protection to those otherwise excluded but he also noted that the poorest of the poor are usually not covered. Such findings raise questions as to the extent to which national or social health insurance can be efficiently and effectively ran to provide adequate health carecoveragefor all segments of the population and especially for the poorest and most vulnerable.

Ghana with per capita income of about US 400 has struggled over the years with the problem of how to adequately finance public sector health care delivery in the face of severe resource constraints. Before independence, user charges were in place in health facilities. Following independence, health services were made fee-free at all levels. However, over time there were increasing problems with inadequate drugs and supplies.In 1987, the Ghana Ministry of Health introduced significant client out – of – pocket payments at point of service use in the public sector (Annual Report Dangme West Health Insurance Scheme 2010), the aim was to recover at least, 15% of recurrent operating cost. Though out-of-pockets payments at point of service use in the public sector by the client had existed before this time, the amounts paid were minimal and more of a token. The aim of recovering at least 15% of recurrent cost was met. I should state here that before the introduction of the significant client out – of – pocket-payments at point of service, the public sector in 1985 through the ministry of health had already considered the feasibility of health insurance as an alternative to out – of – pocket payment at point service (Annual Report Dangme West Health Insurance Scheme 2010).Consequently, in 1996, the process of designing a health insurance scheme for the non – formal sector in the Dangme West District began (Annual Report Dangme Health Insurance Scheme 2010). A lot of work was put into thinking through the design of the scheme, consulting with community members and district assemblies as well as health providers. The EU provided some financial support for this phase of the work through the London school of hygiene and through Tropical Medicine (Annual Report, Dangme West DMHIS, 2010). Also built into the design of the scheme was a process of monitoring and evaluation so that the experience gained and lessons learned in the Dangme West district could inform policy makers, health managers and other implements at large, as well as civil society on the feasibility, so as to provide the best approaches for implementing health insurance in a low income developing country like Ghana.In order to achieve the aim of the study, the binary logit model was employed. The choice of this statistical technique is based on the dichotomous nature of the response variable (whether a policy holder has made claim or not).The data of the study was drawn from the NHIA data base and the hospital records of the Koforidua regional hospital. The remaining part of the paper is organized as follows: section 2 describes the concept of the methods employed in the research. The data, empirical analysis, and results are presentedand discussed in section 3; Section 4 provides the concluding remarks as well as recommendations.

2. Methods

2.1 Study Area and Source of Data

The eastern region of Ghana has 21 administrative Municipals and Districts with Koforidua as the regional capital. Eastern Region of Ghana has an estimated population of 2,194,508, with 3.1% growth rate. It is the sixth largest region with a land area of 19,323 sq. km., thus representing about 8% of the total land area of the country (Statistical Service, 2011). The region is bounded on the East by the Volta Region, South by Greater Accra region, West by Central Region and on the North by Ashanti Region. It has the largest number of health facilities in the country. The Koforidua Regional Hospital is a state run referral hospital. The hospital, with about 250 patient beds is the largest facility in the region which serves both as the first consultation point for patients within its catchment, and as a referral centre for about other 25 primary health centers. These facilities are managed by the Ministry of Health and the Ghana Health Service.

2.2 Data collection and data management

Data used in this study were obtained as primary data from hospital attendance records at the Koforidua Regional Hospital, from 1st January 2011 to 31st December 2011. Data was collected from the policyholders of NHIS in Ghana using the simple random sampling technique with the help of the NHIA database. A total of 4549 policyholders were sampled from the NHIA data base. For this study, the hospital attendance register was used which has patients' age, sex, date of admission and discharge, insurance claim or otherwise, distance, billed charges (i.e. for treatment), marital status, length of stay, number of children, level of education, employment status, cigarette smoking, alcohol drinking, living condition, health status and whether the patient was an outpatient or inpatient. Income levels were obtained from the health insurance data base. From the data, the following variables were coded:

Outcome (claim = 1, no claim = 0); *length of stay* (inpatient=1, outpatient = 0); *marital status* (married = 1, unmarried = 0); *distance* to the hospital (distance > 5km) = 1, (distance ≤ 5km) = 0). The distance of 5 km was chosen to reflect travel time of 1 hour on foot. Age, sex, health status, income level, distance, length of stay, number of children, level of education, employment status, cigarette smoking, alcohol drinking, living condition and billed charges were employed as deciding factors.

2.3 Model specification, estimation and tests

The mathematical form on which the logistic model is based is defined as follows:

$$f(z) = \frac{1}{1 + e^{-z}} \quad (1)$$

Where z denotes the values of this function, such that, $-\infty \leq z \leq +\infty$. we write z as the linear sum as follows.

$$z = \alpha + \sum_{i=1}^k \beta_i x_i \quad (2)$$

Where x_i are independent variables of interest and α and β_i are constant terms representing unknown parameters and k is the last term. Combining (1) and (2) gives:

$$f(z) = \frac{1}{1 + e^{-\left(\alpha + \sum_{i=1}^k \beta_i x_i\right)}}$$

For notational convenience, we will denote the probability statement as simply $p(x)$ where x is a notation for the collection of variables x_1 through x_k . Thus, the logistic model may be written as

$$f(X) = \frac{1}{1 + e^{-\left(\alpha + \sum_{i=1}^k \beta_i x_i\right)}} \quad (3)$$

However, since the above logistic model is non-linear function, the *logit* transformation would be used to make it linear.

$$\text{Logit}(X) = \ln_e \left(\frac{P(x)}{1 - P(x)} \right) \quad (4)$$

Where,

$$P(x) = \frac{1}{1 + e^{-\left(\alpha + \sum_{i=1}^k \beta_i x_i\right)}}$$

This transformation allows us to compute a number, *logitp(x)*, for an individual with independent variables given by x .

$$\text{Logit } P(x) = \alpha + \sum_{i=1}^k \beta_i x_i \quad (5)$$

Thus, the logit of $p(x)$ simplifies to the linear sum. The quantity $p(x)$ divided by $1-p(x)$, whose *log* value gives the *logit*, describes the odds for a policyholder not making a claim, with independent variables specified by x .

$$\frac{P(x)}{1-P(x)} = \text{Odds for individual } X$$

The goal of logistic regression is to correctly predict the category of outcome for individual cases using the most parsimonious model. To this end, a model is created that includes all predictor variables that are useful in predicting the response variable (Kleinbaum and Klein, 1994). For this study, the risk of making an insurance claim are influenced by predictors such as age, distance, billed charges, sex, marital status, length of stay, health status and income level. The following logistic regression model was fitted to the data.

$$\text{Logit}(P(y = 1)) = \beta + \varepsilon + \sum_{i=1}^{k=14} \beta_i x_i \quad (6)$$

Where P s the probability of claim made, the x 's are independent variables of interest, α and the β_i are constant term and coefficients respectively representing unknown parameters and ε is the residual term. The coefficients of the model predictors are tested via the hypothesis as follows:

$$H_0: \beta_j = 0$$

$$H_1: \beta_j \neq 0 \quad j = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14$$

Once a logistic regression model has been fit to a given set of data, the adequacy of the model is examined by overall goodness-of-fit tests and examination of influential observations. One concludes a model fits if the differences between the observed and fitted values are small and if there is no systematic contribution of the differences to the error structure of the model. A goodness-of-fit test that is commonly used to assess the fit of logistic regression models is the Hosmer–Lemeshow test (Hosmer and Lemeshow, 1980). Although appropriate estimation methods which take into account the sampling design in estimating logistic regression model parameters are available in various statistical packages, there is a corresponding absence of design-based goodness-of-fit testing procedures. Due to this noted absence, it has been suggested that goodness-of-fit be examined by first fitting the design-based model, then estimating the probabilities, and subsequently using iid-based tests for goodness-of-fit and applying any findings to the design-based model (Hosmer and Lemeshow, 2000). The hypothesis for model fitness can be measured by the *Hosmer and Lemeshow test* as follows

H_0 : The model fits the data

H_1 : The model does not fit the data

3.0 Empirical Results

3.1 Descriptive Analysis

Table 3.1, shows the number of observations for the study. The total number of observations for this study was 4549. More than 50% of the people who were sampled were females (56.0%) and the rest (44.0%) were males. The table indicates the frequency of the respondents who made or did not make a claim. Majority of the respondents have made an insurance claim (92.0%), the rest have not made claims in the year (8.0%). The results indicates that majority of the respondents (46.3%) are in the age group of 18-39 years, followed by the age group 40-60 years (19.4%), the rest are in the age groups of 0-17 and 61-100 (19.2% and 15.1%) respectively. The results indicate that majority of the policyholders who made claims are among the working group aged between 18-39 years (45.2%). The results show that majority of the respondents were unmarried (58.7%) and the rest are married (41.3%). Table 3.1 shows that majority of the policyholders sampled have very good or good health status (65.3%), (24.0%) of the policyholders had fair health status and the rest had poor health status (10.7%). Again, majority of the patients that attended hospital are charged bills between GHS1-400 (58.6%), (26.2%) of the policyholders that attended hospital were billed between GHS 401-800, the rest were billed GHS 801 or more (9.7%). Majority of the policyholders who were sampled earned incomes between GHS1-1000 (54.0%), (31.4%) of the policyholders earned no income and the rest earned GHS1001 or more (14.6%). Majority of the policyholders travel less or equal to 5km to the hospital (51.2%), and the rest travel more than 5km to the hospital. Majority of the sampled policyholders used outpatient services at the hospital (57.2%), and (36.8%) used inpatient services and the rest (6.0%) had not used the hospital services in the year. Table 3.1

indicates that majority of the policyholders who were sampled had no child (48.7%), (18.8%) had one child, (17.1%) had two children and (15.4%) had three children or more. Table 3.1 also shows that more than half of the policyholders had no education or only basic education (62.7%), (15.4%) had education up to senior high school, (6.7%) of the policyholders had professional qualification and (15.2%) had education up to the degree level. (29.9%) of the policyholders were full time workers, (23.9%) were working part-time, (31.9%) were unemployed and (14.3%) were economically inactive. Majority of the policyholders that were sampled had never smoked (66.4%), (19.7%) were smokers, and (13.9%) were ex-smokers. Majority of the respondents (42.7%) were nondrinkers of alcohol, (22.9%) were ex-drinkers, (18.9%) were regular drinkers and (15.5%) were occasional drinkers of alcohol. Majority of the policyholders (58.2%) rent single rooms or double rooms as their living apartment, (22.1%) rent flats or self-contained apartments and (19.7%) of the policyholders are living in their own houses.

Table 3.1: Composition of the survey population

Age(Years)	Numbers	%
0-17	873	19.2
18-39	2105	46.3
40-60	884	19.4
61-100	687	15.1
Sex	Numbers	%
Male	2002	44.0
Female	2547	56.0
Marital Status	Numbers	%
Married	1879	41.3
Unmarried	2670	58.7
Health Status	Numbers	%
Very Good	1165	25.6
Good	1805	39.7
Fair	1092	24.0
Poor	487	10.7
Billed Charges	Numbers	%
No	250	5.5
GHS 1-400	2666	58.6
GHS 401-800	1191	26.2
GHS 801-1200	246	5.4
GHS 1201-1600	123	2.7
>GHS 1600	73	1.6
Income Level	Numbers	%
No income	1429	31.4
GHS 1-1000	2456	54.0
GHS 1001-2000	600	13.2
GHS 2001-3000	59	1.3
GHS>3000	5	0.1
Distance	Numbers	%
>5km	2220	48.8
≤ 5km	2329	51.2
Length of Stay	Numbers	%
Non	273	6.0
Outpatient	2602	57.2

Inpatient	1674	36.8
Number of Children	Numbers	%
No Child	2215	48.7
1 Child	854	18.8
2 Children	781	17.1
3+ Children	699	15.4
Level of Education	Numbers	%
No Education	972	21.4
Basic Education	1875	41.4
Senior High School	707	15.5
Professional	307	6.7
Degree	693	15.2
Employment	Numbers	%
Working full-time	1364	29.9
Working part-time	1089	23.9
Unemployment	1454	31.9
Economically Inactive	642	14.3
Cigarette Smoking	Numbers	%
Smoker	895	19.7
Ex-Smoker	634	13.9
Never Smoked	3020	66.4
Alcohol Drinking	Numbers	%
Regular Drinker	864	18.9
Occasional Drinker	702	15.5
Ex-Drinker	1041	22.9
Non-Drinker	1942	42.7
Living Condition	Numbers	%
Own House	894	19.7
Rented Flat/Self Contained	1004	22.1
Rented Single Room/Double Room	2651	58.2
Claim	Numbers	%
Yes	4185	92.0

Table 3.2 Predictor of health insurance claims: comparison between models for men and women

	Male		Female	
	Odds Ratio(95% CI) adjusted for alcohol and cigarette smoking	Odds Ratio (95% C.I.)(fully adjusted)	Odds ratio(95% CI) adjusted for alcohol and cigarette smoking	Odds Ratio (95% C.I.) (Fully Adjusted)
Age				
0-17	1.00	1.00	1.00	1.00
18-39	1.15(0.69-1.93)	1.22(0.81-1.85)	0.49(0.19-1.27)	0.61(0.32-1.19)
40-60	1.14(0.64-2.06)	1.02(0.83-1.36)	0.26(0.10-0.66)	0.57(0.28-1.13)
61-100	1.12(0.71-1.77)	0.80(0.50-1.27)	0.16(0.05-0.44)	0.62(0.30-1.25)
	P=0.891	P=0.540	P=0.208	P=0.457
Marital Status				
Married	1.00	1.00	1.00	1.00
Unmarried	1.03(0.59-1.82)	0.67(0.43-1.06)	0.68(0.41-1.15)	0.70(0.47-1.06)
	P=0.438	P=0.075	P=0.109	P=0.110
Number of Children				
No Child	1.00	1.00	1.00	1.00
1 Child	1.44(0.72-2.88)	1.08(0.66-1.96)	0.75(0.53-1.62)	0.92(0.49-1.71)
2 Children	1.25(0.62-2.57)	2.04(1.28-3.26)	0.77(0.35-1.74)	0.89(0.47-1.69)
3+ Children	1.53(0.74-3.21)	1.98(1.19-3.27)	0.52(0.23-1.20)	0.92(0.47-1.79)

	P=0.612	P=0.560	P=0.361	P=0.989
Income Level				
No Income	1.00	1.00	1.00	1.00
GHS 1-1000	1.14(0.66-1.96)	1.36(0.81-2.31)	1.21(0.81-1.85)	1.43(0.72-2.88)
GHS 1001-2000	2.10(1.10-4.03)	0.89(0.45-1.66)	1.06(0.70-1.62)	1.26(0.62-2.57)
GHS 2001-3000	1.91(1.13-3.25)	1.77(0.99-3.21)	0.81(0.50-1.25)	1.53(0.72-3.20)
GHS>3000	1.01(0.59-3.25)	0.80(0.40-1.60)	0.83(0.51-1.40)	1.52(0.86-2.60)
	P=0.403	P=0.351	P=0.540	P=0.351
Distance				
>5km	1.00	1.00	1.00	1.00
<5km	0.51(0.21-1.16)	0.76(0.54-1.61)	0.81(0.51-1.22)	1.42(0.71-2.81)
	P=0.505	P=0.454	P=0.531	P=0.347
Level Education				
No Educ.	1.00	1.00	1.00	1.00
Basic Educ.	1.20(0.76-1.93)	1.01(0.66-1.52)	1.48(0.97-2.27)	1.06(0.61-1.81)
S.H.S.	0.98(0.58-1.58)	1.91(1.12-3.23)	1.51(0.93-2.38)	0.70(0.42-1.20)
Professional Degree	0.72(0.41-1.26)	1.61(0.85-3.05)	1.18(0.81-1.59)	0.51(0.28-0.91)
	0.80(0.42-1.52)	1.97(1.01-3.90)	1.35(0.91-1.99)	0.31(0.15-0.61)
	P=0.537	P=0.067	P=0.120	P=0.194
Employment Status				
Working Full-Time	1.00	1.00	1.00	1.00
Working Part-Time	1.35(0.86-2.15)	1.51(0.85-2.69)	1.53(0.90-2.62)	1.02(0.55-1.86)
Unemployed	1.16(0.72-1.82)	0.88(0.50-1.58)	1.10(0.63-1.93)	1.67(0.89-3.07)
Econ. Inactive	1.46(0.87-2.44)	1.81(0.97-3.38)	0.61(0.31-1.20)	1.15(0.60-2.17)
	P=0.402	P=0.352	P=0.440	P=0.136
Living Condition				
Own House	1.00	1.00	1.00	1.00
Rented Flats/Self Contained	1.08(0.67-1.75)	0.77(0.44-1.29)	1.16(0.65-2.15)	1.13(0.58-2.15)
Rented Single/Double Room	2.09(0.66-1.79)	1.22(0.82-1.81)	0.80(0.51-1.25)	0.97(0.63-1.50)
	P=0.571	P=0.324	P=0.538	P=0.924
Cigarette Smoking				
Smoker	1.00	1.00	1.00	1.00
Ex-Smoker		0.73(0.45-1.15)		1.12(0.67-1.52)
Never Smoked		0.37(0.21-0.60)		1.13(0.76-1.65)
		P<0.001		P<0.001
Alcohol Drinking				
Regular Drinker	1.00	1.00	1.00	1.00
Occasional Drinker		0.72(0.46-1.15)		1.01(0.67-1.52)
Ex-Drinker		0.36(0.22-0.60)		1.12(0.76-1.67)
Non-Drinker		0.54(0.32-0.92)		1.02(0.70-1.47)
		P<0.05		P<0.05

Associations with socio-demographic variables were explored using multiple logistic regressions. The first model looked at associations of each major variable(odds ratios) adjusting for cigarette smoking and

alcohol drinking which emerged as a strong determinant in univariate analyses. The second model was fully adjusted to disentangle interactions. The dependent variable is the national health insurance claims. Independent variables were self-explanatory. The pattern was similar among men and women. When adjusted for cigarette smoking and alcohol drinking, those living in rented single rooms/double rooms were twice as likely to make national health insurance claims as those in own house. With all variables entered, cigarette smoking and alcohol drinking remained strong determinants. Women reporting no or low income status tended to make more insurance claims. Together both confirm that women have the propensity to make national health insurance claims more than men according to socio-economic characteristics. The regression model was fully adjusted, with variables entered simultaneously. Less well educated women were more likely to make an insurance claim. Disadvantaged people (younger people, with lower education and people with no income, and among women) were more likely to make an insurance claim.

Table 3.3 Age Adjusted and Age Unadjusted Odds Ratio Analysis

	Male		Female		Both	
	Age Adjusted OR CI	Age unadjusted OR CI	Age Adjusted OR CI	Age unadjusted OR CI	Age Adjusted OR CI	Age unadjusted OR CI
Age						
0-17		1.00		1.00		1.00
18-39		1.01(0.66-1.54)		1.29(0.97-1.73)		1.07(0.61-1.91)
40-60		0.81(0.43-1.39)		1.09(0.72-0.66)		1.22(0.89-1.65)
61-100		0.94(0.54-1.62)		0.92(0.56-1.61)		1.24(0.83-1.83)
Marital Status						
Married	1.00	1.00	1.00	1.00	1.00	1.00
Unmarried	0.82(0.61-1.10)	0.83(0.62-1.11)	0.99(0.62-1.58)	0.98(0.60-1.56)	1.11(0.67-1.56)	0.57(0.36-0.90)
Number of Children						
No Child	1.00	1.00	1.00	1.00	1.00	1.00
1 Child	0.58(0.36-0.91)	1.18(0.78-1.77)	0.42(0.08-2.20)	0.73(0.17-3.26)	0.75(0.19-2.97)	0.92(0.47-1.80)
2 Children	0.49(0.26-0.91)	1.12(0.76-1.65)	0.76(0.18-3.23)	0.42(0.08-2.09)	0.72(0.17-3.08)	0.65(0.25-1.71)
3+ Children	0.52(0.26-0.96)	1.01(0.12-4.32)	0.78(0.19-3.23)	0.75(0.18-3.08)	1.35(0.82-2.17)	0.88(0.55-1.40)
Income Level						
No Income	1.00	1.00	1.00	1.00	1.00	1.00
GHS 1-1000	1.41(0.86-2.28)	0.39(0.08-1.95)	0.95(0.14-5.23)	0.40(0.04-3.50)	0.78(0.50-1.23)	0.80(0.36-1.76)
GHS 1001-2000	1.00(0.48-2.02)	0.70(0.16-2.89)	1.21(0.65-2.26)	2.08(0.28-7.32)	1.10(0.68-1.37)	0.57(0.21-1.48)
GHS 2001-3000	0.73(0.27-1.95)	0.71(0.18-2.70)	1.78(0.58-1.06)	0.85(0.57-1.27)	0.78(0.58-1.06)	1.18(0.73-1.90)
GHS>3000	0.82(0.52-1.31)	0.67(0.16-2.82)	1.10(0.47-2.57)	0.82(0.55-1.20)	0.85(0.63-1.15)	0.93(0.58-1.51)
Distance						
>5km	1.00	1.00	1.00	1.00	1.00	1.00
<5km	0.95(0.38-2.41)	2.17(1.40-3.29)	0.71(0.40-1.22)	1.20(0.71-2.04)	0.51(0.26-0.96)	1.57(0.56-4.14)
Level Education						
No Educ.	1.00	1.00	1.00	1.00	1.00	1.00
Basic Educ.	0.85(0.39-1.85)	0.92(0.36-2.31)	0.99(0.40-2.46)	0.90(0.50-1.62)	0.95(0.53-1.71)	2.35(1.46-3.56)
S.H.S.	0.57(0.23-1.51)	1.04(0.30-3.68)	1.06(0.30-3.57)	0.75(0.35-1.60)	0.77(0.37-1.62)	2.09(1.37-3.20)

Professional	1.15(0.73-1.86)	0.71(0.51-1.02)	0.73(0.52-1.04)	0.97(0.75-1.25)	0.96(0.75-1.22)	1.62(0.94-2.77)
Degree	0.90(0.51-1.45)	0.97(0.69-1.35)	1.05(0.77-1.44)	1.25(1.01-1.56)	1.25(1.02-1.55)	0.96(0.71-1.30)
Employment Status						
Working Full-Time	1.00	1.00	1.00	1.00	1.00	1.00
Working Part-Time	2.40(1.50-3.81)	0.99(0.73-1.33)	1.56(0.58-4.17)	0.90(0.63-1.30)	1.10(0.70-1.36)	1.60(1.16-2.21)
Unemployed	2.18(1.44-3.31)	0.94(0.65-1.38)	1.25(0.76-2.11)	1.50(0.57-3.91)	0.28(0.11-0.69)	1.02(0.68-1.52)
Econ. Inactive	1.70(1.00-2.87)	1.26(0.77-2.06)	1.18(0.73-1.90)	1.11(0.71-1.35)	1.36(1.02-1.82)	1.13(0.77-1.68)
Living Condition						
Own House	1.00	1.00	1.00	1.00	1.00	1.00
Rented Flats/Self Contained	1.02(0.70-1.48)	0.81(0.52-1.26)	0.98(0.64-1.50)	1.20(0.71-2.03)	1.22(0.81-1.85)	0.80(0.50-1.27)
Rented Single/Double Room	1.17(0.64-2.14)	1.13(0.59-2.16)	0.76(0.45-1.30)	0.95(0.63-1.42)	1.07(0.70-1.63)	0.85(0.51-1.41)
Cigarette Smoking						
Smoker	1.00	1.00	1.00	1.00	1.00	1.00
Ex-Smoker	1.03(0.59-1.82)	0.68(0.40-1.16)	1.21(0.76-1.94)	0.73(0.42-1.27)	1.36(0.86-2.16)	1.52(0.86-2.70)
Never Smoked	0.67(0.43-1.06)	0.70(0.47-1.06)	0.98(0.60-1.60)	0.81(0.43-1.51)	1.16(0.73-1.84)	1.47(0.88-2.44)
Alcohol Drinking						
Regular Drinker	1.00	1.00	1.00	1.00	1.00	1.00
Occasional Drinker	0.49(0.26-0.91)	1.22(0.65-2.26)	1.10(0.69-1.38)	2.34(1.46-3.75)	2.40(1.50-3.82)	1.26(0.77-2.07)
Ex-Drinker	0.52(0.27-0.97)	2.08(0.29-7.45)	0.80(0.36-1.77)	2.09(1.37-3.20)	2.18(1.44-3.31)	1.57(0.59-4.18)
Non-Drinker	1.23(0.82-1.82)	1.78(0.98-3.34)	1.26(1.01-1.57)	1.71(0.94-2.77)	1.70(1.00-2.88)	1.25(0.77-2.01)

Among males, health insurance claims was statistically significantly associated with both age and sex in the age adjusted models, and tended to be lower in those living in their own houses and those who earn no income or have lower income. In the age adjusted model, the indicators remained statistically significantly associated with national health insurance claims. Those having no education, basic education and senior high school were clearly strongly more likely to make an insurance claims in the age un-adjusted models. After adjusting for age, the situation remained unchanged except those with professional qualification. Those working full time were less likely to make national health insurance claims; this remained the same after adjusting for age. However, both income and marital status showed weak and inconsistent association with insurance claims in both age un-adjusted and age adjusted models. In both age unadjusted and age adjusted models, health insurance claims was weakly associated with marital status and income. Among males, health insurance claims were inconsistently associated with all the variables except cigarette smoking and alcohol drinking in both age -adjusted and age -unadjusted models.

Reference to females, health insurance claims was consistently associated with all the variables. Women with higher level of education were less likely to make an insurance claim than those who were less educated or have no education. This association remained unchanged after readjusting for the variables. Comparing to males, health insurance was also associated with higher education as degree holders and professionals were less likely to make an insurance claim. Among females, health insurance claims was associated with those with no income or less income, comparing to men, there was a statistically significant association with women. After adjusting for age, all the variables studied remain unchanged.

4.0 Conclusion

The objective was to find out the gender disparities in the Ghana National Health Insurance claims. Among men, the younger people prefer attending hospital for treatment as compared to their adult counterparts. In contrast to women, younger women favor attending hospital for treatment as compared to their adult counterparts. Among men, various levels of income impact greatly on their propensity to make an insurance claim, whereas among women only the highest income level did as compared to lowest income level.

Men in the middle income were as twice as likely to make an insurance claim as compared to their counterparts in the lowest income bracket where as in the upper of men and women, reverse is the case, interestingly women in the middle to upper levels of income earning rather made less insurance claims compared to the lowest income bracket. However, it only occurred in the highest income level for men, again women with degree and professional qualification made less insurance claims compared to their lowest counterpart. The situation in men did not exist because they were statistically insignificant. This is in clear support of past literature that socio-economic condition affects health insurance claims (Aikins et al.; dale et al., 2012). Recent literature has identified income and production resources as good predictors of quality health (somkotra, 2013, li et al., 2007). People living on low incomes have been identified as standing higher risk of suffering serious illness and death than those in upper income brackets such people with reasonably high saving are less prone to predisposing illnesses.

Men, who completed senior high school education, were less likely to make an insurance claim as compared to their counterparts with basic or no education. However it was women who had basic education that preferred using the hospital as compared to their more educated counterparts. Women who completed tertiary education were less likely to make an insurance claim as compared to the non-educated. In the case of women, it was rather those who completed secondary educating that showed similar preference. Again, women who had only primary education were less likely to make an insurance claim as compared to non educated counterparts. It is rather women with no education that showed similar characteristics.

This conforms with existing literature that postulates that out-of-pocket payment system that was introduced as part of the Structural Adjustment Programme was a major hindrance to healthcare utilization. The introduction of the National Health Insurance Scheme in the middle of the last decade sought to bridge the accessibility gaps in terms of affordability; however a lot more need to be done to meet the objective of improved access. The scheme is credited for bringing some improvements to the health indices of the country in terms of life expectancy and infant mortality.

The economically inactive male and female made more insurance claims as compared to their counterparts working full time. Among men the unemployed also made more insurance claims compared to their counterparts who were fully employed. In contrast, women, who were unemployed, had similar results compared to their counterparts who were fully employed. Among younger men with various levels of health status made more insurance claims as compared to those whose status are very good. Fair and poor health status levels also used more health services in relation to very good health status. In contrast to men, women health status (very bad) made more insurance claims as compared to very good health status.

Following the transition from health services provided free at the point of service, to the introduction of user charges, health insurance is now high on the policy agenda in Ghana. Whilst user charges were introduced primarily as a response to financial sustainability concerns, interest in health insurance is driven more by a concern over income-related inequalities in access to services. However, the widespread introduction of health insurance schemes is motivated primarily by theoretical frameworks, which evolved in the context of wealthy countries. The structure of economy and society in Ghana tends to be very different, for example in terms of the extent of informal activity, subsistence agriculture, relatively closed traditional communities, and the effective regulation of health professionals.

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