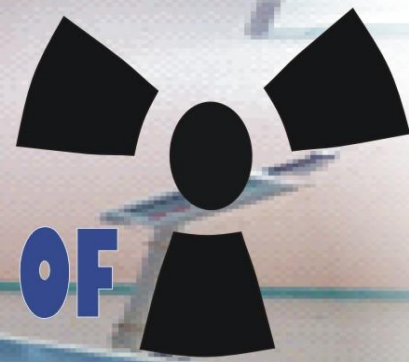


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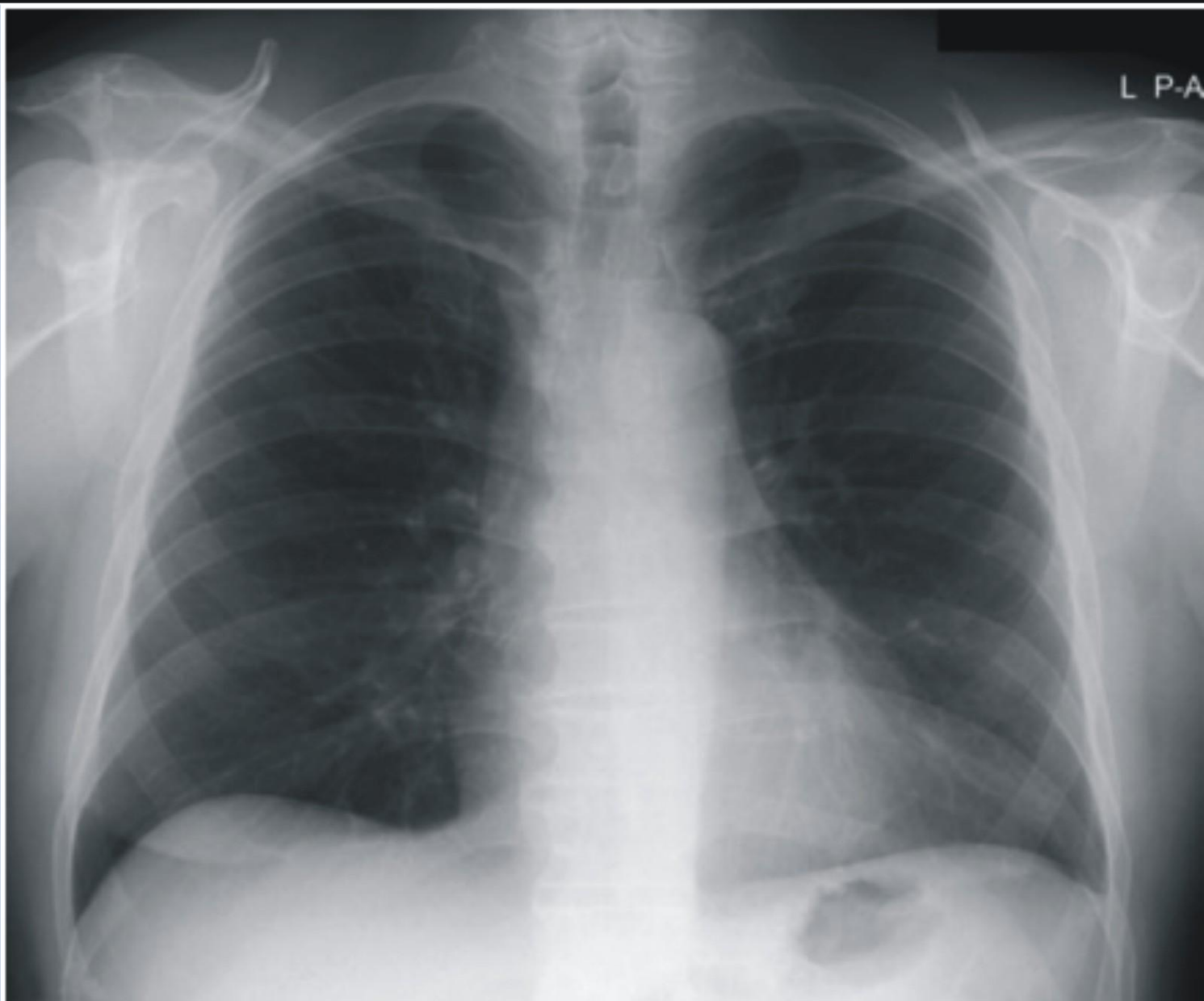


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Radiographers' willingness to work in rural and underserved areas in Nigeria: a survey of final year radiography students

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ABSTRACT

Background: Radiographers are in great demand and inadequate distribution to the rural hospitals and underserved areas affect prompt health service delivery to patients. Patients travel several kilometres from rural and underserved areas in Nigeria to access radiographic services and this affects morbidity and mortality.

Objective: To assess factors associated with Radiographers' willingness to practice in rural and underserved areas in Nigeria.

Methods: The study adopted a cross sectional survey. A total of 124 final year students from Southern Nigeria in Departments of Radiography in two tertiary institutions in Southeast Nigeria participated in the study. A researcher-developed questionnaire was the instrument for data collection. The questionnaire elicited questions on willingness to work in rural and underserved areas based on socio-demographic characteristics, remunerations, security, working conditions, peculiar incentives, extrinsic and intrinsic motivations.

Results: A total of 27 % of the student radiographers showed strong willingness, 32 % showed weak willingness and 41 % showed unwillingness to practice in the rural and underserved areas in Nigeria. Age, sex, remuneration, peculiar allowances and security were strongly associated with willingness to practice in rural and underserved areas ($p < 0.05$). Love for patient care, job satisfaction, provision of accommodation and opportunity for professional development had weak association ($p > 0.05$) with willingness to practice in rural and underserved areas.

Conclusion: Greater number of the student Radiographers were not willing to practice in rural areas of Nigeria. Areas of insurgency, some parts of northern Nigeria, primary and secondary healthcare centres located outside the major cities were unlikely to attract young energetic radiographers. Males and older respondents were more likely to work in rural and underserved areas of the country. There is need for adequate planning and provision of social incentives if radio-diagnostic services will be adequately covered in the national program for universal health coverage in Nigeria.

Key words: Radiographers, willingness, underserved areas, motivation, Nigeria.

Introduction

Radiographers are in great demand globally and there has been inadequate distribution to the rural hospitals and clinics in many countries. Nigeria is a low income country and suffers shortage and inadequate distribution of radiographers in rural

and some part of the country. It is usual for patients to travel several kilometres from rural and underserved areas in Nigeria to access radiographic services. There is also a noticeable geographical imbalance of radiographers between the northern and southern parts of Nigeria [1].

Nigeria operates three tiers of healthcare system, tertiary, secondary and primary levels. The tertiary consists teaching and specialist hospitals domiciled predominantly in the urban areas. The secondary tier consist the general and regional hospitals located in some urban and rural areas. The primary tier consists the cottage and primary healthcare centres (PHC) and do not have radiographic services at present in Nigeria. There are no clearly defined roles and responsibilities with regards to the provision and financing of healthcare among the 3 tiers of government [2].

Some authors [2,3] in other countries have reported encouraging experiences in the placement of healthcare professionals in rural environments. The successes, they reported, were achieved through; good relationships with peers and colleagues, ability to adapt to or adopt the rural 'lifestyle', successful integration into or interaction with local communities, and family/spousal contentedness as predictors of health professionals' choices for recruitment or retention on jobs in rural areas.

Previous studies on health professional's willingness to practice in rural areas evaluated the effect of motivations, incentives and working conditions on the willingness to accept jobs in rural and remote areas [4,5]. These studies reported difficult working conditions, low job satisfaction, salary and poor security as the major considerations for new graduates in selecting cities instead of rural districts.

Radiographers are critical in the provision of quality healthcare services to the population. They render diagnostic and therapeutic services and are invaluable for the monitoring of treatment outcomes. There has not been any study in Nigeria on radiographers' willingness to work in rural and underserved areas hence this study.

Materials and methods

This study adopted a cross-sectional survey. The total number of radiographers in Nigeria and their states of practice was obtained from the regulatory agency. A total of 124 final year students

(62 males and 62 females) from southern Nigeria in Departments of Radiography, University of Nigeria, Enugu campus, and Nnamdi Azikiwe University, Nnewi campus, both in Southeast Nigeria, were enlisted into the study. Ethical approval was obtained from the Ethics Research Committee of University of Nigeria.

The respondents were purposively, randomly and proportionately selected to enlist students from Southern Nigeria and equal number of males and females. Informed consent was obtained from each of the students. A researcher-developed questionnaire was used as the instrument for data collection. The questionnaire was validated by three experts from the Department of Medical Radiography and Radiological Sciences, University of Nigeria, Enugu Campus. Final year students not from Southern Nigeria were excluded from the study. This was to exclude biases in the responses since northern Nigeria suffers shortage of radiographers. The questionnaire was structured on a four-point Likert scale and elicited data on willingness to work in rural and underserved areas based on socio-demographic characteristics, Remunerations, security, working conditions, peculiar incentives, extrinsic and intrinsic motivations. Data were subjected to descriptive statistics and analyzed using Chi square. Probability value less than 0.05 was considered statistically significant.

Results

A total of 76 % of the radiographers were located in urban centres of southern Nigeria (Fig. 1). The number of radiographers was appreciable in North Central because Abuja, the Federal Capital of Nigeria which is located there, was categorized among the North Central region.

All the questionnaires sent out were returned completed giving a return rate of 100 %. Our result indicated that 27 % of the respondents showed strong willingness, 32 % showed weak willingness and 41 % showed unwillingness to practice in rural and underserved areas in Nigeria (Fig. 2). Males were more willing to work in rural and underserved areas (Fig.3).

Remuneration (71 %), security (69 %), peculiar allowances (68 %) and age (61 %) were strongly associated ($p < 0.05$) with willingness to practice in rural and underserved areas. Job satisfaction (45 %), provision of accommodation (42 %), concern for patient care (41 %) and opportunity for professional development (39 %) showed moderate to weak association with willingness to practice in rural and underserved areas (Fig. 4).

Discussion

Uneven geographical distribution of radiographers is a national problem that promotes quackery and less access to radiographic services in Nigeria's rural and underserved areas. It is common knowledge in Nigeria that two-thirds of the radiographers are practising in Lagos, Abuja and

Port Harcourt, three cities which constitute her economic and administrative nerve centres.

Our study showed that remuneration tops all the factors evaluated in the willingness of young radiographers to accept jobs in rural and underserved areas. The participants opined that as young professionals they were more interested in their earnings to help them start life and stabilize their family. Ehrenberg and Smith [6] believed that higher earning was necessary to justify the long-term investment in human capital and a necessary motivation for young medical professionals to work in rural areas.

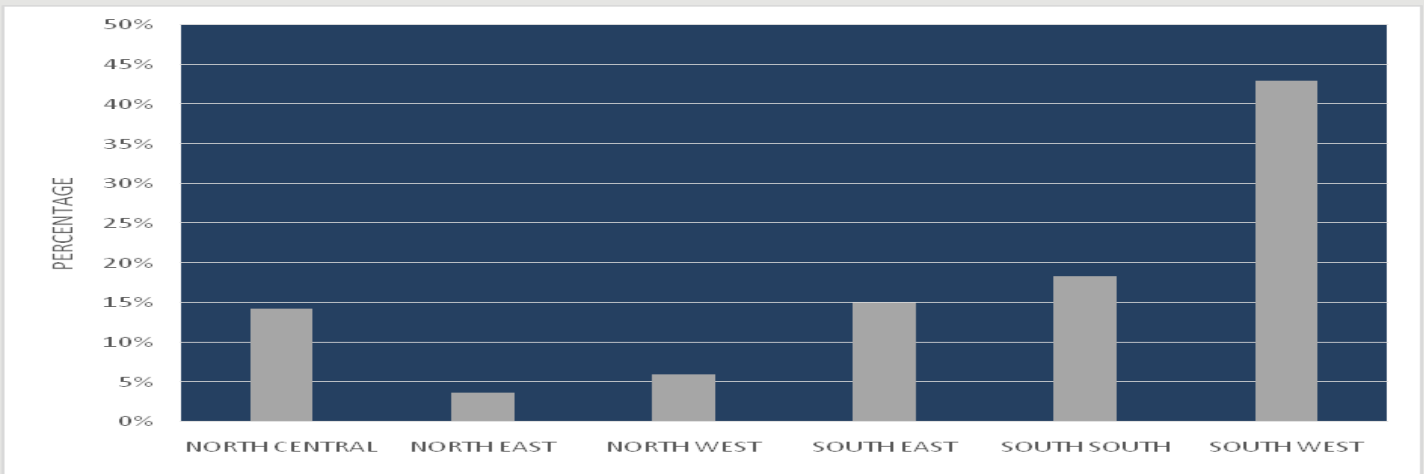


Fig.1 Distribution of Radiographers in various regions of Nigeria (Source: Radiographers Registration Board of Nigeria)

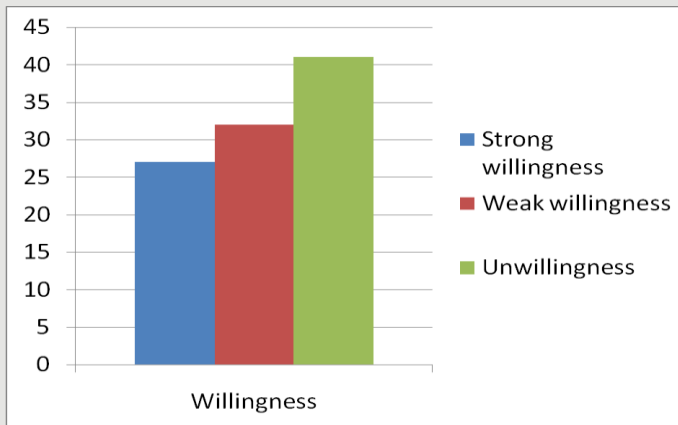


Fig.2 Willingness of the respondents to work in rural and underserved areas

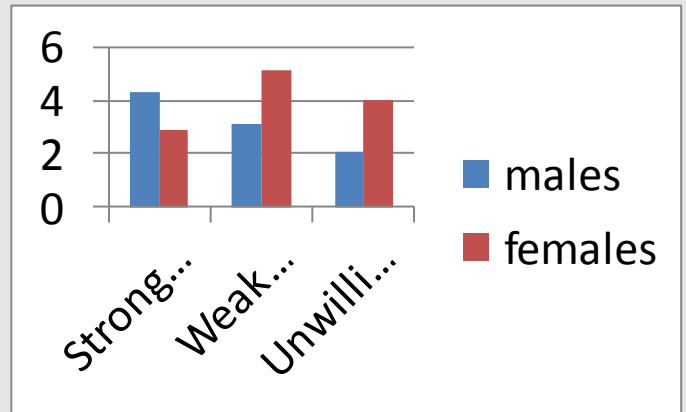


Fig. 3 Willingness of the respondents based on gender

Our finding was in agreement with several authors [7–10] who reported remuneration as a major motivating factor for young medical professional's willingness to work in rural and underserved areas. It is therefore our opinion that adequate remuneration in addition to peculiar rural allowances be built into the pay packages of radiographers to stimulate their desire to work in rural and underserved areas. The introduction of strong financial incentives to stop migration of health professionals from rural to urban areas was reported to be successful in Thailand [8].

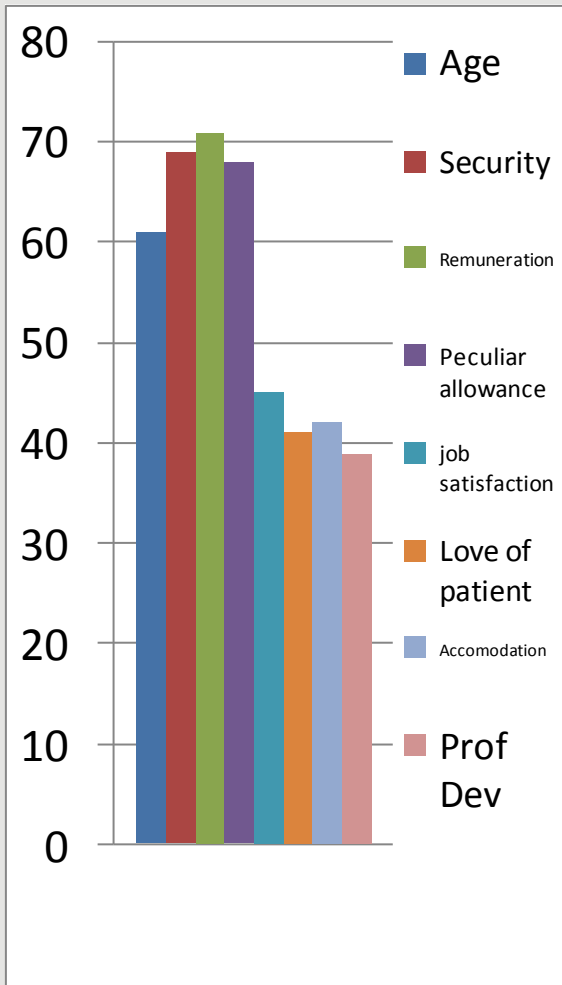


Fig.4 Factors affecting willingness to work in rural areas

Adequate security was a factor necessary in areas of insurgency. With the global security challenges, health workers are always at risk especially in rural areas. Nigeria is no exception to the security challenges. Many of the respondents were not ready to

work in some cities and rural communities in northern Nigeria unless adequate security was guaranteed.

Our study found that older male respondents were more willing to practice in rural areas than the younger male colleagues and females. This could be attributed to the exerting influences of finances on men as they get older. The relationship between age and willingness to work in rural areas was also reported in a study among medical students in Ghana [11].

Other variables assessed such as job satisfaction, love of patients, accommodation and opportunity for professional development had poor relationship with willingness of the participants to work in rural areas. Other researchers [12–15] had reported inclusion of health insurance, flexible working hours, holidays, training opportunities and part-time work status as incentives to encourage workers to take up appointments in rural areas.

Limitations of the study: The final year radiography students do not truly represent the real life situation and as such may not be used to generalize for working radiographers. They however, form the nucleus of future radiographers in Nigeria. Religious and ethnic contributions were not considered in our study.

Conclusion

In order to recruit and retain radiographers in the rural and underserved areas, it is expedient to adopt financial and non financial motivation strategies. Government should in addition to good salary package motivate the radiographers by providing adequate security, rural posting allowance, good functional equipment and convivial working environment. Provision of recreational facility, internet facility and constant electricity were other variables suggested by the respondents as possible motivating factors.

Conflict of Interest

The authors have no conflict of interests.

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