

DO UGANDAN MEDICAL STUDENTS INTEND TO WORK IN RURAL HEALTH FACILITIES AFTER TRAINING?

Geoffrey Wandira^a and Everd Maniple^b

^a: Corresponding author. Malteser International, Southern Sudan. e-mail: gwandira2009@yahoo.com

^b: Faculty of Health Sciences, Uganda Martyrs University, P. O. Box 5498 Kampala, Uganda, everdmaniple@umu.ac.ug

Abstract

There is a persistent shortage of qualified health workers globally, but worse in developing countries, where it is even worse in rural areas than urban and peri-urban areas. Health workers refuse to be deployed in rural areas or migrate to urban areas in search of better physical facilities and to avoid professional isolation, among other reasons. Health workers brought up in urban areas have not experienced rural life and find it difficult to countenance a professional life in rural areas. Several training institutions have engaged in programmes to expose pre-service health workers to rural health work to demystify it and to enable the professionals make an informed choice on practice location after qualification. In this study, the intentions of Ugandan medical students to work in rural health facilities after qualification were sounded out, together with the factors that affect them and their perception of rural areas. The study covered five government medical schools (2 for doctors and 3 for Clinical Officers). Students of all years of study in the different courses were interviewed, as well as key informants in the administration of the schools.

At least one half of all the respondents (50% or 167/336) were clear that they did not intend to work in the rural facilities after training, while the other half was divided equally among those who wanted and those who were not sure yet. Whereas the proportion of those intending to work in rural areas rose progressively from the first year of studies, it reached a peak in the pre-final year (fourth year for student doctors and second year for clinical officers) and plummeted in the final year after the students had residential field experience. The majority of the students had a negative perception about working in the rural areas and associated them with lack of physical facilities, social services and communication. Personal demographic characteristics and previous exposure to a rural life did not seem to be related to a choice about work in rural areas. Most of the few students who intended to work in rural areas hoped to stay for not more than three years, before going either for further studies or for self-employment in urban areas.

The paper recommends review of the community exposure programmes of the medical schools, with a view to improve support supervision in the field and logistical support for the students during attachment. It also recommends better facilitation of rural health facilities and better incentives and remuneration for rural health workers.

Introduction

Health Workers are people engaged in actions whose primary intent is to enhance health (WHO, 2006). They are the most important resource for producing good health services which can ultimately influence the success or failure of the health system (Uganda MOH, 2006; Fritzen S, 2007). Despite the estimated 35 million health workers in the world, 57 countries (36 of

them in Sub-Saharan Africa, Uganda inclusive) have a critical shortage of staff. Sub-Saharan Africa alone has a global shortage of 2.4 million health workers (Uganda MOH, 2006; WHO 2006). There are many examples of developing countries that provide good coverage of their territory with health facilities and yet have limited access to services, because the facilities lack the personnel needed to function normally. Therefore,

a well-balanced distribution of infrastructure needs to go hand-in-hand with a well-balanced distribution of health personnel to be worth the investment, let alone to have an impact on the health of the population (Dussault and Franceschini, 2006). Vujicic et al (2004) in Onzubo (2007) and Wibulpolprasert (1999) reveal that, globally, imbalances in the health workforce are partly influenced by health worker migration to parts of the world where incentives are better. However, in-country rural-urban imbalances in the distribution of health workers also exist in all countries (WHO, 2006). Apart from financial incentives, imbalances also tend to be influenced by other political, social, economic and professional factors, several of which are beyond the control of policy makers in the health sector. A strong similarity has been shown between the distribution of highly trained health workers and the poverty map even in Uganda. This indicates the need to make health workforce distribution more pro-poor. The exodus of health workers from areas of poverty and low socio-economic development, to more highly developed areas follows a gradient of wealth, resulting in a global conveyor belt of health workers moving from the poorest to the richest, increasing inequity. The loss of knowledge and skills from the poorer to the richer countries is currently considered as a form of reverse subsidy. There are a variety of 'push' and 'pull' factors that impact on the movement of Health workers, arising both within and beyond the health system (Padarath et al., 2003).

'Push' factors endogenous to the health care system include low remuneration levels; work-associated risks including diseases like HIV/AIDS and TB; inadequate human resource planning with consequent unrealistic workloads; poor infrastructure and sub-optimal conditions of work. Exogenous push factors include political insecurity, crime, high taxation levels, repressive political environments and falling service standards. Movement is also influenced by 'pull' factors including aggressive recruitment by recipient countries, improved quality of life, study and specialisation opportunities and better pay. This inexhaustive list of 'push' and 'pull' factors is counter-balanced by 'stick' factors in source countries, which lead to greater personnel retention, such as family ties, psychological links with home, migration costs, language and other social and cultural factors (Padarath et al., 2003). Other 'stay' factors influence decisions to remain in the recipient countries and influence rates of return of personnel. These include reluctance to disrupt family life and schooling, lack of employment opportunities in host country and a higher standard of living in the recipient country (Padarath et al, 2003). Factors associated with movement of health workers often interrelate and affect

one another in many ways i.e. inadequate remuneration and working conditions result in personnel resisting redeployment, as well as promoting rural to urban migration (Dussault and Franceschini, 2006).

As a result, the health worker-population ratio is better in the urban than in the rural areas where health services are needed more in view of the poorer health indicators (Onzubo, 2007) and hence "the inverse care law of HRH" applies (WHO, 2006). In Uganda, a secondary analysis of the 2002 Population and Housing Census data showed that there were 59,680 persons with either a health occupation, or a non-health occupation but working in the health sector in Uganda; 2,919 were medical doctors, 88 dentists, 150 pharmacists, 20,186 had a nursing or midwifery occupation, 3,785 Clinical allied professionals, 15,228 nursing aids/ assistants and 4,530 traditional practitioners/ faith healers. However, Uganda's highly urbanized central region which hosts only 27% of the population had 64% of all nurses and midwives, 71% of all medical doctors, 76% of all dentists and 81% of all pharmacists. The imbalances are even more pronounced at the district level. For instance, not a single doctor was recorded as having been present during the census night in the rural Kalangala, Nakasongola and Moroto whereas 99 were in Jinja, 505 in Wakiso and 1,349 in Kampala Districts (MOH, 2006).

It has been suggested that the geographical maldistribution of health workers within countries i.e. concentration/rural deficits (e.g. 17% of Ugandan doctors being in Mulago Hospital) can be addressed by recruitment of rural students into professional schools, locating training schools in rural areas, obligatory service of graduates in less-developed regions, initiation of incentives or compensatory payments for service in less developed regions and requirements for such service to qualify for advanced specialist training, among others (WHO, 2006). However, this can only be successful over the long term if they address the issues that are important to medical students in deciding to work in rural or remote areas and more so target the students most likely to work in such areas (Schofield et al, 2007).

This study was done in 2008 in five Ugandan government medical training institutions i.e. Makerere and Mbarara university medical schools and Fort Portal, Gulu and Mbale schools of Clinical Officers. Despite the awareness of a reported relationship between a rural home origin or experience with rural work and retention, the admission criteria to the schools only consider attainment of the entry requirements but not the students' area of origin. However, during training, all

the students irrespective of origin are exposed to work in a rural setting. There are two types of such "community exposure programmes" (CEPs) in the above schools i.e. the official and mandatory Community Placements (CPs) and the optional Surgical Electives (SEs), whose objectives include exposing students to the rural reality. Allocation of students for community placement is done randomly by the teaching staff while selection of the sites for surgical electives is done privately by the students. Community placements are examinable and contribute to the final grades of the candidates while surgical electives are for the benefit of the clinical skills of the students but not examinable. All the institutions studied are located in the major urban areas of their region. With Makerere University being in the central city of Kampala, Mbarara university is about 300 kms to the southwest, Mbale is about 300 kms to the east, Fort Portal is about 300 kms to the west and Gulu is about 300 kms to the north of Kampala. Annual production rates are about 100 doctors and 20 dentists for Makerere, about 60 doctors for Mbarara, about 80 clinical officers for Mbale, about 60 for Gulu and about 115 for Fort Portal.

Mbarara University has been credited with pioneering the longer exposure of students to rural settings. More of their graduates are also anecdotally reported to work and to stay in rural areas longer than those of other medical schools due to this exposure. Their community exposure programme starts in the first year with a spate of three weeks, whereby students interface with the community on a daily basis. Later in the fourth year of the course, students are taken for a residential exposure for four weeks in various selected rural health units. Surgical electives in lower level health units are also done during the third and fourth years, which is an additional opportunity for the students to experience work in rural areas. Overall, the total period of rural exposure for the students at Mbarara University is about twelve weeks over a five-year period. At Makerere, community practice is done in the first four academic years while Surgical electives are held in the fourth year, but for a much shorter duration. For Clinical Officer schools, community practice is integrated within all the three years of the curriculum.

Problem statement

In Uganda, the training capacity for producing qualified health workers has progressively increased. More medical training institutions have introduced community exposure programs in their curricula to enable the students to appreciate the reality of a health worker in a rural setting. It is hoped that this may have an influence on their perception and intention to work in such places after training. However, the rural healthcare workforce continues to be inadequate and

the shortage is worsening with more health workers unwilling to work in rural areas and those who are there intending to leave. Whereas this is influenced by many factors, one possibility is that the community exposure programmes are not properly designed and implemented and that they are not having the desired impact on the students during training. It is also possible that the decentralized health services do not offer adequate attraction to the health workers to work in the rural areas after training. However, the true reasons are only subject to speculation since no local studies have addressed this issue.

Objectives

It was surmised that the intention to work in rural areas after training builds up over the training period due to the field exposure and should be firmly grounded by the end of the undergraduate course. This study, therefore, set out to find if medical students have decided to work in rural areas even while they are still on training. It also wanted to know the perceptions of medical students about rural work and any specific factors that influence their choice.

It was hoped that information so generated may inform policy-making at central level, especially regarding deployment and remuneration of health workers. It may also be used by the districts, especially those located in the underserved rural areas to come up with fresh strategies of attracting and retaining more medical health workers to their areas. The Ugandan Ministry of Education and Sports may also use it to develop new strategies of attracting more trainees to medical courses and to develop incentives for them to work in rural areas after training, as well as policies which offer more support to students willing and likely to work in rural areas to access medical training. The study is further hoped to provide information which may be used by the medical training institutions to come up with new training approaches which may influence the perceptions/ attitudes and intentions of medical students towards working in rural health facilities after their medical training.

Literature

Health workers are a most powerful resource for producing good health services which can ultimately influence the success or failure of the health system (Uganda MOH, 2006; Uganda MOH, 2007; Fritzen, 2007). The quality of health services, their effectiveness, efficiency, accessibility and viability depend on the performance of those who deliver them. The performance of these services is, in turn, determined by the policies and practices directed towards guaranteeing that an adequate number of appropriately qualified and motivated staff are

in the right place at the right time and at an affordable cost (WHO, 2006). However, whereas great need of health care services abounds in rural areas, the distribution of the health workforce in most countries is opposite to the need. The training of medical students plays an important role in shaping their interests and ultimate choice of workplace after graduation. Unfortunately, many medical schools still offer a training insensitive to the needs of the rural areas.

Apart from training, there should be other factors that influence students to take up rural practice. Knowledge of all these factors is crucial to ensuring the success and continuing funding of strategies designed to address the rural medical workforce shortages (Ranmuthugala et al., 2007). Following a rural primary care clerkship, a study on 473 third year medical students at the Medical University of South Carolina suggested that the clerkship positively influenced their perceptions toward rural primary care (Blue et al., 2004). Prior to the clerkship, students perceived rural primary care physicians to have more work demands, lower income potential, the same amount of medical expertise and more primary care service features in their practice in comparison to their urban/suburban counterparts. After the clerkship, they rated a rural physician's expertise higher than that of an urban/suburban physician and the quality of primary care was rated to be better. However, whereas work demands were rated to be lower than previously thought, they still considered the workload to be higher than that of urban practitioners (Blue et al., 2004). The study also concurred with previous observations that interest in underserved communities declines markedly from the first to the fourth year of medical school. Although 91 (21%) students had a rural background, the study did not indicate that the background had a positive influence on a student's views, whether before or after the clerkship.

In South Africa, a study was conducted on 82 second, third and fourth year medical students from the University of Cape Town to determine their attitude towards the new Primary Health Care (PHC) approach introduced in the curriculum following the White Paper for the Transformation of the Health System in South Africa (Draper and Louw, 2007). The study showed that students had a positive attitude towards the PHC approach and were positive about the decision to promote this approach. The students' attitudes were influenced by a range of factors, some related to the medical school environment e.g. the PHC approach itself, how it is taught, and the views of other students and staff. Other factors not related to the university included personality, the students' background and exposure to health facilities, and clinical exposure outside the university (Draper and Louw, 2007).

According to Dussault and Franceschini (2006), personal characteristics that influence perceptions and intentions for rural practice include the person's ethnicity, age, gender, values, beliefs, social background etc. Women are less prone to accept rural posts and are generally under-represented in rural areas (Dussault and Franceschini, 2006). Therefore, increased feminization of the medical workforce may not only result in more physicians but also fewer staff available and willing to work in rural areas where they are needed most. In the US, women tend to prefer urban locations, where they access salaried work in institutional settings. This is also observed in Bangladesh where female doctors rarely live in the same village as their assigned post and are more likely to live where their husbands' jobs are (Dussault and Franceschini, 2006).

Younger individuals typically have fewer family responsibilities and are more prepared to move or migrate. The presence of family members in rural and remote areas also increases the probability that an individual will consider these areas for the establishment of his/her practice. The decision of where to practice is also influenced by an individual's expectations and career advancement plans (Dussault and Franceschini, 2006). A descriptive survey on 212 final year bachelor of nursing students at Queensland University of Technology showed that possession of a rural background, previous workplace in a rural community and family, financial and/or employment commitments in a rural area all influenced the students' choice of undertaking a rural clinical placement. Therefore, these factors were suggested to be in the development of recruitment and retention strategies for health professionals to rural areas (Smith et al., 2001). However, another study on 159 physicians who had graduated from the Family Medicine Program at Queen's University, Ontario, between 1977 and 1991 did not reveal any association between age or gender and location of first practice (Easterbrook et al., 1999). Other studies have also found no association with demographic characteristics of the students (Ko et al., 2005).

The curriculum also has a role to play in shaping the students' intentions. Curricula need to change with national needs and priorities. In Uganda, nurse-midwifery schools were started with the rationale of providing a workforce for the mother hospital where they were located, and not the rest of the country. In addition, Some training curricula have not been reviewed for very long while others have become difficult to implement and some sections are irrelevant in the current situation (Uganda MOH, 2006). Lynch and Willis (2000) found that the duration of rural exposure is quite important in influencing students'

perceptions about rural areas. They did a study to investigate the effect of a 3-day family medicine preceptorship in a small town. They wanted to see the opinions of 102 first year medical students in a public medical school located in a predominantly rural region of the South-Eastern United States about living and working in small towns, and plans to live in and practice medicine in small towns. They found that brief exposure to rural medicine during medical school is an inadequate approach to changing students' opinions about small communities and encouraging interest in rural medicine. However, a similar study in Australia found that shorter and non-compulsory rural placements were associated with future rural practice although rural background of a student was a confounder (Playford et al., 2006). Rural background almost tripled the odds of choosing rural employment. However, 19% of the students who had not previously lived in a rural area still entered rural practice, thus underlining the importance of equipping even students of urban origin for rural practice.

The study of Lynch and Willis also showed that the (first year) timing of this type of experience was sub-optimal. Providing rural education and training experiences later in the curriculum may be more meaningful to students who are in the process of planning their careers and future practice locations (Lynch and Willis, 2000). However another study in a South African university with a known bias for rural practice found that rural preference was strongest among first year students and least among sixth year students (Dambisya, 2003). This was attributed to bias due to the prior knowledge of the university focus, which was diluted as the students were exposed to various communities, teaching hospitals, primary health care centers and family practice. It concluded that senior students are better suited to make informed choices given the benefit of exposure. The study also cautions that the relative unpopularity of rural service should not be seen as a failing of the curriculum since career decisions by students are a complex, dynamic and individualised process with many determinants (Dambisya, 2003). However, Dambisya did not determine the study year in which the change in perception occurred.

In Uganda, some medical/ health training institutions have introduced various rural community health care programs in their training curricula i.e. Community Based Education & Services (COBES), Problem Based Learning (PBL), Surgical/Open electives, community placements etc. In 2003, the medical faculty at Makerere University adopted the COBES, a stated principal objective of which is to acclimatize the students to rural work conditions with the hope

that they will be more willing to work there afterwards (Cooper, 2006). However, practical training and community-based training are negatively affected by inadequate budgets, lack of equipment, low quality of supervision, over-enrolment, lack of accommodation facilities and lack of awareness of Community-Based Health Care initiatives (MOH, 2006).

A case-control study on 2,414 General Practitioners in Australia reported that rural training at undergraduate and postgraduate levels increased the likelihood of rural practice (Ranmuthugala, 2007). This agrees with the findings in other studies to evaluate the effect of rural health curricula on the attitudes of students to a career in rural general practice, which found that rural origin and attachment to the rural health curriculum greatly influenced their likelihood of entering rural practice (Woloshuk and Tarrant, 2002; Williamson et al, 2003; Senf et al, 2003). However, Williamson M et al. also caution about the possibility that some students who indicate a high likelihood of entering rural practice may still not take up rural practice after training and vice versa.

The role of political and governance influences on rural practice by health workers has been mentioned in several studies but it has not been studied in depth. For instance, in Uganda, one stated aim of decentralization was to improve the efficiency and effectiveness of service delivery, including health care (Awio and Northcott, 2001). The establishment of the Health Sub-district (HSD) created new demand for extra health workers at a lower and often rural level. The staff establishment of the HSD requires over 40 staff, including two doctors, at each of the 214 HSDs (Uganda MOH, 2007). However, a recent survey found that units had only 38.4% (range: 10.4% in Kaabong to 92.6% in Ntungamo District) of the approved staff. In addition, it found that operating theatres at HSDs are more likely to function where the local government authorities make particular efforts to attract and retain medical officers and to supervise them regularly (Uganda MOH, 2007). This implies that where these efforts lack, the rural medical workforce is faced with a heavy patient workload. Yet, in some districts, decentralization has been highlighted as a big de-motivator for most health staff, leading to migration (Matsiko and Kiwanuka, 2003; Kyaddondo and Reynolds Whyte, 2003). The inadequate staffing picture has been partly attributed to the recruitment process for health workers into the districts' public service, which is perceived by health workers to be cumbersome and non-transparent. Ineffective application of post-scholarship bonding and other retention and distribution measures has also been blamed (Uganda MOH, 2007). However, whereas decentralization has been blamed in

some circles, it has enabled some local governments to exercise a leeway to improve the local conditions of health workers, and thus attract and retain staff. For example, some Ugandan districts give top-up allowances especially to doctors. Masaka District in the south-central Uganda pays a salary top-up equivalent to 118 USD per month but is still faced with an inadequate workforce (only three of the eight required doctors). The neighbouring island-based Kalangala District offers a top-up allowance of 20% of the doctors' net salary and has only one doctor who is also the District Health Officer (MOH, 2007). This confirms the findings of Cooper (2006) that to have an adequate workforce requires consideration of multifaceted inputs.

Attrition among Health workers and low productivity in rural areas are further attributed to delays in accessing the public service pay-roll, lack of promotion, lack of training and lack of career progression opportunities especially under local governments. Poor leadership characterised by conflicts, harassment and lack of transparency, and illness and deaths due to HIV/AIDS and accidents and malaria also contribute significantly to attrition and low productivity (MOH, 2006). Attrition from the districts is high among medical doctors, dentists and pharmacists although staffing levels for several other cadres have recently been rising in the public sector, to a large extent at the expense of staffing levels in the private-not-for-profit sector (MOH, 2006). In Uganda, rural-urban migration was found to be due to poor working conditions and pay, lack of housing and transport and lack of other social amenities such e.g. good schools for their children (Matsiko and Kiwanuka, 2003).

Scholarships for rural students have been tried as a strategy to increase attraction and retention of qualified staff in rural areas. One successful example of this has been the Friends Of Mosvold Scholarship Scheme (FOMSS) in South Africa. In 1998, Mosvold hospital in rural northern KwaZulu-Natal had only two doctors and was unable to attract trained health workers. They developed an innovative scheme to provide scholarships exclusively to students from the local area to study health sciences at the tertiary levels. This was in the belief that, despite their very deprived material circumstances, they were more attached to the area and they knew the clientele better. They were also used to the realities of rural life and hence more likely than their urban counterparts to return to practice in the district. From 1998 through mid-2005, 14 students who completed various degree programs have all returned to their rural district. FOMSS's success has led to its replication in other areas of South Africa (Cooper, 2006). However, similar examples are not many.

Career plans influence students' choice of practice location. A study done on Australian first and final year medical students about their future career and location choice, showed that they preferred to work in situations that provide flexibility to move onwards when their needs change. An example of such flexibility was the ability to enter specialist training after a period of rural/remote work or being able to transfer back to senior positions in urban hospitals after working as a rural specialist (Tolhurst H, 2006).

Another study on 100 first year medical students at the University of Melbourne, Australia, ranked factors which interfere with acceptance of a job as a doctor in rural areas. The ranking of these factors were different for students with a rural and urban background. Urban-origin students rated personal factors, education opportunities, socio-cultural facilities and the need for frequent travel higher than rural-origin students, who ranked spouse/partner needs and availability of schools for children higher than the urban-origin students (Azer et al., 2001).

Methodology

This study was done in 5 medical training schools in Uganda. It was a cross-sectional, descriptive study and both qualitative and quantitative methods of data collection and analysis were applied. The study population comprised all undergraduate Ugandan medical students at the selected schools pursuing either medicine and surgery (MBChB), dental surgery (BDS) or a Diploma in Clinical Medicine and Public Health (Dip. CMPH). An adjusted sample size of 385 was obtained using Kish's formula (Kish, 1965) and apportioned equally among the five schools under study. Thus 77 respondents were selected per school. The 77 respondents were then proportionately distributed in the respective academic years (Mbarara and Makerere have five years while the rest have three years). The respondents per year of study were selected randomly and conveniently at the exit of a main lecture hall for each class using short self-administered questionnaires, to be filled on the spot. One focus-group discussion (FGD) was held per school except Mbarara (where none was held) and Fort Portal (where two were held), with a randomly selected group of 8 -10 students, mixed irrespective of study year. Key Informant (KI) interviews were also conducted in all the schools under study with the coordinators of the field training programmes. Data were analyzed using SPSS version 11.0. The study has several limitations that call for caution in interpretation of results. The lack of an agreed and standard international definition of "rural" required lengthy discussion with no guarantee of common understanding. For the purpose of this study,

it was defined as an area in Uganda located outside a gazetted city, municipal or town council. The timing of the study close to examination time did not allow the students adequate time for non-curricular work. This negatively affected the response rate and could have also affected the quality of their responses. Gender and background balance of the study units was not considered during sampling.

Results

Between May and September 2008, a total of 339 medical students (67% males and 33% females) responded to the questionnaire, of the expected 385 (response rate of 89%, or 339/385). The mean and median ages of the respondents were 22.8 years and 23 years respectively.

Intention to work in rural areas

Almost half (49.7% or 167/336) of all the respondents who answered this question did not intend to work in rural health units after training. A quarter (25% or 84/336) of the respondents intended to work in rural facilities while another one quarter (25.3% or 85/336) were still not sure about their practice location. It is only in Mbale School of Clinical Officers where the majority of the respondents (39% or 23/59) intended to work in rural areas after qualification. In all the other schools, the majority did not intend to work in rural areas (Mbarara: 50% or 45/91; Makerere: 52% or 35/68; Fort Portal SOCO: 68% or 44/66; and Gulu-SOCO: 42% or 22/52).

In the two universities, which train doctors, the proportion of respondents who intended to work in rural health facilities increased progressively from the first academic year, reaching a peak in the fourth year and declining among the finalists in the fifth year i.e. Mbarara from 8% (or 2/24) to 33% or (8/24) and declining to 17% (4/24) among the fifth year students. At Makerere, they rose from 25% (or 2/8) to a peak of 50% (or 4/8) among the fourth year students followed by a decline to 13% (or 1/8) of the fifth year students. On the contrary, for BDS students at Makerere, there was a progressive decrease in the proportions of students who had the intention to work in rural facilities from 75% (or 3/4) among the first year students down to 25% (or 1/4) in the third year and further down to zero from the fourth year onwards. None of the fourth and fifth year respondents had any intention to work in rural units after training.

There was a mixed picture among the Clinical Officer trainees who do a three year course. In Fort Portal, the proportion of students intending to work in rural facilities increased from 31% (or 4/13) in the first year

reaching a peak at 46% (or 6/13) in the second year and declining to 23% (or 3/13) in the final third year. In Gulu, there was a steep decline in the proportion of students intending to take up rural practice from 58% (or 7/12) in the first year, through 8% (or 1/12) in the second year followed by a steep increase to 33% (or 4/12) among the finalists. In Mbale, there was a steady increase in the proportion of respondents who did not intend to take up rural practice from 25% (or 9/36) in the first year to 47% (or 17/36) in the third year.

Students' definition of a rural area

The way medical students understand rural areas may have an influence on their perception towards career choice location. This study tried to find out their perceptions through their own definition of a rural area. The majority of them (54% or 183/339) defined it as "a poorly developed area with no or limited access to social amenities". Few others defined it as "an area far from the city"; "a place with a low population of people" and one defined it as "an area far from town, with limited facilities like good schools, good roads, electricity, internet etc".

Apart from the above, we asked the students if they had ever imagined themselves working in rural areas after qualification. Only 57% (or 183/321) respondents had ever imagined themselves working in rural areas while 43% (or 138/321) had never thought so. For some, the thought was so distant and in one FGD, one student said

"For me, I've never thought of working in a rural area simply because I am a town man so...I don't think I can survive in a rural area" (all laugh) (*Male respondent, FGD at a School of Clinical Officers*).

However, some had an open but conditional attitude towards working in rural areas. One student said,

"I would work anywhere provided opportunities for career development are in place and can easily be accessed". (*5th year male MBChB student*)

Cadres perceived to be best suited to work in rural areas

Whereas the majority of the medical students did not see themselves working in rural areas, they thought other cadres were best suited for that work. The majority (31% or 104/339) thought that nursing officers and clinical officers are the cadre best suited to work in rural areas. Only 14% (or 48/339) thought medical officers (doctors) were the best suited cadre to work in rural facilities.

All the key informants felt that the community exposure programmes had a positive influence on the students' perception about work in rural areas, but they had no evidence to back their claim.

Factors affecting the intentions of medical students to work in rural areas after training

Of the 336 students who responded, 225 (or 67%) were males and the rest (111 or 33%) were females. Of the males, 64 (or 28%) showed an interest in working in rural areas while the rest did not intend to work there. Of the females, only 20 (or 18%) showed an interest to work in rural areas. By course of study, of the 141 MBChB students interviewed from the two universities, 31 (or 28%) intended to work in rural areas and the rest did not. Of the 16 dental students interviewed from Makerere, only 4 (or 25%) showed interest in working in rural areas. Of the 179 Diploma students interviewed from the three schools, only 49 (or 27%) showed an interest in working in rural areas. By age, the majority (236/336 or 70%) of the students were aged below 23 years. Of these, only 65 (or 28%) showed an interest to work in rural areas after qualification. Only 19 (or 19%) of the students aged above 23 years showed interest to work in rural areas. Of the 327 students who indicated their marital status, only 21 (or 6%) were married and the rest were not. Of the married students, only 6 (or 29%) showed an interest to work in rural areas after qualification. Of the 306 unmarried respondents, 77 (or 25%) showed interest to work in rural areas after qualification. The rest did not intend to work in rural areas after qualification. By religion, of the 329 students who indicated their religion, 134 were Anglicans, 127 were Catholics 21 were Moslems, 27 were Pentecostals and 20 belonged to other religions. Of the Anglicans, only 25 (or 19%) showed a firm interest to work in rural areas. The rest were either not sure or not interested. Of the Catholics, only 34 (or 27%) showed a firm interest and the rest were either not sure or not interested in working in rural areas. Of the Moslems, only 6 (or 27%) showed a firm interest. Of the Pentecostals, only 9 (or 33%) and of those belonging to other religions, only 8 (or 40%) showed a firm interest to work in rural areas. The rest of the students were either not sure of their interest or were clearly not interested.

Of the 333 students who indicated their tribe, the majority belonged to the Baganda (26%), Banyankore (15%), Iteso (7%) and Acholi (7%) tribes. The other tribes had minor representation. If we ignore the size of representation, the tribes which showed most interest in working in rural areas were Bafumbira (75%), Pokot (67%), Acholi (54%), and Batooro, Bagwere and Kakwa (at 50% each). Students from the rest of the tribes who showed interest to work in rural areas were less than 50%, with Samia, Sebei, Adidi and Kumam students showing no interest at all.

The location of Community Exposure sites

It was assumed that urban or rural location of the

exposure site influences the perceptions and hence the intentions of the students. Of the 214 students who indicated where they had had their attachment, 127 (59%) had had their exposure in an urban area while 87 (41%) had a rural practicum attachment. Of the 127 students who had had an urban exposure, only 30 (24%) had an intention of working in rural areas and the rest (97/127 or 76%) did not intend to work in rural areas. Of the 87 students who had had a rural attachment, only 18 (or 20%) had an interest in working in rural areas. The rest (69/87 or 80%) did not intend to work in rural areas after qualification.

The students' experiences from Community Exposure

The students' best experiences during community exposure and surgical electives may have an influence on their practice location after medical training. When asked about their best experiences, the students reported their key best experiences as acquisition of new skills (151/336 or 45%), hospitable staff and good working conditions (93/336 or 28%) and a chance to interact with the community (67/336 or 20%). Other but less common reasons included less workload, adequate supplies, low cost of living, commitment of staff to their work, learning new cultures, and recognition as a doctor. Despite the benefits observed above, the majority of the students still did not intend to practice in rural areas. For example, the majority of those who acquired new skills (115/151 or 76%) did not intend to practice in rural areas.

The negative experiences of the students were poorly equipped facilities (82/336 or 24%), poor facilitation by the medical school (60/336 or 18%), and long working hours (51/336 or 15%). Other key negative experiences included being far from family and colleagues, lack of supervision from senior colleagues, poor working conditions and language barrier.

Reasons for students intending or not intending to work in rural areas after training

Of the 84 students who indicated why they would want to work in rural areas, more than a half of them (52% or 44/84) would do so because of they feel they should help the vulnerable rural population. The next commonest reason was to acquire experience and skills (38% or 32/84) while the least (30% or 25/84) was because of low cost of living. However, in the FGDs, the most predominant reason cited for wanting to work in rural areas was the low cost of living.

Of those who did not intend to work in rural areas, the majority (40% or 67/167) cited poor/substandard/no facilities (i.e. equipment, infrastructure etc) and medicines, followed by those who declined due to poor remuneration (31% or 52/167). In the FGDs, most

respondents cited lack/inadequate social amenities and limited opportunities for further studies as disadvantages of working in rural HFs. For example, a first year male MBChB student said

“The challenges include lack of electricity, bad roads, poor accommodation and lack of standard places for entertainment, yet I am a good soccer fan of Arsenal club”.

Duration for which they would be ready to serve in rural areas

The students who expressed a willingness to serve in rural areas were also asked for how long they would be willing to stay there. Of the 51 students who answered this question, 19 (or 37%) were willing to serve for only two years and only 17 (or 33%) were willing to serve for more than three years. In addition, no female students were willing to serve in the rural areas for more than three years; the younger the students, the shorter the period they were willing to serve in rural areas; and all married students were not willing to stay in rural areas for more than three years while some single students indicated a willingness to stay for up to ten years.

Reasons why they would leave the rural areas

The students were asked why they would serve in rural areas only for their proposed duration. Those who answered that question said that they would leave to go for further studies (50% or 44/84); to seek for better payment (23% or 19/84) and the least commonest reason (4% or 3/84) was to be in touch with colleagues and their families, because of lack of good social amenities and, to become self-employed.

Prior exposure of a medical student to a rural background:

Studies have suggested that prior background exposure of the students to the rural reality influences students willingness and ability to stay and practice in rural areas. When we analysed the background of the respondents in this study, we observed that of the 326 students who indicated the urban or rural location of their home area of upbringing, 191 (59%) were from urban areas while 135 (41%) were brought up in rural areas. Of those with an urban origin, 23% (44/191) intended to practice in rural areas while 77% (147/191) did not intend to practice in rural areas. Of those with a rural upbringing, only 26% (35/135) intended to practice in rural areas while 74% (100/135) did not intend to. We also considered the urban or rural location of the students' prior (pre-medical) education as a potential influence on their intentions. We found that of the 333 students who answered this question, 63% (210/333) had attended their lower primary education (Primary One to Primary Four in Uganda's seven-year primary school education cycle)

in an urban area, while 37% (123/333) had attended it in rural areas. Of these, only 49 (23%) of the 210 students who attended lower primary education in urban areas were willing to work in rural areas which is comparable with 29% (35/123) from rural areas. At upper primary school level (Primary Five to Primary Seven), we found that of the 334 students who responded to this question, secondary school level, we found that 55% (182/334) had attended a rural school while 45% (152/334) had attended an urban school. Analysis at this level showed that only 27% (49/182) of those who attended upper primary education in a rural area intended to practice in rural areas compared to 22% (34/152) from urban schools. Analysis of the location of the rural exposure at secondary education level (Senior One to Senior Four in Uganda's four year Senior Secondary school cycle) showed that of the 334 students who responded to this question, 62% (208/334) had attended an urban secondary school while 38% (126/334) attended a rural secondary school. Analysis at this level showed that only 26% (54/208) of the students who attended secondary school in an urban school were willing to practice in rural areas compared to only 23% (29/126) who attended it in a rural school. At High School level (Senior Five to Senior Six in Uganda's two-year High School cycle), it was found that of the 334 students who responded to the question, 72% (240/334) had attended their High School in an urban area while 28% (94/334) attended High School in a rural area. Analysis showed that 25% (60/240) of those who attended High School in an urban area were willing to practice in urban areas compared to 28% (23/94) who attended it in a rural school.

Overall, the results seem to suggest that for whatever parameter one takes, only 20 – 30% (with an average of 25%) of the students would be willing to work in a rural area.

Discussion

Intentions of medical students to work in rural health facilities

The findings of this study show that a half (50% or 167/336) of all the respondents clearly had no intention to work in the rural HFs after their medical training. The other half was equally divided among those who were either not sure or who clearly intended to work in rural areas. It is only in the school in Mbale where the majority of the respondents intended to work in rural areas. Although the study interviewed students, whose intentions may change over the years, which is also confirmed in this same study, the fact that the majority of them do not intend to practice in rural areas is a finding that should send an alarming bell to policy makers. If trainees cannot imagine themselves working

in rural areas where the need for health workers is greater than urban areas, then policies should be put in place to make working in rural areas more attractive to them. The findings suggest that the strategies currently in use such as Community Exposure Programs (CEPs) are suboptimal in achieving the stated twin objectives of both enabling the students to acquire new practical skills and making work in rural areas attractive to the students. They may be achieving more on the former than the latter.

The findings show that for student-doctors, the proportion of those interested in working in rural areas is highest in the fourth year of medical school while for Clinical Officers, it is highest in the second year of the three-year course. A common characteristic to all the schools is that there is a decline in interest in rural work in the final year of the courses. This finding differs from those of another study (Ko et al., 2005) where students' interest in under-served areas declined from the first to fourth year of medical school.

From this study, it is possible that the decline in interest is due to practical experience in the field where the students faced some frustration, especially regarding availability of facilities, technical support supervision from the schools and seniors in the field and logistical facilitation. The other possibility is that the relatively brief rural exposure during the first years of medical school give a misinforming snapshot to the students, who then face the true reality of working in rural areas in the advanced years when they even appreciate the challenges better. Moreover, the duties assigned to students in the field vary with academic year of study. It is therefore possible that whereas work in the early years requires them to work in the community, the work assigned in the fourth year is more related to clinical practice which faces a lot of challenges. Alternatively, the early brief exposure through Community Placements may not be sufficient to modify the students' expectations compared to the later residential programs where the students are based in the community. This probably explains the decline in interest in the final year, where the assessment is done after the residential programme. The decline in the number of people intending to work in rural areas among the fifth year students is similar to findings of another study (Dambisya, 2003) in which it was suggested that senior students are better suited to make informed choices based on their aggregate experience of exposure to the rural under-served areas after undergoing all the community exposures.

For dental students, the findings show a progressive decline in the proportion of students who intended to

work in the rural facilities from the first year until the fifth year. This could be due to the fact that most rural facilities do not have adequate dental equipment for the students to appreciate that they can work in such units. Therefore, as they advance in their course and appreciate its nature better, it gets clearer that a rural career choice for them is not an option. This further confirms that the choice of practice location transcends personal feelings and also depends on environmental factors beyond an individual health worker's scope.

The role played by other factors which may affect a students' perception of a practicum site e.g. the managerial factors at the field sites (e.g. lack of professional role models, inadequate assessment, bad timing/duration of the field attachment etc) or the preparation (e.g. insufficient preparation of the students for the field attachment) does not come out clearly in this study and may need to be investigated separately.

The study also showed that as a manifestation of their negative perception about working in the rural areas, the majority of the respondents regarded nurses as the cadre best suited to work in such areas. They did not see themselves as an option. This is contrary to the findings of Blue et al. (2004) where students elicited both positive and negative features about rural primary care and could see themselves practicing there.

In this study, students' individual or historical characteristics did not seem to influence their intentions to work in rural areas. Similarly, the effect of exposure to a rural community practice does not seem to have influenced their choice. However, general observation seems to suggest that males were more likely to intend to work in rural areas compared to their female counterparts. The one factor that seems to be associated with the choice is the year of study, whereby the final year seems to be linked to a decline in the proportion of students intending to work in rural areas. It also observable that the few students interested in working in rural areas plan to stay there for a short time, long enough to enable them to acquire practical clinical skills so that they can become independent practitioners in urban areas or to specialize at postgraduate level. Therefore, the rural areas are considered to a kind of skills laboratory for the health workers after which they go to pursue their personal interests.

Policies such as decentralization did not seem to offer a better opportunity to improve students' affection for rural areas because they did not change the remuneration of staff and increased the bureaucracy of recruitment. All these discouraged the students from work in the rural areas.

Conclusion

This study sought to identify the perceptions and intentions of Ugandan students of medicine and surgery, dental surgery and diploma in clinical medicine about working in rural areas. Such information could help to modify the preparation, conduct and supervision of community exposure programmes in medical schools, to make rural areas attractive to qualified health workers. The majority of the medical students who participated in this study had a negative perception about rural areas and did not intend to practice medicine there after their qualification. Dental students did not intend to work in rural areas, probably because of lack of dental equipment in these areas. In this study, personal characteristics and historical exposure to rural areas did not seem to have an influence on the students' intention to work in rural areas. However, most final year students tended to have a negative attitude to working in rural areas compared to their counterparts in earlier years of the training programmes. Finally, current efforts like community exposure programmes and surgical electives seem to have achieved the opposite of their expected influence on students' perception. The students showed discouragement with the programmes because of a short duration, poor preparation, inadequate facilitation and poor supervision by seniors from their schools and on site.

Recommendations

The perceptions of the senior students changed after residential attachment to the rural facilities, partly because of the reality they saw on the ground. Part of this reality is lack of equipment and supplies, lack of medicines and excessive workload. It is recommended that the Ministry of Health ensures the adequate staffing and equipping of health facilities, especially the rural ones, in order for them to offer good working conditions for health workers. This may call for a deliberate policy of targeting, whereby rural facilities are given special consideration in resource allocation. Whereas this may be said to be happening already, the level of financing for rural facilities is still too low and can be improved upon even within the current resource envelope.

Incentives to attract qualified health workers to the rural areas also need to be put in place. For example, the Ministries of Health and that of Education and Sports could consider special scholarship conditions, reserved for those health workers who serve in rural areas for a given period of time. Such a period could be anywhere from three to five years. This would be a useful incentive because not only would it attract staff to the rural areas, it would also build capacity for the country. Low staff remuneration also needs to be addressed as a key incentive to attract staff to difficult

areas. Paroxysmal efforts have been undertaken in this direction, with the one-off allocation of a hard-to-reach allowance but this incentive needs to be entrenched and rendered sustainable. The management of the medical schools needs to review the preparation and implementation of the community exposure programmes of their schools, in order to ensure that the students are properly prepared and followed up while in the field. In addition, they need to improve the logistical support for these programmes to make the students reasonably comfortable in the field.

Finally, this was a cross-sectional study, which gave an insight into the situation but, aware that the intentions of the students keep changing, other study designs might be best suited to track changes in students' intentions with time.

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