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Bridging the Inequitable Distribution of Physicians in Ghana: Factors Medical Students and House Officers at UDS and TTH Will Consider in Accepting Postings to Northern Ghana

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Abstract

Remote areas farther north of the National capital of Ghana are facing serious shortages of health workforce, particularly physicians. Though several policies and schemes have been implemented in the past to improve recruitment and retention of health workforce to rural areas in Ghana, the uptake of health workers is still low in rural communities, particularly in the three northern regions of Ghana. This study examined the Physician-population ratio in the three Northern Regions of Ghana and the factors that clinical year medical students of the University for Development Studies (UDS) and House officers of the Tamale Teaching Hospital (TTH) will consider in their acceptance of postings to the three northern regions of Ghana.

We asked clinical year (3rd–7th) students of UDS and house officers at TTH to rank factors that they consider important in accepting postings to northern Ghana. A total of 200 questionnaires were distributed with 174 completed questionnaires returned (87% response rate).

Infrastructure was ranked very important as a factor that will influence students and house officer decision in accepting posting to northern Ghana. Financial incentives and career progression were other key factors that the respondents will consider in accepting postings. Other factors included family and peer pressure and few locum opportunities in the Northern part of Ghana. Students who reported attending senior high school in the northern part of Ghana were more inclined to setting up practice in Northern Ghana (P=0.001).

Incentives like housing, allowance, waiver of student loans, concession towards post graduate admissions should be offered to physician for taking up posting in underserved areas as short term measure and upgrading of infrastructure in these areas as a long term measure.

Keywords: Rural health workforce; Physician; Ghana; Physician–population ratio; Infrastructure

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Introduction

Remote areas farther from the national capital of most developing countries often lag behind in infrastructural development and thus do not attract the requisite human resource for development. Supply of health human resources, particularly physician often does not meet demand in developing countries and the result is usually over concentration of physicians in national capitals and urban areas close to the capital.

The three northern regions (Northern, Upper East and Upper West regions) of Ghana constitutes 17% of the population [1], and about 45% of the total land surface of Ghana yet only 7.4%

(193) of the nation's 2606 physicians served in this zone in 2011. On the contrary the Ashanti and Greater regions which constitute 35% of the population had about 70% of the country's physicians in 2011 [1]. Even among the three northern regions there are large disparities in the distribution of physicians, northern had 135 Physicians, 33 physicians were at post in Upper East and 25 in Upper West in 2011. TTH had more physicians than the upper East, west regions and the remainder of northern region combined in 2011.

Recruitment and retention of physicians in rural areas

Equitable distribution of health workforce is a prerequisite for attaining universal access to health for all. In developing countries however, there is chronic maldistribution of health workforce especially of physicians whose numbers are usually in limited supply. Physicians in developing countries usually tend to take up posting in teaching hospitals where they are trained and urban centers close to teaching hospitals. There is therefore a skewed distribution of physicians in favour of urban centers as oppose to rural and deprived areas. Over 80% of all physicians in Ghana in 1997 served in urban centers while over 60% of the population live in rural areas [2], in Bangladesh 35% of physicians serve 15% of the country's population in metropolitan areas [3].

There have been several studies on the low uptake of posting by physicians to rural areas and differing reasons though similar have been attributed to the low uptake in both developed and developing countries. Poor infrastructure in rural areas has been the single most important factor for low uptake of physician and other health workforce in rural areas. Studies in Mali, South Africa, Canada and Ghana among physicians and medical students identified poor infrastructure (lack of basic equipment, social amenities and other utility services) in rural areas as the most important factor for their unwillingness to accept postings [4-8].

Professional development, isolation, self-confidence and the notion that rural physicians are 'second class physicians' have also been cited as reasons that influence the choice of physicians as to where to practice. In a study of physicians in rural service in the Upper West (UW) and Brong Ahafo (BA) regions of Ghana physicians indicated that while salary was important, it was career development priorities that were keeping physicians in urban centers. Most of the physicians who were currently in rural service in UW or BA were male, and self-identified as locals from the region who had returned home to serve their communities, or idealists motivated by a mission or ideology [9,10].

'Rural physicians' are known to work longer hours, suffer more fatigue and sleep deprivation, since they are virtually on call 24-7 after their normal schedule [5,11]. They also have to contend with social and psychiatric problems of community members and play roles far beyond the traditional role of 'gatekeeper' [12]. Many work as the administrators of the hospitals where they work and as the directors of health services in their districts in addition to their clinical duties. They may represent the entire health delivery systems [13]. Notwithstanding all these sacrifices physicians in rural practice endure, some residents do not give them social and moral support by seeking healthcare services in urban centers. This often leave 'rural physicians' feeling as though they were second class physicians [13,14].

Admissions to medical schools have also not helped in this inequity, as admissions are skewed towards candidates with excellent grades. In Ghana candidates should score grade 'A' in all subjects to stand a chance of gaining admission into a medical school, and since educational institutions in rural areas are often poorly equipped and staffed, graduates from rural secondary schools therefore invariably turnout with poor grades. Students with rural backgrounds have been shown to be more likely to set up practice in a rural area and to stay in rural practice over the long term, they are however often underrepresented in medical schools [8,15,16].

Physician to population ratio in Ghana (2007–2013)

The northern regions have had consistently very low physician to population ratio **(Table 1)** in the past years. Though to situation seems to have improved in the Northern Region over the past five years, there are still disparities within the region; there are municipalities (consists of >100,000 population) in the region served by one physician and outside the metropolitan area of Tamale where the Teaching Hospital is located usually greater than one physician to 50,000 population.

Methodology

The study area covers the Northern, Upper East and Upper West Regions of Ghana. The three Northern Regions were selected for this study based on the relatively poor socio-economic conditions, inadequate health facilities and scarcity of physicians. The three regions are inhabited by a total population of 4,228116 (17.1% of Ghana's population), 74.3% of the inhabitants live in rural areas compared to the national average of 49.1%. The predominant economic activity is peasant agriculture, with over 70% of the inhabitants in northern Ghana reportedly engaged in subsistent farming (2010 Census).

Two sets of self-administered questionnaires were given out to medical students in the School of Medicine and Health Sciences, UDS and house officers (medical interns) at Tamale Teaching Hospital. The purpose and research procedure was clearly explained to the participants to enable them make informed choice to be part of the study or not. Privacy of the respondents was ensured by use of participant codes instead of names. Questionnaires were given to student immediately after lectures, to complete and return same day. A total of 200 questionnaires were distributed with 174 questionnaires validly completed and returned (87% response rate).

The design of the questionnaire was preceded with in-depth interviews with a former human resource director of the Ghana health service and a physician in rural practice. This helped teased out themes for the design of the questionnaires.

Table 1: Trends of physician-population ratio in Ghana.

Region	2007	2008	2009	2010	2011	2012	2013
Ashanti	10,667	9,537	8,288	7,184	7,704	9,828	10,503
Brong Ahafo	22,479	21,475	16,919	22,967	16,103	16,679	17,547
Central	29,260	26,140	22,877	18218	20,442	23,405	23,892
Eastern	18,141	17,571	16,132	15,801	16,065	19,467	19,065
Greater Accra	5,202	4,959	5,103	4,099	3,712	4,246	3,178
Northern	92,046	68,817	50,751	18,257	21,751	20,195	22,489
Upper East	30,111	33,475	35,010	31,214	38,642	38,279	33,896
Upper West	43,265	43,988	47,932	27,050	38,267	45,565	53,064
Volta	28,269	27,959	26,538	32,605	23,660	24,728	23,277
Western	33,794	31,745	33,187	31,190	26,044	29,082	28,653
Total	**12,591**	**12,713**	**11,929**	**10,423**	**10,034**	**11,515**	**10,170**

Results and Discussion

One hundred and seventy four (174) respondents completed and returned the questionnaire; 124 medical students and 50 house officers.

Table 2 shows the socio-demographic characteristics of respondents, their career plans and factor they will consider for acceptance of posting to Northern Ghana. There were more male respondents than female (107 and 66, respectively). Nearly three quarters of students stated they would accept posting to a district hospital in Northern Ghana (74.8%), while over two-thirds of house officers would not accept postings or were undecided (34% and 38.3% respectively). The mean age of medical students was 26years, while that of house officers was 31 years.

Acceptance of posting to Northern Ghana

Over 74% of medical students at UDS indicated their willingness to accept postings to a district hospital in northern Ghana. Senior High School (SHS) attended was used as a proxy for rural living experience, with respondents reporting to have had SHS education in Northern more likely to have rural living experience. All medical students who reported attending SHS in northern Ghana expressed willingness to accept posting to the north (P=0.001). Gender and marital status was not a significant determinant of choosing to practice in northern Ghana among medical students (P=0.116 and 0.415 respectively). Two thirds of female medical students expressed willingness to set up practice in Northern Ghana while over three quarters (80%) of males, indicating that males will be more inclined to setting up practice in northern Ghana. A similar study by Johnson et al. [8] among medical student in Ghana found that students with rural living experience was more favorable disposed to establishing practice in a rural area. Another study by Snow et al. [9] among physicians in rural practice in UW and BA regions of Ghana self-identified as indigents of those areas. Generally physicians will most likely prefer to set up in urban area.

There was no difference in the rating of the importance of infrastructure among medical students who expressed willingness to accept posting to the north or not. Good infrastructure will be key in attracting physicians to underserved areas in Ghana as most respondents (95%) considered infrastructure important in accepting posting to northern Ghana. About 90% considered financial incentives and 85% considered professional development as important factors in choosing a location to set up practice.

About 29% of House officers indicated their willingness to accept postings to northern Ghana. House officers who reportedly completed their training at UDS were more inclined to choose to practice in Northern Ghana (37%) compared with their counterparts who had their training in southern Ghana or abroad (25%). This is due largely to the extensive rural experience of UDS student, as student in UDS spend at least four weeks each academic year in a community within Northern Ghana in the Community Based Education and Services (COBES) programme.

Financial incentives and infrastructure was also indicated as important by house officers in accepting posting to Northern Ghana.

Students generally were more inclined to indicating willingness to set up practice in northern Ghana compare to house officers; it will therefore be prudent to target students for service in northern Ghana.

Tamale teaching hospital in 2007 had around 30 physicians, today the number is more than tripled, and the hospital now has more physicians than the rest of the three northern regions combined. This largely is due to the upgrading of the hospital to teaching hospital in status 2008 and the subsequent expansion and supply of modern equipment in 2010.

Since 2009 averagely 30 physicians are posted to the three northern regions yearly with decline rate of nearly 99%. At a meeting with regional and districts directors of health in the three northern regions in November 2012 with the community health department (UDS) (TA was a participant), the regional director of health of Upper east and the representative of the northern regional director indicated that all physicians posted to their regions declined the offer in 2011 and 2012.

Conclusion

Ghanaian medical students and house officers who have rural living experience and or/attended SHS in the north are more likely to set up practice in the north. While financial incentive is

Table 2: Background characteristics of respondents.

	Clinical year students (N=124) N (%)	House officers (N=50) N (%)
Gender		
Male	67 (54.5)	40 (80)
Female	56 (45.5)	10 (20)
Total	**123 (100)**	**50 (100)**
Age		
20 - 24	38 (30.6)	1 (2)
25 - 29	86 (69.4)	20 (40)
30+	-	29 (58)
Total	**124 (100)**	**50 (100)**
Marital status		
Married	2 (1.6)	11 (22.9)
Single	121 (98.4)	37 (77.1)
Total	**123 (100)**	48 (100)
SHS attended/Medical school*		
Northern	33 (29.7)	24 (57.1)
Southern	78 (70.3)	18 (42.9)
Total	**111 (100)**	**42 (100)**
Acceptance of posting to N/G*		
Yes	92 (74.8)	13 (27.7)
No	8 (6.5)	16 (34.0)
Undecided	23 (18.5)	18 (38.3)
Total	**123 (100)**	**47 (100)**
Importance of financial incentive in accepting posting		
Not important	8 (6.6)	0
Relatively important	7 (5.7)	1 (2)
important	17 (13.9)	15 (30.6)
Very important	90 (72.6)	33 (67.3)
Total	**122 (100)**	**49 (100)**
Importance of infrastructure in accepting posting		
Not important	0	0
Relatively important	6 (5)	4 (8.2)
important	29 (24)	19 (38.8)
Very important	86 (71)	26 (53.1)
Total	**121 (100)**	**49 (100)**
Importance of career advancement in accepting posting		
Not important	2 (1.7)	1 (2)
Relatively important	8 (6.7)	5 (10)
important	21 (17.5)	13 (26)
Very important	89 (74.2)	31 (62)
Total	**120 (100)**	**50 (100)**

*Northern Medical school refers to UDS, Southern: UG & KNUST.

important in attracting physicians to underserved areas, it is good infrastructure and career progression that are key in attracting physicians to northern Ghana.

Physicians will concentrate in regional capitals and urban centers close to regional capitals; deliberate policy is required to attract physicians to the northern part of Ghana. Candidates from the northern part and deprive areas should be given preference for admission into medical schools, since they are more likely to set up practice in underserved areas.

Supply of equipment and building of modern hospitals in remote/rural areas has already seen young physicians accepting postings to some districts in the north which hitherto had no physician.

The ministry of health should consider introducing a two year compulsory rural service in the first ten year of practice. Financial incentive, waiver of student loan in exchange for rural service and concession for admission into post graduate studies are some of the short term measures that can help address the low physician population ratio in northern Ghana. Utilization of telemedicine, scheduled visits of specialist to district hospitals, are some of the measures that will help keep physicians in deprived areas. Provision of basic infrastructure in districts; good schools, road, potable water supply, improved telecommunications will in the long term help attract and keep physicians in underserved areas of the north of Ghana.

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Authors Contributions

TA, AKD, SKKJ, AJGA and CS conceived the study and designed the survey. AKD, SKKJ, AJGA and CS carried out data collection. All authors were involved in the interpretation of study findings. TA wrote the first draft of the manuscript.

All authors reviewed and critically revised the manuscript for important intellectual content and agreed to submit the manuscript for publication.

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