An assessment of Regional and Gender equity in healthcare coverage under different healthcare policies in Ghana

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Abstract

The study assesses regional and gender equity in healthcare coverage under two different healthcare policies – the Medium-Term Health Strategy (MTHS) and the National Health Insurance Scheme (NHIS) – among 10 regions in Ghana. The Afrobarometer survey round 1, conducted in 1999; round 2, conducted in 2004; round 4, conducted in 2008; and round 5, conducted in 2012, as well as data from the Ministry of Health were used in the study. Using annual growth rates of the proportion of the respondents who had access to healthcare from various regions in Ghana – based on 1999, 2004, 2008 and 2012 equities – the healthcare coverage in 2025 (a post MDG era) was estimated. There were significant regional inequities for the National and Gender levels for all the four rounds of the survey. Among the respondents who always had healthcare access, between 1999 and 2012 there were 32%, 29% and 36% significant percentage increases for the whole Nation pertaining to Male and Female respondents respectively. Based on annual healthcare coverage growth rates, most of the south-western and forest regions such as Western, Ashanti, Brong-Ahafo, Central and Eastern regions will achieve more than 85% coverage by the year 2025, while other regions such as the Northern, Upper East, Upper West and Volta regions may attain less than 60% coverage by 2025. It is therefore strongly recommended that other African countries, especially those struggling with universal healthcare coverage, adopt and implement the principle of health insurance for all, as it is currently done in Ghana.

Keywords: Medicine, Health Insurance, GIS, Afrobarometer, NHIS, health-coverage

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Introduction

Equity in access to healthcare is fundamental to every country's health policy. It is for this reason that the Millennium Development Goals (MDG) 5 and 6 have been the central catalyst prompting countries, especially low-income ones, to increase access to healthcare for their citizens by 2015. The countries with high economic growth rates and political commitments have seen some progress (MDG, 2012); however, inequities between the rich and the poor still exist in most developing countries (O'Donnell et al., 2011). In an attempt to reverse such inequities, most countries are moving from "user fees" based services to health insurance based services in order to improve universal coverage (Yazbeck, 2009). This is why WHO has advocated for Universal Health Coverage (UHC) to ensure "that all people obtain the health services they need without suffering financial hardship when paying for them." (WHO, 2014) Currently, only about two dozens of countries in the world have applied the principle of insurance for universal coverage; and over the last twenty years, BRICS countries (Brazil, the Russian Federation, India, China and South Africa) have been undertaking health-system reforms to make progress towards universal health coverage (Acharya et al., 2014; WHO, 2014).

The lack of financial resources is creating many inequities in healthcare coverage in Africa. Bour (2004a) revealed that in Ghana females, who are mainly poor, utilised health services less than males. In Burkina Faso, despite the fact that HIV-positive women were more frequently and seriously exposed than men, Bila and Egrot (2009) noted that "more HIV-positive women than HIV-positive men are attending care facilities for people living with HIV/AIDS (PLWH) and accessing antiretroviral medicine." In Nigeria, Onwujekwe (2005) found that the pro rich social groups are normally found at primary healthcare centres and hospitals, while the poor used herbalists, patent medicine dealers and community health workers. In Ghana, Sato (2012) also revealed that there are considerable inequities in the utilization of modern medicine. Modern medicine (from public institutions or private sources, and by self) is patronized by pro rich groups and traditional medicine (by self and through healers) is used by the pro poor. The Uganda Demographic Survey revealed that infant mortality tended to be twice as high for the poorest quintile compared to the rich (Kiwanuka et al., 2008). Despite these inequities, a few countries in Africa such as Rwanda and Ghana have implemented health insurance towards achieving UHC (Carbone, 2012; Diop et al., 1995; Tetteh, 2012).

Since independence, Ghana has been reforming its health sector in order to improve regional and gender equities (Agyepong & Nagai, 2011; Buor, 2004; Jehu-Appiah et al., 2011). Under British colonial rule, Ghana, then the Gold Coast, implemented relatively low user charges to make health services vastly more available to all regions in Ghana, but the charges affected equity in access to healthcare (Carbone, 2012). Upon the attainment of independence in 1957, Ghana's first President, Kwame Nkrumah, immediately abolished the user fee charges and implemented free universal coverage of health services that was financed through general Taxation (Carbone, 2012). In the 1970s, the successive governments of the post-Nkrumah era, aiming to provide healthcare for all by the year 2000, introduced the Hospital Fees Decree for health services that were being financed by a hybrid of user fees and general taxation (Canagarajah & Ye, 2001). The severe economic crisis that hit the country in early 1980s

impacted the resources available to the health sector, which resulted in the deterioration of health status for most of the population in Ghana (Canagarajah & Ye, 2001). In 1985, under the Structural Adjustment Programme, Ghana introduced Hospital Fees Regulation involving substantial cost recovery. The user fee healthcare scheme in the 1970s and 1980s brought high regional and gender inequities because the poor regions in Ghana could not afford the charges (Canagarajah & Ye, 2001).

The full cost recovery for drugs was implemented in what is locally known as "Cash and Carry" in the early 1990s when multiparty democracy was restored in Ghana. The out-of-pocket portion of the hospital user fees borne by patients was substantial, and this further aggravated regional disparity in healthcare in Ghana. The Medium-Term Health Strategy (MTHS) was launched and implemented, from 1995 to 1999, by former President Jerry John Rawlings' National Democratic Congress (NDC) government. Spatially, "Ghana's MTHS aims at strengthening district health services, promoting community involvement in the delivery of health services, [and] redirecting health resources to the needy or deprived areas." (MOH, 2000) In the year 2000, when the NDC lost the multiparty general elections, the MTHS continued to be implemented by the successor government of the New Patriotic Party (NPP). The NPP eventually discontinued the MTHS program in early 2005. Although, MTHS was the first major policy towards a spatial balance in access to healthcare in Ghana, it was substantially user fees based (Canagarajah & Ye, 2001). The MTHS was based on a sector-wide national planning policy aimed at pooling donors' resources and user fee contribution (Asante & Zwi, 2009; A. D. Asante et al., 2006; Buor, 2004).

Following the campaign promise by New Patriotic Party (NPP) presidential candidate, John A. Kuffour, the National Health Insurance Act was passed by Ghana's parliament in mid-2003, resulting in the launch of the National Health Insurance Scheme (NHIS) in March 2004, and full implementation nationwide in early 2005 (Carbone, 2012). The NHIS has remained in place since its full implementation under the NPP government even after the NPP lost political power to the NDC during the last multiparty democratic elections in 2008. The NHIS is financed through mandatory individual premiums, a health tax on commercial transactions, and the transfer of a small percentage of formal sector workers' contributions towards retirement benefits. The scheme is divided into 3 types: 1) The District-Wide Mutual Health Insurance Scheme 2) The Private Mutual Health Insurance Scheme and 3) The Private Commercial Health Insurance Scheme. The Government of Ghana fully supports the District-Wide Mutual Health Insurance Scheme in order to ensure that: opportunity is provided for all Ghanaians to have equal access to the functional structures of health insurance; Ghanaians do not move from an unaffordable 'Cash and carry' regime to another unaffordable Health Insurance scheme; and a sustainable Health Insurance option is made available to all Ghanaians. The District-Wide Mutual Health Insurance Scheme, supported by the government, ensures that each district is divided into Health Insurance Communities so that Health Insurance can be brought to the door step of all Ghanaians, with the aim of achieving universal coverage within 5 years, that is, by the year 2010 (Mordenghana, 2005).

The main aim of this study is to map and assess regional and gender equity in healthcare coverage under two different healthcare policies – the MTHS, implemented in 1995 in the pre-MDG (Millennium Development Goals) era; and the NHIS, implemented in 2005 in the MDG era – among 10 regions in Ghana. The key question here is whether universal health coverage, in terms of Gender and Space, is achieved in all the ten regions in the country. To answer the above question, first, this study compares the contribution of the two policies. Second, the study assesses gender disparity in access to health in all the 10 regions in Ghana over the 13 year period (1999-2012). Third, the study attempts to predict the likely outcome of NHIS in post MDG, for example, by the year 2025, in terms of the proportion of people that will have access to healthcare in all the ten regions. Finally, the study seeks to check the general level of regional disparity in healthcare coverage in Ghana.

The main hypothesis of the study is that healthcare coverage has not significantly increased under NHIS. The second hypothesis of the study is that universal healthcare coverage was not achieved in 2012 and will not be achieved by 2025, based on the growth rate from 1999 to 2012. Third, within a certain policy implementation, a particular government cannot significantly change healthcare coverage in Ghana; and fourth, there is no regional or gender disparity in healthcare coverage in Ghana. In this study healthcare coverage is estimated and assessed using the WHO (2010) definition of Universal Health Coverage, which states that such coverage "is achieved when nearly everyone in a population is covered for almost all of their health needs irrespective of the costs involved (noting that virtually no country has yet achieved 100% coverage)" (Fried et al., 2013).

Geography and Healthcare Access Theories

Geographers have developed different theoretical frameworks to examine healthcare access and utility. Shannon (1975) conceptualized healthcare accessibility in terms of distance or locational proximity between patients and health facilities. It has been documented that individuals who live near healthcare facilities tend to have better access and coverage than those living far from such locations (Hawthorne & Kwan, 2013). The Shannon conceptual framework seems to have been widely adapted in recent times, as different frameworks tend to use a modified version of it. Haynes (1999) developed a population-to-provider approach that is based on the supply–demand ratio. Guagliardo (2004) has criticized it for failing to account for bypassing behaviour and border crossing of patients as well as failing to consider travel times between provider and facility. The straight line distance between provider and patient framework is an improvement over the population-to-provider approach (Hawthorne & Kwan, 2013). However, the method is limited by the fact that street networks are complex and straight line travel is nearly impossible in most locations (Hawthorne & Kwan, 2013). Therefore, street network measures offer an improved alternative over the straight line distance between provider and patient framework by considering the routes used by an individual to arrive at his/her facility (Hawthorne & Kwan, 2013 ; McGregor et al., 2005). Through improved street network procedures, further details such as posted speed limits, traffic signals,

visible stop signs and the direction that a patient travels should all be taken into consideration (Hawthorne & Kwan, 2013).

Health geographers also use different versions of techniques and models of accessibility measures that consider the effect of distance decay (Joseph & Bantock, 1982). The gravity-based accessibility measures also consider both spatial and non-spatial factors of healthcare. With gravity-based measures, researchers can consider physician supply, population demand and travel times together through the two-step floating catchment area method to evaluate accessibility (Hawthorne & Kwan, 2013).

Though distance based frameworks dominate health accessibility studies, some researchers have emphasized the need to broaden our conceptual frameworks to include utilization and consumer satisfaction as important dimensions of healthcare accessibility (McLafferty, 2003). McLafferty, for instance, defines accessibility as a concept which ‘‘describes people’s ability to use health services when and where they are needed’’ (McLafferty, 2003, p. 28). McLafferty used a Geographic Information System (GIS) to analyse healthcare accessibility (McLafferty, 2003). This study uses GIS to map healthcare coverage in Ghana.

Materials and Methods

The Study Area and the Healthcare System in Ghana

There are 10 administrative regions in Ghana and they are Ashanti, Greater Accra, Eastern, Volta, Western, Brong-Ahafo, Central, Northern, Upper East and Upper West. These regions are normally divided into 3: the coastal ones in the south, the forest ones in the middle, and the northern savannah regions. The south coastal regions include Greater Accra, Central and southern parts of the Volta and Western regions; the middle forest regions include Ashanti, northern Volta, northern Western and Brong-Ahafo; and the northern savannah regions include Northern, Upper East and Upper West (See Figure 1). In terms of resource allocation and distribution of income, the northern savannah regions are generally poorer than the southern ones. (Asante et al., 2006; Sato, 2012).

The Ghana health sector is managed by two institutions: the Ministry of Health (MOH) and the Ghana Health Services (GHS). MOH is responsible for budgetary allocation and policy formulations while GHS is responsible for the implementation of the budget and policies. GHS has offices at both the regional and district levels. Private health services and NGOs are also very active. Health facilities in Ghana’s rural areas consist of five levels while those in the urban areas consist of four levels. The urban levels are health centres or clinics, district hospitals, regional hospitals and tertiary hospitals. In addition to all the urban health facilities, rural levels also have health posts or outreach sites as their first-level. Currently, there are four teaching hospitals in Ghana and they are found in Accra in Greater Accra, Kumasi in the Ashanti Region, Cape Coast in the Central Region, and Tamale in the Northern Region (Figure 1). Additionally, there are regional hospitals in each of the regions except Ashanti (Canagarajah & Ye, 2001).

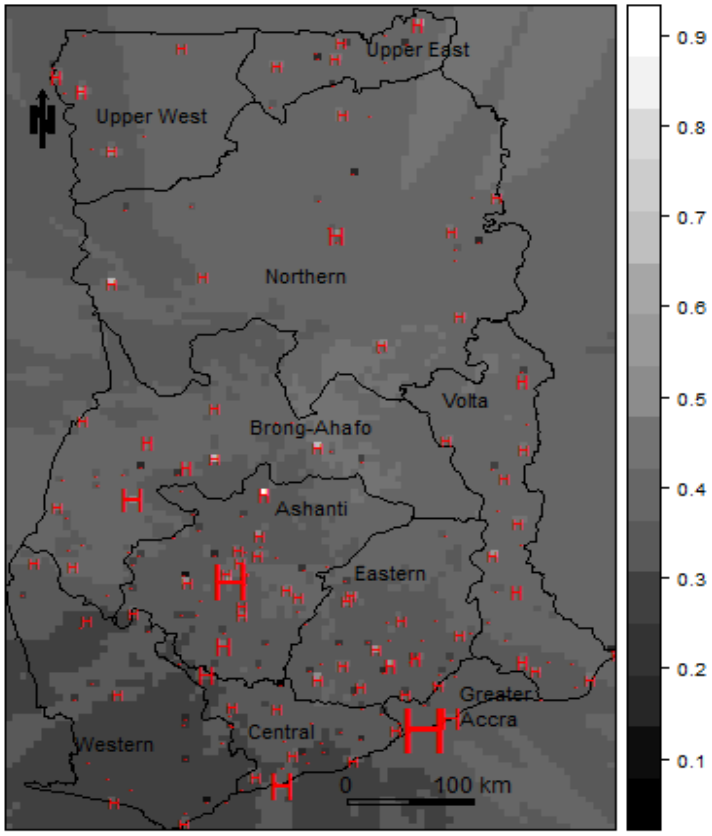

Fig 1: The distribution and the probability of finding a healthcare centre in the 10 regions of Ghana. The probabilities were estimated with Indicator kriging of health centre locations.

The Study Design, Variables Selection and Data Collection

In this study healthcare coverage was estimated and assessed using the WHO (2010) definition of Universal Health Coverage*:* the proportion of the population that have access to healthcare (Fried et al., 2013). The study used data from 4 Afrobarometer surveys: round 1, conducted in 1999; round 2, conducted in 2004; round 4, conducted in 2008; and round 5, conducted in 2012. There were 2004, 1200, 1200, and 2399 respondents in the 1999, 2004, 2008, and 2012 survey years respectively (Table 1). The data comprised representative samples drawn according to a multistage, stratified, clustering procedure for the 10 regions of Ghana for all the survey years (Afrobarometer, 2012; Justesen & Bjørnskov, 2011). In this study, one variable labelled "gone without healthcare" was analysed for all the 4 survey years. In 1999, the healthcare question asked was "Over the past year, how often, if ever, have you gone without healthcare for your family?" It had optional answers that included 'Never', 'Occasionally', 'Frequently', and 'Always'. In 2004, 2008 and 2012, the healthcare question asked was "Over the past year, how often, if ever, have you or your family gone without: Medicines or medical treatment?" It had optional answers including 'Never', 'Just once or twice', 'Several times', 'Many times', and 'Always'. In order to help inter survey analyses, the options "Several times" and "Many times" for years 2004, 2008 and 2012 were merged to conform to the 1999 option "Frequently". In

total, four options of "Never", "Occasionally", "Frequently" and "Always" were therefore used in this study.

Table 1: The Sample size of the study

Region	**1999**	**2004**	**2008**	**2012**	**Total**
Ashanti	345	232	232	469	1278
Brong-Ahafo	212	120	112	215	659
Central	234	104	104	208	650
Eastern	224	136	136	255	751
Greater Accra	317	184	184	445	1130
Northern	139	112	112	213	576
Upper East	62	56	56	95	269
Upper West	21	40	40	64	165
Volta	214	104	104	206	628
Western	236	112	120	229	697
Total	2004	1200	1200	2399	6803

The data was analysed on 3 levels: for the whole nation, for males only, and for females only. The segmented nominal data was then cross-tabulated into the 10 regions of Ghana on the rows of the table, and the correspondent answers to the questions placed on the columns for each survey. At this stage a Chi-Square test was performed on regional disparity of heath care access. In order to remove bias and to induce comparison across the years and regions, all the statistical and GIS mapping were performed on the cross-tabulated row percentages. The statistical analyses were done in R statistical software (R Development, 2011). In R, the significant differences between the 4 years were assessed using a non-parametric Mann-Whitney U Test. The non-parametric test was used due to the following reasons: (1) the small sample size (i.e., 10 rows) of the aggregate data and (2) the non-normality distribution of the count data that were converted into percentages.

The 2025 projections were performed using percentage growth theory. First, the percentage growth rate for each category (National, Males or Females) from 1999 to 2012 was estimated as:

$$R_{ij} = \left(\frac{\left(H_{2012ij} - H_{1999ij}\right) / H_{1999ij}}{n} \right) \times 100\% \quad \text{……………………………………………… (1)}$$

where R is the percentage growth rate for each region i (=Ashanti, Greater Accra, Eastern, Volta, Western, Brong-Ahafo, Central, Northern, Upper East or Upper West); H is the

proportion of the respondents with/without healthcare for each option j (= Never, Just once or twice, or frequently, or Always) for years 1999 and 2012; and n is the difference between the years 2012 and 1999 (=13 years). The 2025 projected healthcare (H_{2025}) status for each region and each option (j) were then estimated as:

$$H_{2025ij} = H_{1999ij} + \left(H_{1999ij} \times \frac{R_{ij}}{100} \times t \right) \quad \text{..... (2)}$$

where t is the number of years since 1999 (=26 years by 2025). Equation (2) can be used to estimate Healthcare status for any region for any option in any year. The number of healthcare centres in various towns in Ghana was collected from Ministry of Health (MOH-Ghana).

The GIS workflow

The Geographic Information System analyses were also done in R spatial packages (R Development, 2011). The afrobarometer data was first imported into R. After the data was aggregated according to the 10 regions in Ghana, it was joined to a regional map of Ghana using 'spCbind' in a maptools package. The matrix maps were plotted using 'spplot' in an sp package (Bivand et al., 2008; Pebesma & Bivand, 2011).

Results

The proportion of the respondents who had never gone without healthcare

The National, Male, and Female regional disparities of the proportion of the afrobarometer respondents who always had access to healthcare in the ten regions of Ghana for the years 1999, 2004, 2008 and 2012 are shown in Figure 2 and Table 2. A Chi-squared test of independence showed significant regional disparities for the National, Male and Female levels for all the four survey years ($p=0.000$). In 1999, at the national level, 53% of the respondents always had access to healthcare and by 2004 it decreased to 41%. However, in 2008 and 2012, it increased to 59% and 70% respectively (Figure 2 and Table 2). The independent 2-group Mann-Whitney U Test shows that there was a 32% significant increase in the proportion of the population who always had access to healthcare between 1999 and 2012 ($p<0.05$).

In 1999, in terms of healthcare coverage, regions in Ghana were ranked, from the best to worst on Table 2. All the regions in Ghana, except the Upper East, experienced an increase in the proportion of its population who always had access to healthcare from 1999 to 2012. However, there were marginal increases in the Greater Accra, Upper West and Northern Regions (Table 2). Though there were significant regional disparities in access to healthcare in the 1990s, with most regions having less than 60% of the population always enjoying healthcare, by 2008, Figure 2 shows that Greater-Accra, Eastern, Ashanti and Brong-Ahafo were better than the other regions. And in 2012, it was quite clear that all the southern regions were better than their northern counterparts, which was clearly in contrast with the case in 1999.

Table 2: The ranking of Regions in Ghana based on the proportion of the respondents who always had access to healthcare

	National		**Male**		**Female**	
Region	1999	2012	1999	2012	1999	2012
Greater Accra	1 (72)	5 (74)	1 (78)	6 (70)	1 (66)	4 (78)
Central	2 (59)	2 (83)	2 (64)	2 (83)	2 (54)	2 (84)
Upper West	3 (57)	8 (61)	3 (63)	8 (63)	3 (54)	8 (59)
Brong-Ahafo	5 (52)	3 (79)	5 (54)	3 (73)	4 (51)	3 (81)
Upper East	4 (53)	9 (52)	4 (60)	9(49)	7 (49)	9 (55)
Eastern	5 (52)	1 (91)	7 (47)	1 (92)	5 (58)	1 (90)
Volta	5 (52)	7 (62)	6 (54)	7 (66)	8 (48)	7 (59)
Ashanti	8 (46)	5 (74)	10(39)	5 (72)	6 (53)	6 (72)
Western	9 (42)	4 (76)	8 (40)	4 (75)	9 (44)	5 (76)
Northern	10(42)	10 (49)	9 (40)	9 (50)	10 (41)	10 (48)

Note: The percentages are in brackets

Among the **male** respondents who always had access to healthcare, the following percentages: 54%, 41%, 59% and 70% were recorded in 1999, 2004, 2008, and 2012 respectively (Figure 2). The independent 2-group Mann-Whitney U Test showed that there was 29 per cent significant percentage increase ($p<0.05$) from 1999 to 2012. Also, among the **female** respondents who always had access to healthcare, 52%, 40%, 60% and 70% occurred in 1999, 2004, 2008, and 2012 respectively (Figure 2 and Table 2). There was 36% significant increase from 1999 to 2012 ($p<0.01$).

In 1999, in six regions – Greater Accra, Central, Brong-Ahafo, Volta, Upper East, and Upper West – more males had access to healthcare than females; and in four other regions – Ashanti, Eastern, Western, and Northern – more females accessed healthcare than males (Table 2). In 2004, in 5 regions – Greater Accra, Central, Upper West, Upper East, and Volta – more males had access to healthcare than females; and in five other regions – Ashanti, Eastern, Western, Brong-Ahafo, and Northern – more females had access to healthcare than males. In 2008, in 3 regions – Central, Upper East, and Volta – more males had access to healthcare than females; and in six other regions – Ashanti, Eastern, Western, Northern, Upper West, and Greater Accra – more females had access to healthcare than males. However, in the Brong-Ahafo region, there was an equal proportion of males and females accessing healthcare in Ghana in 2008 (Figure 2). In 2012, in 4 regions – Upper West, Northern, Volta, and Eastern – more males had access to healthcare than males; while in 6 regions - Western, Brong-Ahafo, Central, Greater Accra, Ashanti, and Upper East – more females had access to healthcare than males. Therefore, the number of regions where the proportion of females had more access to healthcare than

males increased from 4 in 1999 to five in 2004 to six in 2008 and back to five in 2012. The females are progressively doing better than the males (Figure 2 and Table 2).

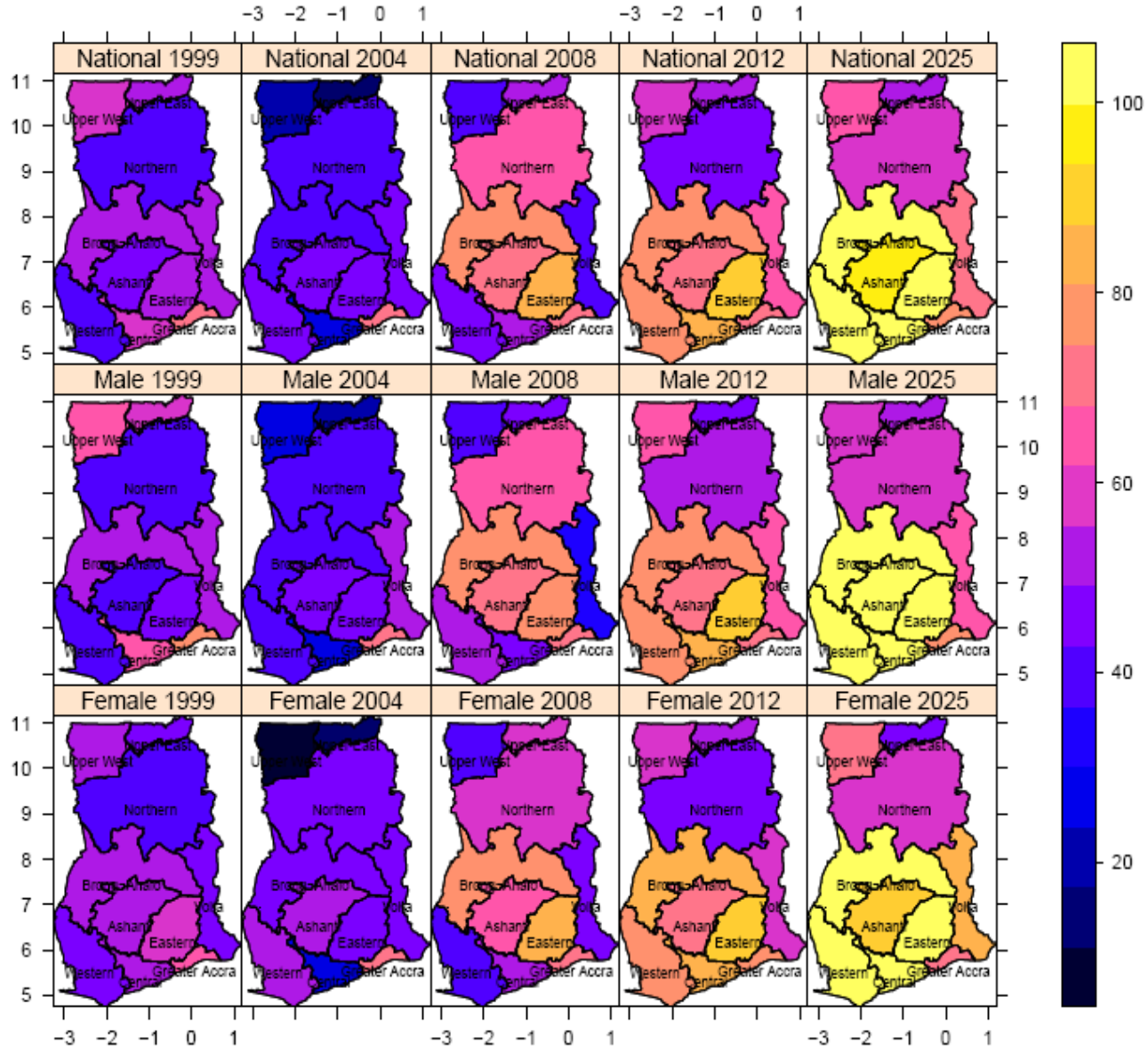

Fig 2: The percentage of respondents who always had access to Healthcare from 1999 to 2012 in Ghana and the projection of those who will *never* go without Healthcare by 2025.

Figure 2 also shows the outlook of the proportion of people who will never go without healthcare by 2025. Based on annual regional growth rates from 1999 to 2012, all the regions, except Greater Accra and Upper East (specifically, the male variable), will see an increase in the proportion of their population receiving healthcare. The males in Greater Accra and Upper East experienced a negative growth rate and therefore are projected to see a decrease in the number of people receiving healthcare, if no intervention is made (Equation 2 and Figure 2). It is also projected that the south-western part of Ghana will continue to receive more access to healthcare than the northern part. If no intervention is made, none of the three northern regions

– Northern, Upper East, and Upper West – will even reach the 2012 southern western levels in 2025.

The proportion of the respondents who had occasionally gone without healthcare

The proportion of the respondents who had once or twice gone without healthcare in the ten regions of Ghana for the years 1999, 2012, and 2025 at the National, Male and Female levels are shown in Figure 3. At the national level, the independent 2-group Mann-Whitney U Test showed that there was a 55% significant decrease in the proportion of the respondents who had once or twice gone without healthcare between 1999 and 2012 ($p<0.01$). All the regions in Ghana, except Volta and Greater Accra, experienced a decrease in the proportion of their population who had once or twice gone without healthcare from 1999 to 2012 (Table 3). There was no conspicuous regional pattern of the proportion of the respondents that had once or twice gone without healthcare in Ghana from 1999 to 2012. By 2025, this study projected that all regions – except Greater Accra and Volta – will have a lower percentage of their population *'once or twice'* going without healthcare (Figure 3).

Table 3: The 1999 ranking of Regions in Ghana based on the percentage of the respondents who occasionally had access to healthcare

	National		**Male**		**Female**	
Regions	1999	2012	1999	2012	1999	2012
Western	41.90%	9%	41.20%	9%	42.70%	10%
Northern	41.30%	15%	44.10%	14%	38.60%	15%
Upper East	40.30%	24%	32.00%	24%	45.90%	25%
Upper West	33.30%	9%	37.50%	7%	30.80%	11%
Ashanti	29.90%	10%	32.40%	8%	27.60%	12%
Eastern	29.50%	5%	35.10%	4%	23.90%	6%
Central	25.60%	9%	25.20%	8%	26.10%	11%
Volta	24.40%	28%	24.80%	26%	23.80%	31%
Brong-Ahafo	23.60%	12%	22.00%	12%	25.50%	12%
Greater Accra	16.80%	17%	12.70%	20%	21.50%	15%

Among the proportion of **male** population who had once or twice gone without healthcare (Figure 3), there was a 57% significant decrease from 1999 to 2012 ($p=0.002$). Also, among the proportion of **female** population who had once or twice gone without healthcare (Figure 3), there was a 52% significant decrease from the 1999 mean to the 2012 mean ($p=0.003$). In

1999, in 5 regions – Volta, Ashanti, Eastern, Western, Upper West, and Northern– more males had once or twice gone without healthcare than females; and in 5 other regions – Greater Accra, Central, Brong-Ahafo, Upper East, and Western– more females had once or twice gone without healthcare than males (Table 3). In 2004, in 5 regions – Greater Accra, Eastern, Western, Upper West, and Upper East,– more males had access to healthcare than females; and in five other regions – Ashanti, Brong-Ahafo, Volta, Central and Northern – more females had once or twice gone without healthcare than males.

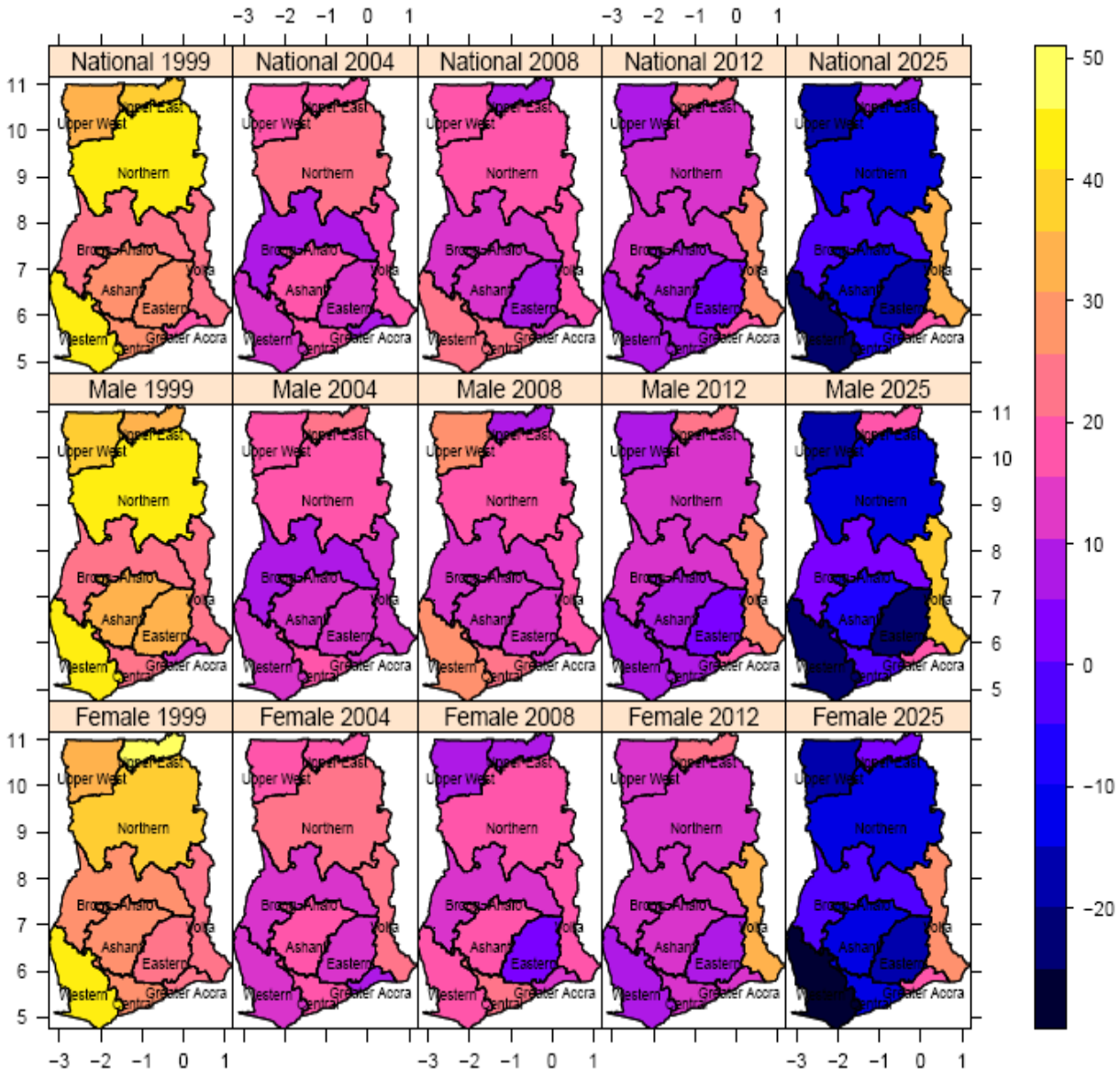

Fig 3: Percentage of respondents who have ever gone *once* or *twice* without healthcare and the projection of those who will *occasionally* go without healthcare by 2025

In 2008, in 3 regions – Central, Upper East, and Volta – more males had once or twice gone without healthcare than females; and in six other regions – Ashanti, Eastern, Western, Northern, Upper West, and Greater Accra – more females had access to healthcare than males. The 2012 figures indicate that it was only in Greater Accra that more males had once or twice gone without healthcare than females; while in 7 regions more females had once or twice gone

without healthcare than males (Table 3). Brong-Ahafo had an equal number of respondents for both males and females who had once or twice gone without healthcare. Therefore, the number of regions, where more females than males had once or twice gone without healthcare , increased from 5 in 1999 to 6 in 2008 and to 7 in 2012 (Figure 3). In 2025, based on annual regional growth rates from 1999 to 2012, only in Greater Accra and Upper East will more males once or twice go without healthcare than females; while only in Volta will more females once or twice go without healthcare than males. All the seven other regions will be equal.

The proportion of the respondents who had frequently gone without healthcare

The proportion of the respondents who frequently went without healthcare in the ten regions of Ghana for the years 1999, 2012 and 2025 at National, Male and Female levels are shown in Figure 4. At the national level, the independent 2-group Mann-Whitney U Test shows that there was no significant difference between the 1999 and 2012 mean of the proportion of the respondents who frequently went without healthcare ($p>0.05$). However, all the regions in Ghana - except Upper East, Upper West, Northern and Western - experienced a decrease in the proportion of their population who frequently went without healthcare from 1999 to 2012 (Figure 4 and Table 4). There was therefore a conspicuous regional pattern of the proportion of the respondents that frequently went without healthcare in Ghana by 2012, with the Upper East, Upper West and Northern Regions frequently going without healthcare. By 2025, this study is projecting that 3 regions made up of Eastern, Central and Volta will have the least (zero) percent of their population not frequently going without healthcare. However, in 2025, more than 50% of the population of the three northern regions will frequently go without healthcare, if there are no interventions.

Among the proportion of male and female population who frequently went without healthcare (Table 4), there was no significant difference between the 1999 mean and the 2012 mean ($p>0.05$). In 1999, in 3 regions –Western, Northern and Ashanti – more males frequently went without healthcare than females; and in 6 other regions – Greater Accra, Central, Brong-Ahafo, Upper East, Upper West, and Volta– more females frequently went without healthcare than males. In 2012, in six regions - Ashanti, Greater Accra, Central, Brong-Ahafo, Upper East and Western – more males had frequently gone without healthcare than females; while in 2 regions – Northern and Upper west, more females had frequently gone without healthcare than males. The Volta and Eastern regions had equal numbers of respondents for both males and females who frequently went without healthcare. In 2025, based on annual regional growth rates from 1999 to 2012 (Equation 1), only Greater Accra and Upper East will have more males frequently go without healthcare than females; while only in Volta will more females frequently go without healthcare than males. All the seven other regions will be equal.

Table 4: The ranking of Regions in Ghana based on the proportion of the respondents who frequently had access to healthcare

	National		**Male**		**Female**	
Regions	1999	2012	1999	2012	1999	2012
Brong-Ahafo	19.50%	9%	15.30%	11%	16.00%	8%
Western	18.80%	15%	14.30%	16%	12.00%	14%
Greater Accra	16.10%	8%	7.90%	9%	10.70%	7%
Central	15.60%	6%	8.40%	7%	17.40%	5%
Ashanti	14.30%	17%	22.90%	18%	16.10%	15%
Eastern	12.80%	3%	16.20%	3%	15.90%	4%
Upper East	10.90%	21%	4.00%	25%	5.40%	19%
Volta	9.50%	7%	17.40%	8%	22.20%	8%
Northern	9.20%	30%	11.80%	26%	10.00%	33%
Upper West	4.80%	28%	0%	26%	15.40%	30%

The proportion of the respondents who had always gone without healthcare

The National, Male, and Female regional disparities in the proportion of the respondents who always went without healthcare in the ten regions of Ghana for the years 1999, 2012 and 2025 are shown in Figure 5. At the national level, the independent 2-group Mann-Whitney U Test showed that there was 56% decrease, but not significant, in the proportion of the population who **always** went without access to healthcare between 1999 and 2012 (p=0.052).

All the regions in Ghana, except Upper East, Northern and Volta, experienced a decrease in the proportion of their population who always went without healthcare from 1999 to 2012 (Table 5). In 1999, the proportion of respondents who went without healthcare ranged from 2 to 8% and by 2012 it ranged from 0% to 2%. Among the proportion of **male** population who always went without healthcare (Figure 5), there was a 41% decrease from 1999 to 2012 (p=0.087). Also, among the proportion of **female** population who always went without healthcare (Figure 5), there was a 39% increase from 1999 to 2012 (p=0.33). In five regions in 1999 – Ashanti, Greater Accra, Brong-Ahafo, Upper East, and Western – more males had always gone without healthcare than females; and in 2 other regions – Volta and Northern – more females always went without healthcare than males. In 2012, in 5 regions – Upper East, Eastern, Ashanti, Brong-Ahafo, and Western – there were equal proportions of male and female respondents who always went without healthcare. Also, in four regions – Greater Accra, Upper West, Northern, and Central – more males had always gone without healthcare than females;

and in Volta more females always went without healthcare than males (Table 5). Therefore, the females had been doing better than the males.

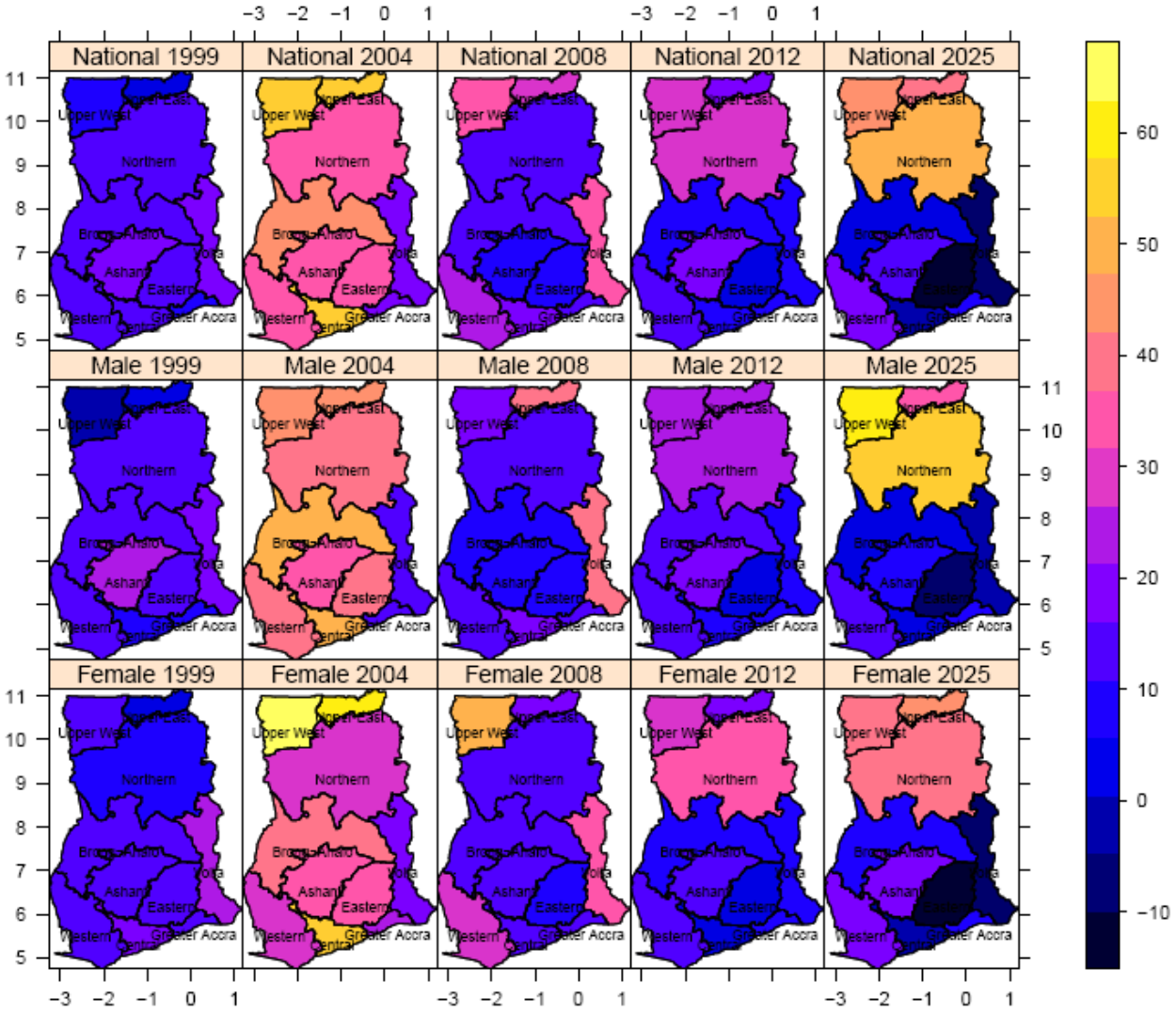

Fig 4: Percentage of respondents who were frequently without healthcare and the projection of those who will *frequently* be without healthcare by 2025

Figure 5 also shows the outlook of the proportion of people who will always go without healthcare by 2025. Based on annual regional growth rates from 1999 to 2012 (Equation 1), all the regions, except males in Central, Northern, and Upper West, will see a decrease, with some having 0% in the proportion of their population without receiving healthcare. The males in Central, Northern, and Upper West experienced a positive growth rate and therefore are projected to see an increase in the number of people who will be without receiving healthcare, if no intervention is implemented.

Discussions

The study found that among those respondents who never went without healthcare, there was a percentage increase ($p<0.05$) for the whole Nation, Males and Females from 1999, when Ghana was under the MTHS, to 2012, when Ghana implemented the NHIS. And based on the

annual growth rate of various regions in Ghana, from 1999 to 2012, most of the south-western forest regions such as Western, Ashanti, Brong-Ahafo, Central, and Eastern will reach more than 85% coverage by the year 2025, while the savannah regions such as Northern, Upper East, Upper West and Volta may achieve coverage of less than 60% by 2025. This study therefore raises the following issues: first, the demonstration of this study that there has been a significant increase in coverage of healthcare from 1999 to 2012 is consistent with existing literature on other low income countries (Carbone, 2012; Chankova et al., 2008; Jehu-Appiah et al., 2011). The increase in coverage may be attributed to relatively lower annual premiums of about $5 per year under the NHIS. Additionally, there is a "pre-defined benefits package that covers 95% of the disease burden in Ghana" (Jehu-Appiah et al., 2011). Most of the prescribed drugs, which were paid for by patients under the MTHS, is now being covered by the NHIS. A World

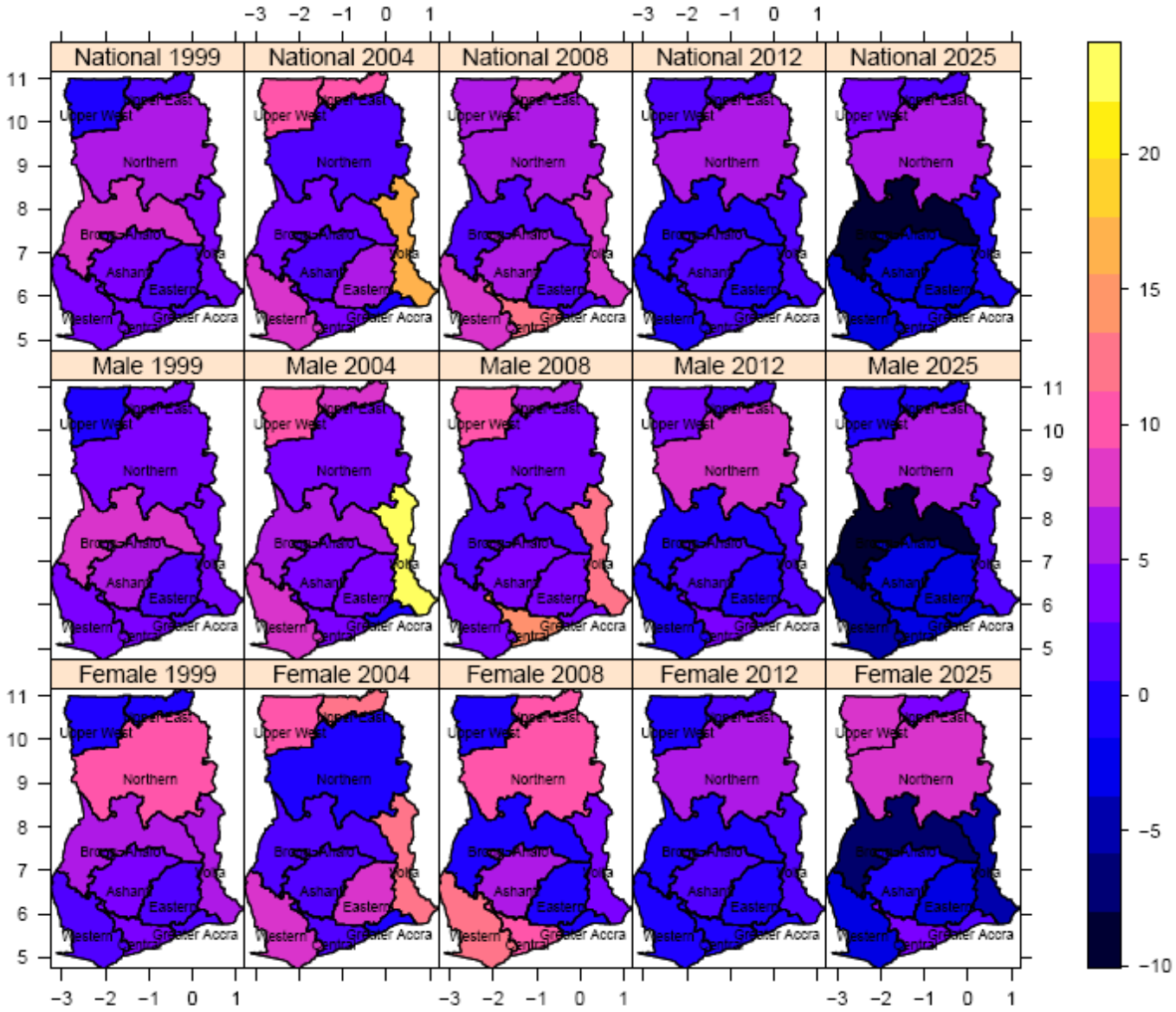

Fig 5: Percentage of respondents who always go without healthcare and the projection of those who will *always* go without healthcare by 2025

Table 5: The 1999 ranking of the respondents who always went without healthcare

	National		Male		Female	
	1999	**2012**	**1999**	**2012**	**1999**	**2012**
Central	8.00%	1%	2.50%	3%	2.60%	0%
Upper East	7.20%	2%	4.00%	2%	0%	2%
Brong-Ahafo	4.40%	0%	8.50%	0%	7.40%	0%
Western	4.20%	0%	4.20%	0%	1.70%	0%
Ashanti	3.70%	1%	5.30%	1%	3.40%	1%
Eastern	2.60%	0%	1.80%	0%	1.80%	0%
Greater Accra	1.80%	0%	1.80%	1%	1.30%	0%
Northern	1.60%	7%	4.40%	9%	10.00%	5%
Upper West	1.60%	2%	0%	4%	0%	0%
Volta	0%	2%	3.40%	1%	6.30%	2%

Health Report raised 3 main fundamental, interrelated solutions that help to remove problems that restrict countries from moving closer to universal coverage. They include the a) availability of resources through 1) increase in the efficiency of revenue collection, 2) reprioritization of government budgets, 3) innovative financing and, 4) development assistance for health; b) overreliance on direct payments at the time people need care and c) efficient and equitable use of resources.(WHO, 2010, p. 9). The NHIS rather than the MTHS, seems to implement the 3 principles of UHC by raising resources through taxation and by reducing the direct payment as well as having as its main goal the reduction of inequities (Mordenghana, 2005). Second, though the NHIS is better than the fee paying health services such as the MTHS, the study clearly points out that no region in Ghana reached universal coverage in 2012 or will even reach 100% by 2025, based on current regional growth rates from 1999. The persistent significant regional disparity in 1999, 2004, 2008, 2012 and 2025 clearly shows that people in some regions cannot pay the minimum premiums of about $5, as abject poverty still prevails in those regions (A. D. Asante et al., 2006; Jehu-Appiah et al., 2010; Jehu-Appiah et al., 2011). By 2025, poorer regions such as Volta, Northern, Upper West, and Upper East will lag behind the relatively wealthier ones such as Greater Accra, Ashanti, Eastern, Brong-Ahafo, and Western.

Third, the study has observed that females are progressively doing better than males because the number of regions where the proportion of females had more access to healthcare than males increased from four in 1999 to five in 2004 to six in 2008 and 2012. This contradicts earlier findings from studies done under the MTHS that indicated that females were utilizing less health services in Ghana (Buor, 2004a). The affordability of health services under the NHIS clearly indicates that the poorer ones, especially, among women, can afford health

services in Ghana. Though no region in Ghana has attained universal coverage, the males in the Central, Northern and Upper West regions are lagging behind their female counterparts and special interventions must be put in place to improve their health status.

Conclusion and Recommendations

The spatial and statistical analyses in this study clearly show that healthcare coverage has significantly increased in Ghana in recent years, from the user fee based Medium-Term Health Strategy (MTHS), implemented in 1995, to the National Health Insurance Scheme (NHIS), implemented in 2005. I therefore reject the first hypothesis that healthcare coverage has not significantly increased under the NHIS. However, the target set in 2005 that there would be universal coverage by 2010 was not achieved because there is still regional disparity in healthcare coverage in Ghana. Thus, I accept the second hypothesis that universal coverage was not achieved in 2012 and that it will not be achieved by 2025; however this study shows that there is a continuous progress towards UHC with the implementation of the NHIS. The number of regions where the proportion of females had more access to healthcare than males increased progressively from 4 in 1999 to 5 in 2004 to 6 in 2008 and back to 5 in 2012. I also accept the hypothesis that there is no gender disparity in healthcare coverage in Ghana. Though there is a significant regional inequity in healthcare coverage in Ghana, the NHIS has significantly and absolutely increased healthcare coverage in Ghana. It is strongly recommended that other African countries, especially those struggling with healthcare coverage, should adopt and implement the principles of health insurance for all. Since this study is purely an empirical study drawing inferences mainly from effects of geography and politics on healthcare coverage in Ghana, it is recommended that future studies should critically examine the influence of other factors – such as culture, distance to health posts, place of residence, income status, education and health insurance status of the respondents – on healthcare coverage in Ghana.

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