



THE RACE TOWARDS THE UNIVERSAL HEALTH COVERAGE AND FACTORS
INFLUENCING RADIOGRAPHERS' CAREER CHOICE IN RURAL SETTLEMENTS IN
NORTH-EASTERN NIGERIA

Geofery Luntsi, Hafsat B. M. Gubio, Flavious B Nkubli*, Ochie Kalu**, Nwobi I.Chigozie*,
Njiti M Muhammed*, Joseph D. Zira***, Abubakar Umar****

*Department of Medical Radiography, Faculty of Allied Health Science, College of Medical Sciences,
University of Maiduguri, Nigeria.

**Department of Radiography and Radiological Sciences, Faculty of Allied Health Sciences, University
of Nigeria, Enugu Campus, Nigeria

***Department of Medical Radiography, Federal University of Lafia, Nasarawa State, Nigeria

****Department of Medical Radiography, Faculty of Allied Health Sciences, Usman Danfodio
University Sokoto, Nigeria.

Corresponding Author: geostuff@unimaid.edu.ng

ARTICLE INFO

Keywords:

Attractors,
Detractors, Career,
Choice,
Radiographer,
Settlement.

ABSTRACT

Background: There is a human resource crisis in the healthcare sector in Nigeria. This is because of the existing inequitable distribution of the available meagre workforce which is itself not helped by the increasing and currently trending brain drain.

Purpose: This study aimed at assessing the factors that influence radiographers' choice of career in rural settlements in Northeastern Nigeria.

Methods: A cross-sectional study was conducted among Radiographers in Northeastern Nigeria. A 21-item, self-administered semi-structured questionnaire was distributed over a six (6) month period, where 130 questionnaires were distributed. The questionnaire consisted of two sections; a: on demography; b: on factors (attractors and detractors) for career choice in rural areas. Content analysis was used to analyze qualitative data; descriptive statistics were used to analyze quantitative data. Statistical Package for Social Sciences (SPSS) version 21.0 was used.

Results: A total of 91 questionnaires were retrieved, giving a response rate of 70%. There were 56 (61.5%) males and 35 (38.5%) females. About 82 (90.1 %) had B.Sc and 9 (9.9 %) had M.Sc as their highest qualification. The major attractors for accepting rural jobs were improved remuneration 97 (86.8%) and opportunity for continuous professional development 72 (79.1%). While major detractors were, the cultural and traditional beliefs of the people in rural areas 23 (25.3%) and the lack of social amenities/poor infrastructure 22 (24.2%).

Conclusion: The attractors for radiographers to rural areas in this study were; improved remuneration, availability of equipment, professional development, availability of social amenities and security among others. To recruit and retain radiographers in the rural areas, government, recruitment agencies and employers should in addition to good remuneration motivate the radiographers by providing adequate power, security, rural posting allowances, good functional equipment and working and learning environment.

Introduction

The world is racing towards meeting the Universal Health Coverage (UHC) target by 2030, the UN health-related Sustainable Development Goals (SDGs) which are key drivers in achieving these targets are still plagued by several challenges in some low and middle income countries like Nigeria. Nigeria is one of the countries with the largest human resources for health in Africa; however, the number of healthcare the workforce is still inadequate to effectively deliver essential health services due to inequitable distribution, with the health workforce concentrated in urban and semi-urban areas (1). Nigeria is a low-income country and suffers from shortage and inadequate distribution of healthcare personnel in rural and semi-urban areas which affect prompt health service delivery to patients. It is usual for patients to travel long distances from rural and underserved areas to access healthcare (radio-diagnostic) services and this affects morbidity and mortality (1,2).

There is a human resource crisis in the healthcare sector in Nigeria. This is because of the existing inequitable distribution of the available meagre workforce which is itself not helped by the increasing and currently trending brain drain. It is evident that areas with the lowest concentration of healthcare workforce have the worst health indices in the country because they are critical in the provision of quality health care services. Collaborations between the public and the private sector to recruit and retain effective and motivated healthcare workforce with adequate and equitable distribution is important in addressing the perennial challenge of retaining the healthcare workforce in the rural areas (1).

The staffing crisis in the health care sector is an issue of concern and rural and semi-urban settlements in north-eastern Nigeria are worst affected (3).

The northeastern zone is one of the six geopolitical zones in Nigeria. It has six states: Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe, with a population of around 26,263,866 people (4,5). The healthcare system in Nigeria is a blend of both the public and the private sector participation, with the Federal, state, local government and the private sector taking major responsibilities (3). Although a large portion of north-eastern Nigerian population lives in semi-urban and rural areas, there is a deficit in the number of radio-diagnostic services provided for this population (6).

As part of the health care team, recruitment and retention of radiographers in rural areas is key to maintaining adequate workforce towards achieving health care for all in the context of Universal Health Coverage, and to attain the Sustainable Development Goals number three 3 (7,8). They render diagnostic and therapeutic services which are invaluable in achieving the desired treatment outcomes (9).

Various reasons have previously emerged as to why healthcare professionals are unwilling to work in the rural and semi-urban areas, like poor working conditions, low job satisfaction, salary package and security concerns among others (10,11). Others have reported cordial working relationships with peers and colleagues, ability to adapt to the rural lifestyle, successful integration into the communities, and approval by family as reasons for willingness to work in rural and semi-urban areas (9,12). Literatures on the willingness of radiographer to work in the rural and urban areas in northeastern Nigeria are scarce, thus the need for this study.

Materials and Methods

A cross-sectional survey was conducted among Radiographers across major hospitals in the six (6) North-Eastern states of Nigeria. A 21-item, self-administered semi-structured questionnaire was distributed over a six (6) months period from April 2019 to September 2019. A total of 130 semi-structured questionnaires were distributed to radiographers working in North-Eastern Nigeria. Informed consent was sought for and received from the participants with acceptance to participate considered as consent. The questionnaire consisted of two sections; a: on demography; b: on attractors and detractors to career choice in rural areas. The questionnaires were adopted from Ntangu (13), Thambura (14), Mung'omba (15) and Okeji et al., (9) and adapted to suit our settings, with a Cronbach alpha value of 0.87, showing the reliability of the test instrument (questionnaire). Descriptive statistics were used for analysis, responses to the open-end questions were coded and analyzed according to themes and presented in tables. Statistical package for social sciences (SPSS) version 21.0 was used.

Results

A total of 91 questionnaires were returned giving a response rate of 70%. There were 56 (61.5%) males and 35 (38.5%) females. There were 12 (13.2%) respondents from Adamawa, 21 (23.1%) from

Bauchi, 23 (25.3%) from Borno, 15 (16.5%) from Gombe 4 (4.4%) from Taraba and 16 (17.6%) from Yobe State. Majority of the respondents were within the age range of 25-34 years, 71(67.0%) while the least were described under others age group 2 (2.2%). Majority of the respondents were single 58(63.7%) and were married 33(36.3%). About 82(90.1%) of the respondents had a Bachelor's Degree in Radiography and 9(9.9%) had Masters in Radiography.

There were 54 (59.3%) Intern Radiographers, 26 (28.6%) Senior Radiographers, 8 (8.8%) Principal Radiographers and 3 (3.3%) Chief Radiographers were among the respondents. Majority of the respondents have 0-2 years of experience 57 (62.6%) while the least of the respondent had 12 years and above 2 (2.2%), as shown in table 1

A total of, 61(67%) respondents agreed that they would accept rural jobs if they grew up or studied in rural areas. A good number of the respondents 58(63.7%) reported their decision to work or live in a rural community does not depend on family. A total of 79(86.8%) respondents agreed that radiographers working in rural areas deserve higher salaries than urban radiographers. Majority of the respondents 75(84.2%) agreed that the availability of social amenities in rural communities is a strong motivation to work there as shown in table 2.

Also, 22(24.2%) of the respondents stated that lack of social amenities; poor living condition, infrastructure and environmental factor were some of the reasons why they would not accept jobs in the rural communities. Culture and traditional beliefs of the people in rural areas were also proffered as a reason why 23(25%) of respondents were averse to working in the rural communities, as shown in table 3.

A good number of the respondent 57(62.7%) did not agree that the radiography curriculum provided them with sufficient exposure to rural radiography practice during their undergraduate training. A total of 66 (68.6%) respondents disagreed that their undergraduate training equipped them to adapt to the demands of rural radiography practice. About 64(67.7%) of the respondent agreed that short course and continued professional development are the motivation for radiographers to practice in the rural communities, as shown in table 4.

A total of 14(15.4%) respondents suggested that radiography students should be exposed to rural posting during their undergraduate training. About 28(30.8%) respondents also suggested

training radiographers in ultrasound imaging and in image interpretation (red dot system), amongst others as shown in table 5.

Discussion

The most popular factors that could influence radiographers' decision to practice in rural areas in this study were; improved remuneration, availability of equipment and opportunities for professional development. Availability of equipment helps make health workers more confident and able to do what they were trained to do (7). A similar study from Tanzania (13), found that opportunities for educational and professional development help healthcare personnel to maintain a high level of competence and to keep abreast with the current trend in their area of specialty. Availability of schools within and close to the community increase likelihood for radiographers staying and accepting rural jobs. Adequate provision of social amenities like; good housing, water, electricity, good roads, security, network and communication facilities can attract radiographers to work and stay in the rural areas where the cost of living may be affordable, compared to the cities. Others stated the desire to offer humanitarian service (giving back to the community) as a motivation to accepting rural job postings.

These findings are in tandem with previous studies by WHO (7), Okeji et al.,(9), Perumal (16). Addressing these factors will in no small measure impact on the healthcare service provision for the rural populace, thus achieving health equity and providing access to quality service to all (15). A study in Tanzania among the different cadre of healthcare personnel found that health workers' choices differed across cadre, as the doctors' preferred training and career development while nurses' preferred increased allowances and salaries (13). They also observed that healthcare workers background influenced their choices as well. One's ability to work well within the multidisciplinary team was an important competency criterion for working in rural health centres (15).

Lack of social amenities, inadequate/lack of equipment, especially the unavailability of advanced/modern radiography facilities, insecurity and culture of the people were enumerated as reasons why radiographers were unwilling to accept rural positions. This study found a gap between the skills acquired during training and the practical skills needed for rural radiography practice. The majority of the

respondents stated that the curriculum did not provide them with adequate knowledge, skill and competency to adapt to rural radiography practice. A previous study by Okeji et al.,(9) had similar findings. This implies that most radiographers who work in rural areas may lack the adequate competencies required to cope with the demands of rural radiography practice. However, in order for rural radiography services to grow, graduates need to be equipped with, not only traditional radiographic skills but also with the additional curriculum (role extension and advancement) and people-centred skills that are necessary for effective service delivery in the rural populace like performing and reporting ultrasound examinations, skeletal film reporting using the red dot system among others. Preparing radiographers for a rural career may be a challenging task but it is worth the effort if rural healthcare centres are to meet the needs of the rural populace and achieve the sustainable development goals target for health. Pratt (18) opined that the clinical placement of students gives them the opportunity to learn from a serene environment. In Nigeria, radiography students are only posted to accredited hospitals which are concentrated in the urban and semi-urban areas only.

Respondents also suggested competency in basic ultrasound scanning skills which is a low capital based practice that can be readily deployed to rural communities and will help most radiographers to quickly adapt to the rural practice as the acute shortage of sonographers and sonologist is more in the rural communities than in the cities. Previous studies (9,19) had similar findings where multi-competent radiographers were preferred. It is a common practice in Primary Health Care (PHC) where the shortage of doctors allows the nurses to assume responsibilities which were not part of their duty (20). In rural areas, radiographers' opinion on radiographic images may be sought for by the general practitioners (21).

Language barrier (communication) was also another challenge to rural radiography practice reported in this study. Dogan et al (22) emphasized the need for a more patient-centred approach in communication-based on patients need and preferences. Language barrier has been identified as a source of stress for healthcare professionals (23). Effective communication between the radiographer and the patients is crucial in radiography practice for proper patient instruction,

history taking and for providing instructions for pre and post-procedural care to ensure patient safety at all times and achieve the desired diagnostic information (24)

Role extension and expansion were noted as some of the strategies to address recruitment and retention of radiographers in rural healthcare centres. Both Radiographers and radiologist support radiographers' role extension, and recommended that radiographers should first obtain additional postgraduate qualifications before venturing into an area beyond their scope of practice (25). Studies suggest that the existing scope of practice for radiography was limiting rural radiography practice (19,26). This, however, suggests that the competencies enshrined in the scope of radiography practice should not be rigid but flexible as different environments may require different skills and competencies. Extending and expanding the scope of radiography practice particularly in the rural settings will pave the way for radiographers to take up more responsibilities and roles and at the same time allow for professional growth. This study is limited by its few sample size, making generalizability of findings difficult. We hope that subsequent studies will address this limitation.

Conclusion: The attractors for radiographers to rural areas in this study were; improved remuneration, availability of equipment, professional development, availability of social amenities and security among others. Some values and skills such as; exposure of radiography students to rural posting during training, acquiring basic ultrasound scanning skills, film reporting skills were necessary to deal with the challenges of working in rural areas. To recruit and retain radiographers in the rural areas, government, recruitment agencies and employers should in addition to good remuneration motivate the radiographers by providing adequate power, security, rural posting allowances, good functional equipment and working and learning environment.

Acknowledgment

We sincerely appreciate all the radiographers practicing in Northeastern Nigeria who despite their tight schedule took their time to fill out and returned our questionnaires.

References

[1] National Human Resources for Health

- Strategic Plan 2008 to 2012. Federal Republic of Nigeria. 2007.
- [2] Awofeso N. Improving health workforce recruitment and retention in rural and remote regions of Nigeria. *Rural and Remote Health*. 2010; 10:1319.
- [3] Oluyemi J, Abubakar M, Abdullateef R, Akindele I, Adejoke J, Kadiri K. Factors determining the utilization of healthcare facilities in a semi-urban setting in Kwara State Nigeria. *Anthropological Researches and Studies* 2017;7(1):80-87
- [4] National Population Commission of Nigeria. Nigeria Population and Housing Census 2006. Abuja, Nigeria: National Population Commission of Nigeria.
- [5] National Bureau of Statistics. Demographic Statistics Bulletin. 2017 Asghari S, Aubrey-Bassler K, Godwin M, Rourke J, Mathews M, Barnes P, Smallwood E, Lesperance S, Porter N, O'Reilly S, Hurley O, Pike A, Hurd J. Factors influencing choice to practise in rural and remote communities throughout a physician's career cycle. *Can J Rural Med* 2017;22(3):92-99
- [6] World Health Organization "Increasing access to health workers in remote and rural areas through improved retention", global policy recommendations; Geneva, Switzerland. 2010:13-35.
- [7] Ajiye Sam. Achievements of Millennium Development Goals in Nigeria: A critical examination; *International affairs and global strategy*. 2014;25:24-36
- [8] Okeji MC, Ugwanyi DC, Adejoh T. Radiographers' willingness to work in rural and underserved areas in Nigeria: a survey of final year radiography students. *J Assoc Rad Nigeria*. 2014. 28(1):6-10.
- [9] Kruk ME, Johnson JC, Gyakobo M, Agyei-Baffour P, Asabir K, Kotha SR. Rural Practice Preferences Among Medical Students in Ghana; a discrete choice experiment. *Bulletin of the World Health Organization* 2010; 88:333-341.
- [10] Wilson NW, Couper ID, De Vries E, Reid S, Fish T, Marais BJ. A critical review of interventions to redress the inequitable distribution of healthcare professionals to rural and remote areas. *Rural and Remote Health*. 2009; 9: 1060
- [11] Richards H.M, Farmer J, Selvaraj S. Sustaining the rural primary healthcare workforce: survey of healthcare professionals in the Scottish Highlands. *Rural Remote Health* 2005; 5(1):365
- [12] Ntangu, G. Exploring Factors Affecting Attraction and Retention of Health Workers in Rural Areas – Tanzania. *Health and Poverty*. 2014; Pp 56
- [13] Thambura M.J. An investigation of factors impacting on the retention of radiographers in Kwazulu-Natal: a survey of student of master of health sciences in radiography. Durban University of Technology; 2016; REC 37/12
- [14] Mung'omba B, Botha ADH Core competencies of radiographers working in rural hospitals of KwaZulu-Natal, South Africa. *Afr J Prm Health Care Fam Med*. 2017;9(1), a1389.
- [15] Perumal, R. A community officer's perspective of a rural hospital in KwaZulu-Natal. *SAMJ* 2012;102(6):355
- [16] Strasser R. Rural health around the world: challenges and solutions. *Family Practice* 2003; 20: 457–463
- [17] Pratt. SD. Radiographers' perspectives of their changing roles
- [18] and some implications for their pre-service education in Wales: a study of three departments. PhD Thesis (School of Social Sciences) 2005. University of Wales Cardiff.
- [19] White P. Establishment of a continuous professional development model for monitoring post-graduate performance of diagnostic radiographers in Hong Kong public hospitals. PhD Thesis (Department of Optometry and Radiography) Hong Kong Polytechnic University. 2003. Hong Kong.
- [20] Pearson, A. Expansion and extension of rural health workers roles to increase access to health care services in rural areas. WA Country Health Service From : <http://www.wacountry.health.gov.au>. 1993. (Accessed 24 August 2019).
- [21] Smith & Tamara Recruitment/Retention to improve rural service, Desk review, Arhington, Va.: USAID/AIDSTAR-One project Task order 2010;1, 2010.
- [22] Dogan H, Tschudin V, Hot I. Patients' Transcultural needs and carers ethical responses, *Nursing Ethics*. 2009;6(6): 683-696
- [23] Bernard A, Whitaker M, Ray M. et al., Impact of language barrier on acute care medical professional is dependent upon role. *Journal of Professional Nursing*, 2006; 22(6): 355-358
- [24] Scott A. Improving Communication for Better Patient Care. *Radiol Technol*. 2007;78(3):205-18
- [25] Kekana, R.M., Swindon, L.D. and Mathobisa J.M. A survey of South African Radiographers' and Radiologists opinion on role extension. *African Journal for physical, Health Education, recreation and Dance*. 2015;21(4): 1114-1125.
- [26] Lehman U, Dieleman M and Martineau T. 'Staffing remote rural areas in middle and low income countries; a literature review of attraction and retention,' *BMC Health Service Res*. 2008;8;19:1-10