

**Title: Rural-urban differences in health worker motivation and quality care
in selected health facilities in Ghana**

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Running title: Rural-urban differences in quality care and staff motivation

Word count for abstract: 268

Word count for text of manuscript: 4,379 (excluding tables, figures and references)

Theme 03: Health, mortality and longevity

Theme Convener: France Meslé (Institut National d'Études Démographiques (INED))

Session 03-08-04: Health systems and urban areas

Chair: Eleri Jones (London School of Economics)

Schedule: Thursday, August 29th 2013 (13:30pm - 15:00pm)

Abstract

Background: The population of Ghana is increasingly becoming urbanized with 50.9% of the estimated 24 million people currently living in urban areas compared to 43.8% in the year 2000. Nonetheless, eight out of the ten regions in Ghana remain predominantly rural where only 32.1% of the national health sector workforce works. Doctor-patient ratio in a predominantly rural region is 1:18,257 compared to 1:4,099 in an urban region. These rural-urban inequities significantly contribute to Ghana's slow progress in achieving the millennium development goals 4, 5 and 6.

Purpose: To ascertain rural-urban differences in health worker motivation and the implications on quality care in health facilities.

Methods: This is a baseline semi-quantitative study conducted among 324 health workers in 64 accredited clinics in 16 rural and urban districts in Ghana. Multivariate multiple regression was conducted to ascertain the relationship between facility geographical location (rural/urban) and staff motivation levels and quality care standards.

Results: Quality care and patient safety standards were generally low but relatively better in rural facilities especially in primary healthcare services. Health workers in rural facilities were more de-motivated by extrinsic factors such as poor water and electricity supply and payment of financial incentives ($p < 0.05$). The major source of de-motivation for urban workers was lack of transportation to work ($p < 0.05$).

Conclusion: For Ghana to attain, the MDGs 4, 5 and 6, there is the need to address existing rural-urban imbalances in health worker motivation and quality care standards in primary healthcare services. Future researchers should compare motivation levels and quality standards in accredited and non-accredited health facilities since the current study was limited to only NHIS accredited facilities.

Key words: Ghana, rural-urban, health worker motivation, quality care, health facilities

Background

According to the rural poverty report (2011) of the International Fund for Agricultural Development (IFAD), an estimated 3.1 billion people, representing 55% of total population in developing countries live in rural areas. This trend is expected to continue especially in sub-Saharan Africa until the year 2045 when rural population would begin to decline [1].

According to the 2010 Population and Housing Census (PHC), the population of Ghana is increasingly becoming urbanized with 50.9% of the estimated 24 million people currently living in urban areas compared to 43.8% in the year 2000. Nonetheless, eight out of the ten regions in Ghana remain predominantly rural where only 32.1% of the national health sector workforce works [2].

Over the years, equitable access to good quality healthcare has been a national challenge for many developing countries including Ghana. For instance, the percentage of deliveries attended to by skilled health workers in 2011 in the Northern region of Ghana (one of the poorest and mainly rural regions) was 31.2% compared to 56.0% in the Greater Accra region (which is largely urbanized). Likewise, the doctor-patient ratio in 2011 was 1:3,712 in the Greater Accra region compared to 1:21,751 in the Northern region [3].

Physician density per 1000 population in urban Ghana is 0.13 compared to 0.04 in rural areas while that for nurses is 0.60 per 1000 population in urban areas compared to 0.20 in rural areas [4]. Physician assistants and midwives are the only cadre of professionals mostly in rural areas in Ghana. Out of the total population of 712 physician assistants and 4,929 midwives, 70% and 60% of them respectively work in rural areas because these cadres of health professionals are posted to work in primary level health facilities which are often in rural areas [4].

Understaffing of healthcare workers and inadequate health infrastructure, especially in rural areas, has created wide inequities in access to good quality care [3,4], thus compelling self medication and unsafe treatment among the underprivileged. This inequitable access to good quality care is a major contributory factor to the slow progress of Ghana in attaining the health related Millennium Development Goals (MDGs) [6,7,8].

The government of Ghana through the Ministry of Health (MoH) has been implementing a number of interventions to ensure equitable distribution of health sector human resources. Some of these interventions include payment of rural allowance of up to 30% of monthly salary to health staff who accept posting to rural areas, offering post basic education courses for clinical staff, and hired purchased vehicles [4].

Notwithstanding these interventions which have been implemented for over a decade, the rural-urban disparities in human resource distribution and quality healthcare delivery persist, raising concerns on the efficacy of these interventions in motivating healthcare workers to accept posting to deprived areas [8,9].

Apart from these health worker motivation interventions, the National Health Insurance Scheme (NHIS) was implemented in 2005, to ensure financial protection and risk pooling for Ghanaians, especially the poor in rural and urban areas. Under the NHIS, indigents, pregnant women, people aged 70 years and above, and children under 18 years are exempted from premium payments. These categories of people, put together, constitute 63.1% of the total NHIS subscriber base [10]. To sustain the NHIS and guarantee Ghanaians of continuous universal access to good quality care, there is the need to ascertain the workplace incentives and constraints for staff in these health facilities.

The objective of this study is to ascertain the rural-urban differences in staff motivation levels and quality care standards in 64 primary healthcare facilities accredited by the National Health Insurance Authority (NHIA), the national accreditation body for health facilities willing to render services to NHIS subscribers.

Previous studies on health worker motivation in Ghana [8,9,11,12] did not examine the rural-urban differences in quality service delivery and staff motivation levels in NHIS accredited health facilities. It is expected that findings of this study will contribute to existing knowledge on rural-urban dynamics in population health and also inform stakeholders of population health on empirical basis for rural-urban mainstreaming in health resources allocation in resource constrained countries such as Ghana.

Methods

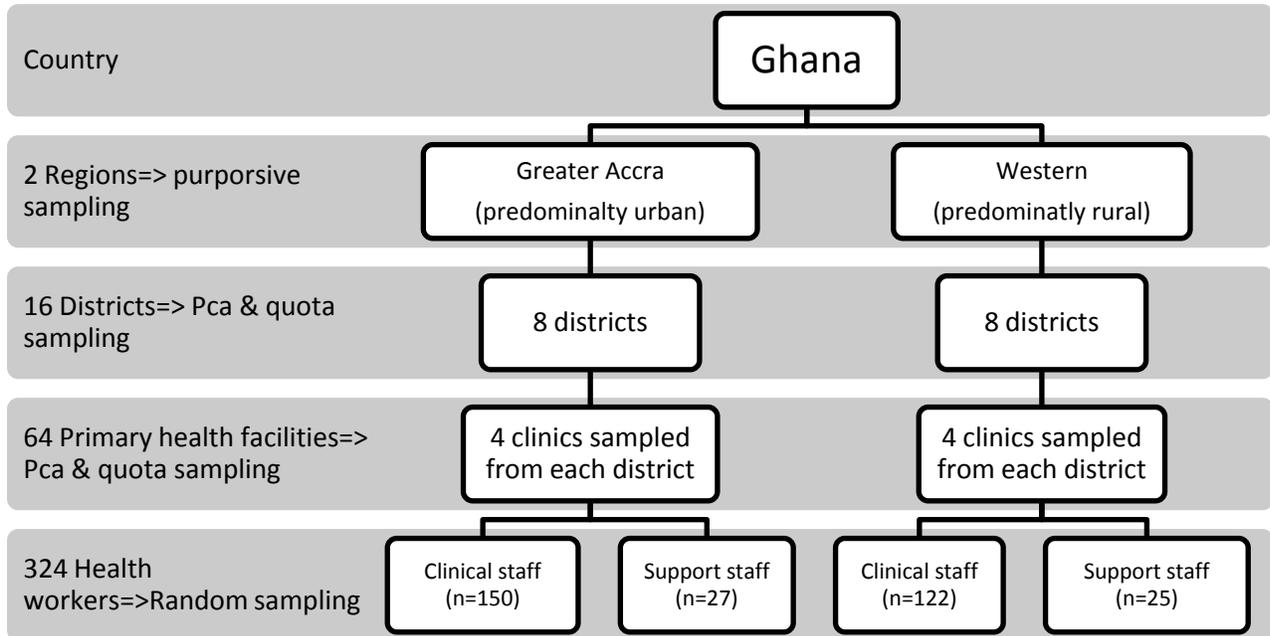
Study design and sampling strategy

This is a semi-structured baseline study in two regions (Greater Accra and Western) in Ghana, West Africa. These two regions were purposively sampled to avoid spill-over effect since they do not share a common boundary. The study was conducted in 64 purposively selected private (n=38) and public (n=26) primary healthcare facilities in 16 rural and urban districts.

Using the quota system, each selected district in a region was allocated a maximum of 4 qualified facilities. Per this criterion, a total of 32 facilities were randomly sampled from each region. This strategy ensured that all selected 64 facilities were comparable in several respects. At the staff level, clinicalⁱ and non-clinicalⁱⁱ staff were randomly sampled and interviewed from all 64 facilities. Inclusion criteria for staff were full time employment and at least 6 months work

experience. This strategy was used to elicit responses from staff who knew much about their work environment.

Figure 1: Sampling strategy



Data collection instruments

Data collection instruments used were: a nineteen (19) paged clinic staff questionnaire and a clinic quality care assessment tool called *SafeCare Essentials*ⁱⁱⁱ. The quality care assessment was based on five (5) main components, namely: (1) leadership processes and accountability, (2) competent and capable workforce, (3) safe environment for staff and patients, (4) clinical care of patients and (5) improvement of safety and quality. Forty-one (41) questions were asked under the five (5) components on four levels of effort (0-3)^{iv} with low levels of effort depicting low performance and *vice versa*.

To control for bias during administration of the *Essentials* tool, double scoring was done by three trained research assistants using Pocket Digital Assistant (PDA) devices. As part of the assessment process, clinic administrative records were reviewed alongside observations and key informants' interviews.

Staff motivation was measured using proxies such as satisfaction levels with physical work conditions, monthly salary, possibility for promotion or further education, and recognition gained from job. Nineteen (19) questions were asked on workplace motivation factors. Rating on these factors were done on a four-point Likert scale from 1= "very disappointing" to 4= "very satisfactory".

Piloting of data collection instruments was done in two conveniently sampled clinics in GAR to correct typographical mistakes and ensure interviewers get conversant with the questions and the interview process.

Ethical considerations

Ethical clearance for all the surveys was obtained from the Ghana Health Service's (GHS) Ethical Review Board (ERB) (clearance number: GHS-ERC: 18/5/11). Consent was also obtained from all health facility heads, district and regional health directorates, and individual respondents.

Data management and analysis

All data sets were analyzed using the *stata* statistical software (version 12.0). Parametric and non-parametric tests were conducted to test the hypothesis that health worker motivation and quality healthcare situation in rural and urban health facilities are different.

In addition, factor analysis was conducted with orthogonal *varimax* rotation (Kaiser off) to group the 19 workplace motivational factors into four major factors [13]. Based on Bennette and

Franco's [14] conceptual framework, these four factors were predicted and named as follows: (1) clinic physical work environment, (2) resource and drugs availability, (3) financial and extrinsic incentives, (4) job prospects and career development.

Cronbach's alpha (α) was conducted to check for scale reliability of the 19 Likert scale items and found to be 0.82 which was above the 0.70 rule of thumb [15,16,17]. Summary and descriptive statistics were also conducted on staff socio-demographics and situational analysis of health facilities.

Findings

Characteristics of health workers interviewed

In all, 333 semi-structured questionnaires were administered to health workers, out of which 324 were correctly filled and included for analysis. This represented a 97% return rate. The data set was split into rural and urban samples. Most of the health facilities 36(56%) were located in rural districts while 44% were located in urban districts. A significant number 22(58%) of the privately owned facilities were in urban areas while most (77%) of public facilities surveyed were located in rural areas.

The results also showed that respondents working in rural health facilities 182 (56%) dominated those in urban health facilities 142 (44%). In terms of gender distribution, female health workers 217(67%) dominated male workers 107(33%) in both rural and urban settings. Most (59%) of the interviewed staff aged 40 years or below; 29% of them aged between 41-60 years and 12% were 61years and older. ^vThe mean age of respondents in rural and urban health facilities was 39 years (SD=14). Averagely, health workers in urban facilities were older (mean=42 years) than their counterparts in rural facilities (mean=36 years), $p=0.0010$.

In terms of educational qualification of respondents, close to 50% had at least tertiary education; 34% had secondary education and 20% did not indicate their educational qualification. (See Table 1 for details).

Clinical staff constituted the majority of respondents representing 84% compared to 16% of non-clinical staff.

As shown in Table 1 most (56%) of the health workers said they receive monthly salary equivalent to US\$ 265 or less; 40% receive between US\$ 265- US\$ 688 and 1% receive more than US\$ 688 as monthly salary. Majority of staff receiving the lowest salary range were from rural health facilities (29%) compared to urban facilities (27%).

Close to 60% of the interviewed staff were not married while a little over 40% were married. Most of the married staff (22%) were from urban facilities while many unmarried respondents (35%) worked in rural facilities (p=0.046). Christianity was the dominant religion of respondents representing 96%; non-Christians constituted 4% of the total respondents (See Table 1).

Table 1: Characteristics of health staff (n=324)

Variables	Rural	Urban	Total	p-value
	Freq. (%**)	Freq. (%)	Freq. (%)	
Gender				0.354
Male	64(20)	43(13)	107(33)	
Female	118(36)	99(31)	217(67)	
Age				0.204
≤40 years	118(36)	73(23)	191(59)	
41-60 years	44(14)	49(15)	93(29)	
≥61 years	20(6)	20(6)	40(12)	
Education				0.284
Secondary	67(20)	45(14)	112(34)	
Tertiary	85(26)	63(20)	148(46)	
Missing system			64(20)	
Professional category				0.745
Clinical staff	151(47)	121(37)	272(84)	
Non-clinical staff	31(10)	21(6)	52(16)	
Range of monthly salary¹				0.135
<US\$ 265	94(29)	86(27)	180(56)	
US\$ 265-688	81(25)	47(15)	128(40)	
>US\$ 688	3(1)	0(0)	3(1)	
Missing system			13(4)	

Marital status				0.046*
Married	67(21)	73(22)	140(43)	
Not married	115(35)	69(21)	184(57)	
Religion				0.209
Christian	175(54)	136(42)	311(96)	
Non-Christian	6(2)	7(2)	13(4)	

Source: COHEISION Project Clinic Staff Interviews Data (March-June, 2012)

¹1.0 US\$ is equivalent to 1.89 Ghana *Cedis* (GHC): (XE.com/currency converter, 04/10/2012)

*Pearson Chi-square test statistically significant at 0.05 level of significance.

**All percentages have been rounded to the nearest decimal point.

Health workers' experiences with work conditions

The results showed that averagely, workers in urban healthcare facilities spend longer times traveling to work (mean=33 minutes) than their counterparts in rural healthcare facilities (mean=19 minutes), ($p < 0.0001$). The average extra minutes spent at work a day by workers was reported to be 50 minutes.

Health workers in urban healthcare facilities spent more time per patient (mean=15 minutes) than workers in rural areas (mean=13 minutes). Staff in rural facilities attended to more patients in a day (mean=58) than their counterparts in urban facilities (mean=44).

The amount of extra work allowance received per month was higher among staff in urban facilities (mean=US\$52) than staff in rural facilities (mean=US\$45). Likewise, health workers in urban facilities received higher financial income from part time work (mean=US\$ 235) than those in rural facilities (mean=US\$162) (See Table 2).

Table 2: Rural-urban differences in the work conditions of health staff

Work conditions	Geographical location			p-value
	Rural	Urban	Total	
	(n=182)	(n=142)	(n=324)	
	Mean(SD)	Mean(SD)	Mean(SD)	
Travel time to work in minutes on daily basis	19 (22)	33(32)	25(27)	0.0000*

Estimated extra work hours a day ²	0.50(2.50)	0.50(2.20)	0.50(2.30)	0.9935
Number of minutes spent per patient at a time	13(11)	15(16)	14(13)	0.4250
Number of patients seen a day per staff	58(74)	44(40)	52(62)	0.0634
Amount of allowance received a month for extra work done (in US\$ equivalence)	45(68)	52(49)	48(61)	0.6783
Monthly financial income from part time work (in US\$ equivalence)	162(164)	235(261)	210(230)	0.4569

Source: COHEISION Project Clinic Staff Interviews Data (March-June, 2012)

SD=Standard deviation

*Independent t-test of two-tail hypothesis is statistically significant at 0.05 level of significance

²Extra work hours calculated as the difference of actual hours spent at work a day and the expected work hours a day

A four-point Likert scale was used to assess satisfaction levels with work conditions by health workers in rural and urban clinics. The Likert scale ranging from 1= “very disappointing” to 4= “very satisfactory” were dichotomized into two by combining 1 & 2 into “disappointing” and 3 & 4 into “satisfactory”.

The results showed that a greater percentage (89%) of the workers was satisfied with their clinic’s physical environment; 11% of them described their physical work conditions as disappointing. Most staff interviewed expressed satisfaction with drug and resource availability (including water and electricity supply) in their workplaces; 28% described the situation as disappointing. Many workers in rural facilities 66(21%) expressed disappointment in drug and resource availability than their counterparts in urban health facilities (7%), (p=0.0015).

Payment of financial incentives including monthly salaries was described as disappointing and perceived to be the least source of motivation by over 70% of respondents; but 25% of them described this incentive as satisfactory. Possibility for promotion and further education were important sources of motivation for many 185(60%) staff interviewed, especially among workers in rural health facilities (p>0.05) (See Table 3).

Table 3: Rural-urban differences in staff motivation levels

	Rural	Urban	Total	p-value
Proxies for staff motivation	Freq. (%**)	Freq. (%)	Freq. (%)	
Physical work environment (n=318)				0.2033
Disappointing	25(8%)	11(4%)	36(11%)	
Satisfactory	154(48%)	128(40%)	282(89%)	
Availability of resources and drugs (n=321)				0.0015*
Disappointing	66(21%)	24(7%)	90(28%)	
Satisfactory	113(35%)	118(37%)	231(72%)	
Financial and extrinsic incentives (n=312)				0.6216
Disappointing	131(42%)	103(33%)	234(75%)	
Satisfactory	43(14%)	35(11%)	78(25%)	
Job prospects and career development (n=308)				0.1811
Disappointing	65(21%)	58(19%)	123(40%)	
Satisfactory	110(36%)	75(24%)	185(60%)	

Source: COHEISION Project Clinic Staff Interviews Data (March-June, 2012)

*Wilcoxon Mann-Whitney rank sum test statistically significant at 0.05 level of significance

**All percentages have been rounded to the nearest decimal point.

Rural-urban differences in quality care and patient safety standards

Situational analysis was done on selected input, process and output indicators in rural and urban healthcare facilities. The results showed that input and process quality care indicators were not statistically different in rural and urban health facilities. Significant differences were however observed in output indicators such as number of deliveries per month and number of HIV/AIDS preventive services per month ($p < 0.05$) (See Table 4).

On the average, facilities in rural areas conducted more deliveries in a month (mean=17, SD=18) than facilities in urban areas (mean=7, SD=13), $p=0.0112$. Likewise, facilities in rural areas rendered more HIV/AIDS prevention services in a month (mean=181, SD=214) than facilities in urban areas (mean=59, SD=90), $p=0.0067$.

Generally, facilities in rural areas rendered more preventive and primary healthcare services than facilities in urban areas which offered more curative healthcare services (See Table 4 for details).

Table 4: Situational analysis of rural and urban facilities (n=64)

Factors	Rural(n=36)	Urban(n=28)	p-value
	Mean(SD)	Mean(SD)	
Input factors			
Staff strength per clinic	25(19)	24(25)	0.8670
Number of beds per clinic	11(10)	9(11)	0.4132
Process factors			
Percentage of staff trained in health and safety in the last 12 months	39% (48%)	41% (47%)	0.8792
Number of orientation sessions by facility in the last 12 months	59(36)	49(43)	0.3067
Outputs factors			
Number of deliveries in a month	17(18)	7(13)	0.0112*
Number of antenatal care (ANC) visits in a month	121(158)	77(125)	0.2269
Number of family planning (FP) services in a month	58(90)	59(152)	0.9619
Number of male condoms distributed in a month	96(193)	45(142)	0.2515
Number of preventive health services and screenings in a month ⁺	52(19)	22(8)	0.1768
Number of chronic healthcare services in a month	125(171)	204(299)	0.1911
Number of HIV/AIDS prevention services in a month	181(214)	59(90)	0.0067*

Source: COHEISION Project Clinic Staff Interviews Data (March-June, 2012)

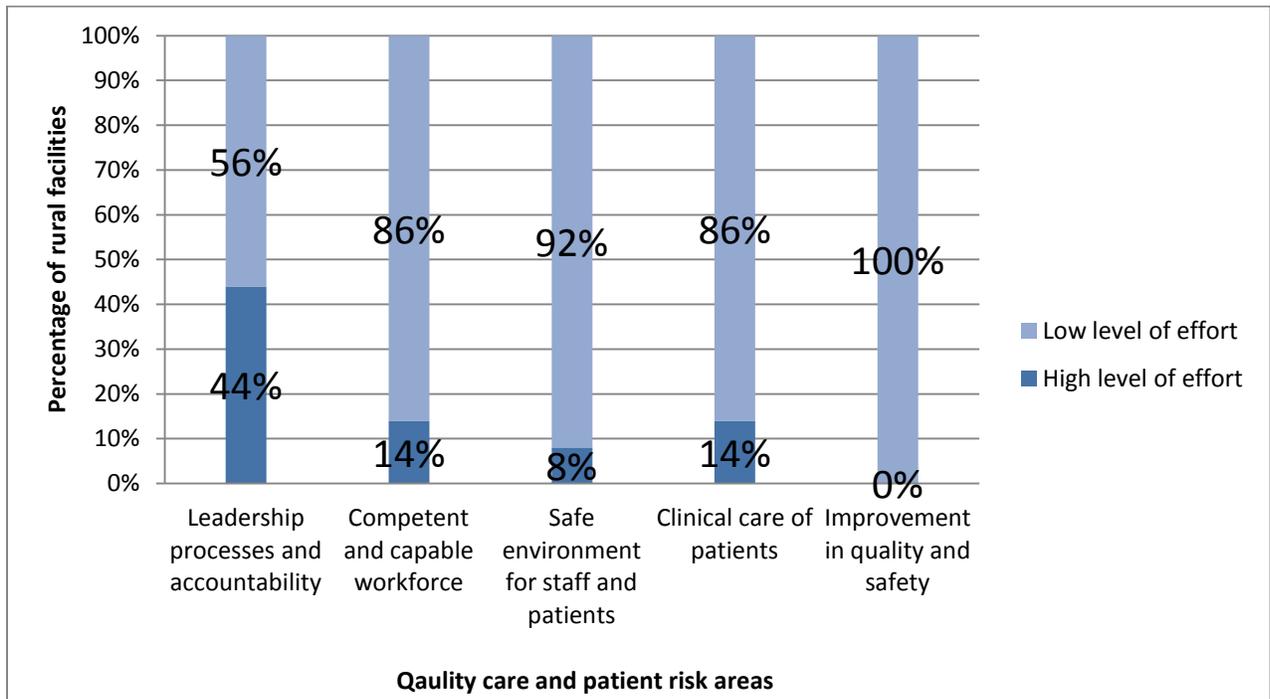
*Statistically significant at 0.05 level of significance using the independent t-test of two-tailed hypothesis

+These services include: Tuberculosis (TB), diabetes and cholesterol

Apart from the situational analysis, differences in quality care standards in rural and urban facilities were explored using the *SafeCare Essentials* risk assessment tool. The four levels of effort towards patient safety and quality care in pertinent facilities were dichotomized into two by combining 0&1 into “low level of effort” and 2&3 into “high level of effort”.

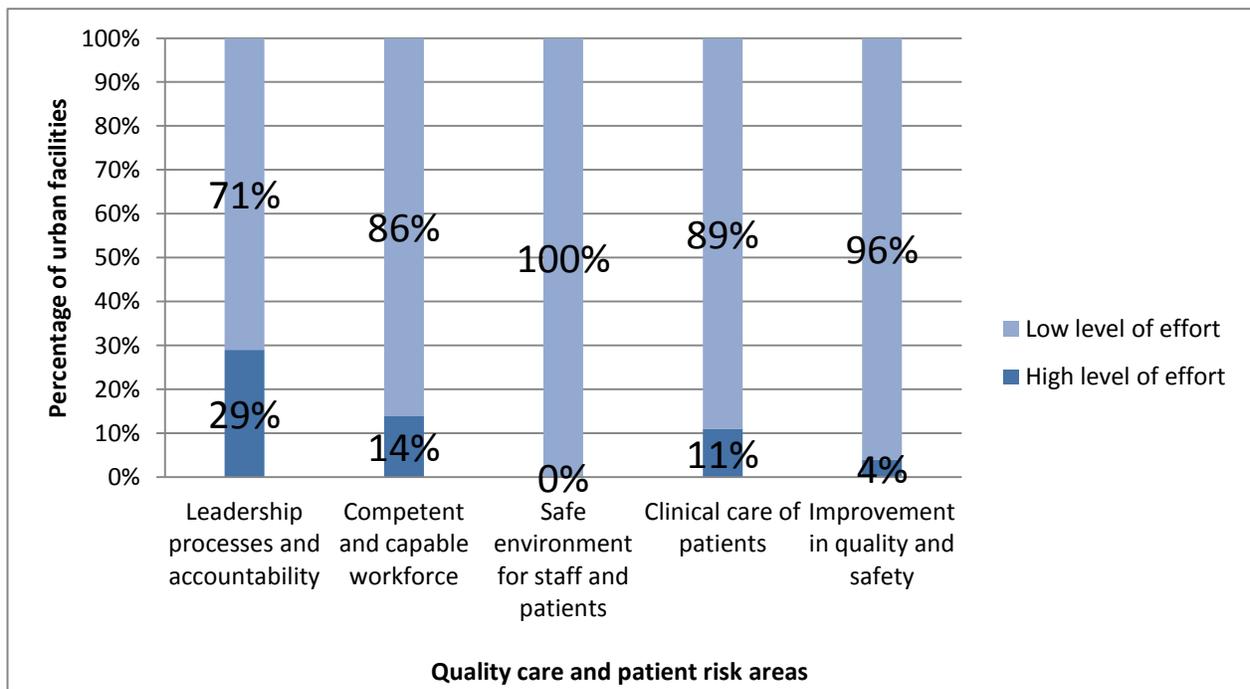
As shown in figures 2 and 3, majority of health facilities (over 50%) exhibited low levels of effort towards risk reduction and patient safety. Quality care standards were especially low in the areas of environmental safety for staff and patients, and quality improvement. Virtually all facilities (rural and urban) showed low levels of effort in these areas.

Figure 2: Levels of effort by rural health facilities towards quality care and patient safety (n=36)



Source: COHEISION Project Clinic Staff Interviews Data (March-June, 2012)

Figure 3: Levels of effort by urban health facilities towards quality care and patient safety (n=28)



Source: COHEISION Project Clinic Staff Interviews Data (March-June, 2012)

Most of the facilities surveyed performed better in leadership and accountability; workforce competency, and clinical care of patients. In comparative terms, more rural facilities had in place better standard practices in these areas than urban facilities. On the other hand, facilities in urban districts had in place better standard practices in the management and safe use of medications than facilities in rural areas ($p=0.0183$). It was also found that facilities in rural areas had better protocols for staff training in resuscitation techniques than facilities in urban areas ($p=0.0219$). Multivariate multiple regression was conducted to ascertain the relationship between facility geographical location and overall staff satisfaction levels and quality care standards. Overall staff satisfaction with work conditions and overall facility quality assessment scores were the dependent variables of interest (treated as continuous variables after adding all ranked scales). The independent variable of interest was the geographical work location (rural/urban) of staff. Control variables included in the regression model were: facility ownership (public/private), region (GAR/WR) and staff strength. Before these independent variables were included in the final regression model, multicollinearity diagnostics was conducted and none of them had a variance inflation factor (VIF) up to 10 (the threshold rule of thumb for multicollinearity). The mean VIF was 1.43.

The multivariate multiple regression analysis showed that health facility geographical location (rural/urban) has significant relationship with overall quality care and patient safety standards in the pertinent health facility. The results revealed that a health facility moving from rural to urban status will likely have a reduction in quality performance by 2.5 units (coef.= -2.5; CI= -4.2 - -0.77; $p<0.05$), controlling for facility ownership, region and staff strength.

There was however no statistically significant relationship between facility geographical location (rural/urban) and overall staff motivation levels (Coef. = -0.52, CI=-2.6 – 1.6, p>0.05). Control variables in the model were facility ownership, region and clinic staff strength (See Table 5).

Table 5: Multivariate multiple regression on determinants of staff motivation and quality care in health facilities

Independent variables	Dependent variables							
	Overall staff motivation score				Overall quality care score			
	Coef.	p-value	[95% Conf. Interval]		Coef.	p-value	[95% Conf. Interval]	
Facility location								
Urban	-0.52	0.621	(-2.6	1.6)	-2.5	0.005*	(-4.2	-0.77)
Rural	Ref	Ref	Ref		Ref	Ref	Ref	
Facility ownership								
Private	5.2	0.000*	(3.1	7.4)	5.6	0.000*	(3.8	7.3)
Public	Ref	Ref	Ref		Ref	Ref	Ref	
Region								
GAR	-0.43	0.678	(-2.5	1.7)	-3.1	0.000*	(-4.8	1.4)
WR	Ref	Ref	Ref		Ref	Ref	Ref	
Clinic staff strength	0.07	0.001*	(0.03	0.11)	0.19	0.000*	(0.16	0.23)

Source: COHEISION Project Clinic Staff Interviews Data (March-June, 2012)

*Statistically significant at 0.05 level of significance

NOTE: Overall staff satisfaction (RMSE=6.7; “R-sq”=0.39; p<0.0001)

NOTE: Overall quality score (RMSE=8.0; “R-sq”=0.13; p<0.0001)

Discussion

Many countries in Africa including Ghana are not likely to attain all the health related MDGs by 2015 [6], partly due to unequal distribution of health sector human resources in rural and urban areas. In Ghana, significant efforts have been made to bridge the widening rural-urban disparities in health resources allocation. The Ministry of Health (MoH), through the Human Resources for Health Development Directorate (HRHDD), implemented several incentives to attract and retain essential health staff in rural and deprived areas [4]. Notwithstanding these interventions, staff

motivation levels persistently remain low in these areas, thus raising concerns on the effectiveness of these interventions [4,8].

This baseline semi-quantitative study sought to explore the work conditions of health staff and how these conditions incentivize or de-motivate them to render good quality care to clients. It was found that generally, quality care and patient safety standards were not optimal (up to 50% or more overall assessment score), likewise levels of staff motivation. Working conditions were especially perceived to be de-motivating in rural areas, even though overall quality care standards were relatively better in rural than urban health facilities.

Major sources of de-motivation for health workers in rural areas were limited access to social amenities such as water and electricity, and stock out of essential drugs. These observations are consistent with findings of previous studies by Lori *et al* [12] and Johnson *et al* [9]. Physical work environment and job prospects were the key areas many rural than urban health workers expressed dissatisfaction. Similar findings were found in empirical studies in Ghana [8] and other countries [18-24].

Reviewed literature cited a number of reasons for the rural-urban imbalance in staff motivation levels including better opportunities urban dwellers have to pursue additional educational courses alongside their jobs [8, 19-23]. This opportunity is virtually non-existent in rural areas where tertiary institutions and other professional development institutions are limited or absent. Rural-urban differences were also found in staff satisfaction levels with financial incentives including monthly salaries and work allowances. Many health workers in rural facilities expressed disappointment in financial incentives than their counterparts in urban facilities. Mathauer and Imhoff [25], Stilwell *et al* [22], Dieleman *et al* [20] and Blumentahl [26] found similar results on these geographical differences and concluded that rural health workers were

less likely to express satisfaction with financial incentives because of the limited opportunities for part time work. Urban workers are likely to have multiple sources of income within a month while their rural counterparts might depend solely on their mainstream monthly salary.

The geographical imbalance in financial incentives for health workers, in the view of Stilwell *et al* [23] and Dieleman *et al* [24], does not only lead to concentration of skilled staff in better endowed urban areas, but also escalates into international workforce migration. An estimated cumulative number of 2,406 skilled health workers including medical officers, pharmacists, nurses, midwives, medical laboratory technologists and radiologic technologists migrated from Ghana to Europe, United States of America (USA) and other developed countries from 1999 to 2003 in search of greener pastures [27].

According to the WHO, the impact of health professionals' exodus on attainment of MDGs 4, 5 and 6 in developing countries is enormous and needs to be stemmed through collaborative efforts towards more effective staff motivation interventions [28].

In Ghana, about 70% of physicians and professional nurses work in urban areas and the remaining 30% work in rural areas where close to 50% of Ghanaians live [4]. This is in contrast with Vietnam where an estimated 84% of public sector health staff work in rural areas where 80% of the population lives [20] largely due to more effective staff motivation packages.

Even though virtually no country in the world has been able to solve the rural-urban imbalance in health sector human resource distribution [26], a country such as Thailand has made significant gains in this regard. Thailand in the 1990s started stemming down migration of rural health workers to urban areas through implementation of wide range of strong financial incentives [24].

There is therefore the need for the MOH in Ghana to adopt best practices such as these and

replicate them intensively to reduce the existing rural-urban gaps in health worker distribution and quality services delivery.

Use of financial incentives to motivate health sector workforce has been discussed in the literature with varying conclusions [8,9,13,14,20]. Some authorities conclude that implementation of financial incentives without complementary non-financial incentives seldom improve health worker performance [8,25]. Multifaceted staff motivation interventions are therefore advocated.

In Ghana like many developing countries, the “knee-jerk” reaction to labour strikes and poor staff attitudes towards work is salary increment. These interventions are often taken without addressing equally important incentives such as transportation to work, career development plans and work organization. For instance, this study found that travel time to work was averagely longer for urban dwellers (mean=33 minutes) than rural dwellers (mean=19 minutes), $p<0.0001$. This could be due to the relatively heavy vehicular and human traffic in urban than rural Ghana. On the other hand, workers in rural areas are more likely to stay closer to their health facilities and travel over shorter times to work [8].

This implies that interventions to improve work conditions should be tailored to the peculiar workplace de-motivating factors than adopting “wholesale” interventions. The results indicate that experiences of staff differ based on geographical location of workplace. Disincentives for staff in rural health facilities were basically inadequate financial remuneration, lack of career development paths and unavailability of social amenities. Urban health workers were more concerned with improvement of transportation system and other forms of non-financial incentives.

This paper also found that even though there were no statistically significant rural-urban differences in key input factors such as staff strengths, but significant differences were found in some output quality indicators. Rural facilities averagely conducted more deliveries in a month (mean=39, SD=18) than urban facilities (mean=7, SD=13), $p<0.05$. Likewise, rural facilities provided more HIV/AIDS preventive services in a month (mean=181, SD=214) than urban facilities (mean=59, SD=90), $p<0.05$.

The outcome of this situational analysis is consistent with the primary health care concept in Ghana, where many public primary healthcare facilities especially in rural and peri-urban areas are expected to render basic health services. Many urban facilities are private-for-profit and would likely render more curative/chronic services for profit purposes than their government owned health facilities.

In addition, the levels of effort towards risk reduction and quality improvement in rural and urban facilities were low. Standard practices in leadership processes and accountability were relatively adequate in rural and urban facilities with rural facilities performing better.

Many urban facilities were found to adhere to protocols on safe use of medications than rural facilities ($p=0.0183$) while more rural facilities had evidence of training their clinical care staff in resuscitative techniques than urban facilities ($p=0.0219$).

These findings could be explained by the relatively dominant Faith-based Organizations (FBO) clinics in rural areas in Ghana. These FBO clinics (categorized under private-not-for-profit) have been found to maintain better quality standards relative to other categories of facilities [25,26,27].

The paper generally found that geographical location of a health facility has an association with overall quality health services delivery to clients. Lower quality care and patient safety standards were more associated with urban than rural health facilities (coef.= -2.5, $p=0.005$).

There were no statistically significant relationship between facility geographical location and overall staff motivation levels. These findings reinforce recommendations in previous studies that, implementation of multifaceted staff motivation packages be streamlined towards peculiar needs of health staff in different geographical locations [22,25].

Recommendations

Based on our findings it is recommended that quality improvement interventions especially for primary healthcare services be intensified in urban areas. Many previous studies concluded that quality of healthcare services was better in urban than rural facilities [3,29] however, this current study revealed that medical technical quality in primary healthcare services was better in rural than urban facilities.

Since overall quality care and patient safety standards were low in health facilities, albeit having NHIS accreditation certificates, the NHIA accreditation unit should intensify more regular post accreditation monitoring to ensure that facilities adhere to quality care standards after accreditation. The current post accreditation monitoring using district mutual health insurance schemes and claims vetting do not seem to help maintain quality care standards in accredited facilities [30].

In addition, infrastructural improvement, facility resourcing, and career development plans are important areas the MoH should prioritize as retention strategies for health workers in rural areas while staff support in transportation to work and accommodation is considered for workers in urban areas.

Limitations

There are some limitations associated with this study that must be acknowledged. First, the study was done among workers of primary healthcare facilities with different work arrangements and conditions. It is possible responses from workers of higher level facilities such as hospitals will differ. The findings should therefore be generalized with caution.

Secondly, the study was conducted in only two out of ten regions. The current results could therefore be representative of southern Ghana where the study was conducted. Southern Ghana is relatively better endowed in health sector human and material resources than the northern sector. In view of these limitations, future researchers should consider increasing the sample size to include more regions and facilities. Triangulating staff experiences and quality care situations in NHIS accredited and non-NHIS accredited facilities could also be done in future studies to find out whether accreditation status of rural and urban facilities has a relationship with staff motivation levels and quality care performance.

Conclusions

Geographical location is an important factor in health facility performance in quality service delivery and levels of staff motivation. Even though there were not many statistically significant differences in work experiences of rural and urban health workers, there were significant rural-urban differences in staff satisfaction with financial incentives and availability of social amenities and drugs.

Urban location of health facilities was particularly found to have a negative correlation with facility performance in quality care standards. On a whole, while lack of transportation to work was the major source of constraint to urban workers, lack career prospects, irregular drug supply

and insufficient financial incentives were major sources of de-motivation for workers in rural areas.

Staff motivation packages and quality improvement interventions should therefore be guided by these peculiarities to ensure their efficacy. Replicating this study nationally will be an important step towards addressing the wide rural-urban disparities in motivation levels and its consequences on quality service delivery and attainment of MDGs 4, 5 and 6 in Ghana.

List of abbreviations

CHNs: Community health nurses

COHSASA: Council for health services accreditation of southern Africa

FBOs: Faith-based organizations

FGDs: Focused group discussions

GAR: Greater Accra region

GDP: Gross domestic product

GHS: Ghana health services

GHWO: Ghana health workers observatory

HRHDD: Human resource for health development directorate

IFAD: International fund for agricultural development

JCI: Joint commission international

MDAs: Ministries departments and agencies

MDGs: Millennium development goals

MOH: Ministry of health

NHIA: National health insurance authority

NHIL: National health insurance levy

NHIS: National health insurance scheme

PHC: Population and housing census

TBAs: Traditional birth attendance

VIF: Variance inflation factor

WHO: World health organization

WR: Western region

Acknowledgement

The Netherlands government through *NWO/WOTRO* project contributed financial support to conduct this baseline study.

Conflict of Interest

No conflict of interest is associated with this work.

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ⁱ Medical doctors, medical assistants, nurses, midwives, pharmacists, laboratory personnel, nurse-assistants

ⁱⁱ Administrators, NHIS contact persons, receptionists, accountants, laborers

ⁱⁱⁱ The tool is provided by the SafeCare Initiative, a collaboration of PharmAccess Foundation, Council for Health Services Accreditation of Southern Africa (COHSASA), and Joint Commission International (JCI). *SafeCare Essentials* was developed based on JCI's "International Essentials of Health Care Quality and Patient Safety".

^{iv} Zero (0) is scored when the desired quality improvement activity in a clinic is absent, or there is mostly ad hoc activity related to risk reduction. One (1) is scored when more uniform risk-reduction activity begins to emerge in a clinic. Two (2) is scored when there are processes in place for consistent and effective risk-reduction. Three (3) is scored when there is data to confirm successful risk-reduction strategies and continuous improvement.

^v Statistics not shown in tables but data is available upon request