



Perception about Working in Rural Area after Graduation and Associated Factors: A Study among Final Year Medical Students in Medical Schools of Southeast Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. Author ENO conceptualized the study, authors ENO, UCA and BNA designed the study and wrote the protocol. Authors KAU, NE and NCI did the literature searches. Author ENO did the statistical analysis with inputs from all the authors. ENO wrote the initial draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Aims: Aim of study was to determine the perception of rural medical practice among final year medical students in medical schools of southeast Nigeria and the associated factors.

Study Design: Descriptive cross-sectional study.

Place and Duration of Study: The six medical schools in southeast Nigeria, between March and May 2014.

Methodology: All the final year medical students in southeast Nigeria were recruited and were eligible for voluntary participation in the study. The students were interviewed using a pretested, self-administered questionnaire. Data analysis was done using STATA statistical software; version 13 and level of significance was determined at a p value of less than 0.05.

Results: Four hundred and fifty seven medical students participated in the study representing a response rate of 86.7%. The mean age of the students was 25.5 ± 2.9 years and majority (57.1%) were male. A minor proportion of the students (13.6%) were willing to practice in the rural area after graduation. Majority of the students (80.1%) were of the opinion that doctors working in rural area should earn more than their urban counterparts. Factors associated with willingness to practice in rural area included family residence in an urban area (AOR= 0.4, 95% CI: 0.2 – 0.9); work experience before admission into medical school (AOR= 2.0, 95% CI: 1.1- 3.9); intention to specialize in Community Medicine (AOR= 3.1 95% CI: 1.2- 7.7) and satisfaction with rural community posting, (AOR=2.1, 95% CI: 1.2- 3.9).

Conclusion: Majority of the students were unwilling to work in rural area after graduation. Knowing the need for doctors in rural practice, a re-orientation of the students on rural practice through adequate community exposure during rural posting is essential. There is also need for increased allowances for doctors working in rural areas and opportunities for training and or further studies should be encouraged.

Keywords: Perception; medical students; medical schools; rural; Nigeria.

1. INTRODUCTION

Globally there is an uneven distribution of all cadres of health workers, leaving countries in dire need of health services with the least number of health workers [1]. Similarly, within regions and countries, there is an urban-rural disparity in the distribution of health workers. For example, while about 55% of all people in the world reside in urban area, as much as 75% of the global doctor population render their services there [2]. This has prompted global policy recommendations by the World Health Organization (WHO) on how to increase access to health workers to rural areas through improved retention [3].

The WHO has emphasized that 57 countries of the world have a critical shortage of health workers and 36 of these countries are in sub-Saharan Africa including Nigeria [2]. This shortage of health workers has serious implications in the realization of the health-related Millennium Development Goals [4-6]. Consequently, these shortages have been found to be associated with high maternal mortality ratio and high infant and under five mortality rates. This situation appears unchanged as doctors are continually attracted more to the urban than the rural areas because of better income, good career opportunities, good infrastructure and social amenities [7]. Perhaps this constant deficit in distribution of health

workers with regards to rural areas necessitated the suggestion on the need to attract and retain health workers in rural areas [8].

In Nigeria, 54% of the populace reside in rural area [9] where the health workers including the doctor-population are fewer resulting in poorer health indices when compared to the urban [10]. With all these in mind, it is not surprising that urban inhabitants have a three-fold greater access to doctors compared to those in rural area [11]. Also, bearing in mind that final year medical students will in no distant time be part of the total doctor population, this study was conducted among final year medical students in medical schools of southeast Nigeria to determine their willingness to practice in the rural area after graduation and the associated factors.

2. METHODOLOGY

2.1 Setting

The study was conducted in medical schools in southeast Nigeria, which is one of the six geopolitical zones in Nigeria. It is made up of five states including Abia, Imo, Ebonyi, Anambra and Enugu states. It has a population of 16, 381, 729 people [12] within a total area of 28, 987 square kilometer [13]. The inhabitants are mostly of Igbo ethnic nationality and are predominantly Christians.

Medicine is accredited for study in six universities in the zone and two of these universities belong to the Federal Government of Nigeria. They include Nnamdi Azikiwe University Awka and the University of Nigeria Nsukka which was established in 1960 and is Nigeria's second oldest university. The state owned universities that offer medicine include that of Abia, Imo, Ebonyi and Enugu states.

2.2 Study Design

The study employed a cross-sectional descriptive study design using self-administered questionnaires.

2.3 Study Participants

The study population consisted of all final year medical students in medical schools of southeast Nigeria who gave consent to participate in the study.

2.4 Study Instrument

The study instrument was a pre-tested, semi-structured questionnaire which was developed by the researchers. Information was obtained on the socio-demographic characteristics of the students, their willingness to practice in rural area after graduation, the reasons why doctors were unwilling to work in rural area, whether doctors working in rural area should earn more and their suggestions on what should be done to encourage doctors to work in rural area.

2.5 Data Analysis

The analysis was performed using STATA statistical software, version 13. Frequency tables and cross tabulations were generated and level of significance was based on a p-value of less than 0.05. Multivariate analysis using binary logistic regression was used to determine the factors predictive of willingness of the students to practice in rural area after graduation. Variables that had a p-value of less than 0.2 in bivariate analysis were entered into the logistic regression model to determine the predictors of students' willingness to practice in rural area after graduation. The results are reported using Adjusted Odds Ratio (AOR), and 95% Confidence Interval (CI).

2.6 Ethical Consideration

Ethical approval for the study was obtained from Research and Ethics Committee of University of

Nigeria Teaching Hospital Ituku-Ozalla, Enugu. The students were required to sign a written informed consent form before participating in the study. The nature of the study, its relevance and the level of their participation were well explained to them. They were also assured that all information as would be provided in the questionnaire will be treated confidentially and anonymously. Above all, participation in the study was voluntary and participants were assured that there would be no victimization of anyone who refused to participate or who decided to withdraw from the study after providing consent.

3. RESULTS

Table 1 shows the socio-demographic characteristics of the students. The mean age was 25.5 ± 2.9 years with the majority (51.6%) within the age group of 25- 29 years. A higher proportion (57.1%) were male while majority of the parents of the students had tertiary education. Most of the students had their families residing in urban areas (88.4%) and also had their secondary education in the urban (82.7).

Table 2 shows the willingness of the students to practice in rural area after graduation. A minor proportion of the students (13.6%) were willing to practice in rural area after graduation. The major reason for the unwillingness was lack of interest in rural area (32.9%). Majority of the students (80.1%) were of the opinion that doctors working in rural areas should be paid more than their urban counterparts.

Table 3 shows the factors affecting the willingness of the students to practice in rural area after graduation. The students whose families reside in urban areas were 2.5 times less likely to be willing to practice in rural area after graduation when compared with those whose family residence were in the rural. The students who had a paid work experience before gaining admission to study medicine were twice more likely to be willing to practice in rural area when compared with those who had no work experience. Also, the students who were satisfied with rural community posting were twice more likely to be willing to practice in rural area after graduation when compared with those who were not satisfied. Likewise, the students whose intention is to specialize in Community Medicine after graduation were three times more likely to be willingly to practice in rural area when compared with other students who did not have such intention.

Table 1. Socio-demographic characteristics of respondents

Variable	n= 457 (Frequency)	Percent (%)
Age of respondents		
Mean (SD)	25.5±2.9	
Age groups in years		
<24 years	190	41.6
25- 29 years	236	51.6
30- 34 years	23	5.0
>35 years	8	1.8
Gender		
Male	261	57.1
Female	196	42.9
Ethnic group		
Igbo	438	95.8
Others ^a	19	4.2
Marital status		
Never married	414	90.6
Married	43	9.4
Religion		
Christianity	446	97.8
Others ^b	11	2.2
Education of father		
No formal education	15	3.3
Primary education	56	12.3
Secondary education	63	13.8
Tertiary education	323	70.7
Education of mother		
No formal education	13	2.8
Primary education	42	9.2
Secondary education	71	15.5
Tertiary education	331	72.4
Sponsorship of medical education		
Parents	369	80.7
Relation/sibling	49	10.7
Husband	19	4.2
Self	11	2.4
Scholarship	9	2.0
Work experience before admission into medical school		
No	369	80.7
Yes	88	19.3
Place of family residence		
Urban	404	88.4
Rural	53	11.6
Location of secondary school		
Urban	378	82.7
Rural	79	17.3

^a Yoruba; minority tribes; ^b Islam; traditional African religion

4. DISCUSSION

Majority of the students had an urban background (88.4%) and also attended secondary schools in urban area (82.7%). Bearing in mind that majority of the students are of Igbo ethnic nationality who are the major inhabitants of southeast Nigeria, it could be that students with rural background and those that attended secondary schools in rural areas show

less interest in studying medicine or that they are not adequately prepared and motivated for that purpose. Previous studies have demonstrated that students in secondary schools in urban areas perform better than their rural counterparts in the Senior School Certificate examination in Nigeria [14,15] and there are a lack of teachers in most junior secondary schools in the rural area [16]. This has led to the conclusion that children in rural areas of developing nations are

educationally disadvantaged hence the call for the establishment of Rural Education Programme in developing countries [17].

Also bearing in mind the complex and rigorous academic procedures in gaining admission to study medicine in Nigeria and elsewhere, there is a tendency that whatever admission process in place at present does not favour students who reside and attend secondary schools in rural areas since they are not adequately prepared for

examinations [17]. This is because the cut off mark for admission to study medicine in the university entrance examination has consistently been the highest in each of the universities in Nigeria as compared with that for other courses.

A minor proportion of the students (13.6%) were willing to practice in rural area after graduation and this has serious implications on the health of rural dwellers since majority of the populace reside there [9]. Also, that this proportion who

Table 2. Willingness to practice in rural area

Variable	n=457 (Frequency)	Percent (%)
Willing to practice in rural area		
Yes	62	13.6
No	395	86.4
Reason for yes above		
n= 62		
Provide service to the underserved	53	85.5
Gain experience	7	11.3
No specific reason	2	3.2
Duration of stay in rural area		
Less than 10 years	38	61.3
10 years and above	24	38.7
Reason for No above		
n =395		
Lack of interest in rural area	130	32.9
No career opportunities	82	20.8
Poor financial benefits	43	10.9
No social amenities	38	9.6
No equipment/facilities	37	9.4
Concern for family	34	8.6
No specific reason	31	7.8
Reasons doctors reject rural practice ^a		
n=457		
Poor social amenities	341	74.6
Poor financial remuneration	279	61.1
Poor hospital facilities	203	44.4
No opportunity for further studies	158	34.6
Poor career opportunities	151	33.0
Concern for family	140	30.6
Less fulfillment	136	29.8
Poor utilization of health facilities	68	14.9
If conditions above are fulfilled, are you willing to practice in rural area		
Yes	180	45.6
No	215	54.4
Doctors in rural area to be paid more		
Yes	366	80.1
No	91	19.9
Margin of such payment		
n=366		
× 1.5	173	47.3
× 2.0	141	38.5
× 2.5	52	14.2
Government could do to encourage doctors to practice in rural area ^a		
n=457		
Provide social amenities	337	76.6
Increased financial benefits	324	73.8
Training opportunities	212	52.9
Good hospital facilities	181	41.3

^a multiple responses encouraged

were willing to practice in rural area were lower than that from similar studies elsewhere [18-21] is of concern and should attract the attention of policy makers.

to provide service to the underserved and this was similar to a finding from India [20] and Uganda [22] where the major reasons were to provide medical services to the poor and the vulnerable respectively.

For the students who were willing to practice in rural area, the major reason for that decision was

Table 3. Factors affecting willingness of students to practice in rural area after graduation

Variable	Practice in rural area n=457		^a p-value	^b AOR, (95%CI)
	Yes N (%)	No N (%)		
Age of respondents				
≤ 26 years	34 (10.5)	289 (89.5)	0.003	0.6 (0.3 – 1.1)
>26 years	28 (20.9)	106 (79.1)		
Ownership of Institution				
Federal University	24 (11.3)	188 (88.7)	0.192	0.8 (0.4 – 1.4)
State University	38 (15.5)	207 (84.5)		
Gender				
Male	38 (14.6)	223 (85.4)	0.475	NA
Female	24 (12.2)	172 (87.2)		
Marital Status				
Never married	54 (13.0)	360 (87.0)	0.311	NA
Married	8 (18.6)	35 (81.4)		
Education of father				
Primary education and less	12 (16.9)	59 (83.1)	0.372	NA
Secondary education and more	50 (13.0)	336 (87.0)		
Education of mother				
Primary education and less	14 (25.5)	41 (74.5)	0.006	1.3 (0.6 – 2.9)
Secondary education and more	48 (11.9)	354 (88.1)		
Location of secondary school				
Urban	48 (12.7)	330 (87.3)	0.236	NA
Rural	14 (17.7)	65 (82.3)		
Location of family residence				
Urban	46 (11.5)	354 (88.5)	0.001	0.4 (0.2 – 0.9)
Rural	16 (28.1)	41 (71.9)		
Work experience before entry to medical school				
Yes	22 (24.7)	67 (75.3)	0.001	2.0 (1.1- 3.8)
No	40 (10.9)	328 (89.1)		
Sponsorship of medical education				
Others ^c	17 (19.3)	71 (80.7)	0.080	1.0 (0.5 – 2.0)
Parents	45 (12.2)	324 (87.8)		
Either or both parents a professional				
No	53 (13.8)	331 (86.2)	0.736	NA ^d
Yes	9 (12.3)	64 (87.7)		
Either or both parents a doctor				
No	59 (14.3)	355 (85.7)	0.185	2.3 (0.6 – 9.0)
Yes	3 (7.0)	40 (93.0)		
Intention to specialize in community medicine				
Yes	53 (12.4)	376 (87.6)	0.003	3.1 (1.2 – 7.7)
No	9 (32.1)	19 (67.9)		
Satisfaction with rural community posting				
Satisfied	23 (22.3)	80 (77.7)	0.003	2.1 (1.2 – 3.9)
Not satisfied	39 (11.0)	315 (89.0)		

^aP-value on bivariate analysis; ^bAdjusted odds ratio (95% confidence Interval) on multivariate analysis; ^c relation, husband; self; scholarship; ^d NA not available

This is a reflection of prior contact with rural area or its health care system by the students and at the same time, it demonstrates their appreciation of the gap in health needs of its inhabitants.

From the results of this study, the reasons why doctors were unwilling to practice in rural area included amongst others poor social amenities, poor financial remuneration and inadequate hospital facilities. These results are similar to that from other regions [20,21]. This to an extent paints the same picture of other rural and underserved areas of the world with regards to health service delivery and the need for concerted action in-order to improve delivery of services and patient care in these areas.

Majority of the students (80.1%) were in support of doctors working in rural areas earning more than their urban counterparts. Also, majority of the students who shared this opinion opted for 150% of the salary of doctors working in urban for rural medical practitioners. The WHO in its policy document recommended appropriate financial incentives for doctors who ply their trade in rural areas [3] as a way of retaining their services. In Nigeria, there is a policy for the payment of rural allowance to health workers working in rural areas. However, this rural allowance for doctors is the equivalent of 20% of basic salary [23] and as such, falls short of the expectations of the student doctors. There is every reason to increase this allowance in the light of recent developments. It is interesting to note that what the students suggested as possible measures to be adopted by the government to encourage doctors to work in rural areas include provision of social amenities, increased financial remuneration, training opportunities for rural doctors and good hospital facilities as suggested in the global policy recommendations of WHO [3].

From the logistic regression results, students with urban background were about three times less likely to be willing to practice in rural area after graduation when compared with those with rural background. The significant association between students with rural background and willingness to practice in rural area has never ceased to attract global recognition. The WHO policy recommendations strongly advocated targeted admission policies to enroll students with rural backgrounds for entry into medical schools on the premise that there is an increased likelihood that majority of them will be willing to serve in rural areas after graduation [3]. Also, a

study in South Africa recommended an admission policy that will favour students with rural background to gain admission into medical schools based on same assumption [24].

The Cochrane systematic review regarded this concept of students with rural background as the strongest factor associated with willingness to practice in rural area after graduation [25] which is well supported by recent studies [20,26-29]. From the results of this study, admission into medical schools is tilted in favour of urban residents, hence the need for a policy that will encourage candidates with rural backgrounds to gain admission into medical schools like lower cut off marks in the university entrance examination. This is because a study in Australia revealed that students with rural background had low academic entry scores for admission into medical schools [26].

The students who had work experience before entry into medical schools were also found to be more willing to practice in rural area after graduation when compared with those who did not. This finding is peculiar to this study, however, having a work experience before admission into medical school could be an indication of the intricate admission procedures in the quest to study medicine in Nigeria. It could also be due to financial reasons since a minor proportion of the students (2.4%) were responsible for their training in the medical school. Since majority of the students were sponsored by their parents, scholarship awards to indigent students who intend to study medicine and willing to practice in rural area after graduation will be of relevance as the possibility of rise in tuition fees in Nigerian universities is increasingly becoming obvious.

From the results of our study, students who were satisfied with rural community posting were twice more likely to be willing to practice in rural area after graduation when compared with those who were not. This is at variance with the result of a study from South Africa [30] however there has also been calls for repeated rural exposures and postings in rural hospitals for medical students [21]. It is important to note that studies from Australia and Democratic Republic of the Congo found a significant relationship between exposure to a rural clinical school and willingness to practice in rural area [27,31]. In Nigeria, no medical school is located in a rural area, however all the medical schools adopt a

compulsory rural community posting as part of its training programme for doctors.

One of the objectives of the rural community programme in medical schools in Nigeria is to teach medical students through practical work the principles and practice of community medicine [32]. Based on the finding that students who were satisfied with rural community posting were more willingly to practice in rural area, there is need to ensure that the rural community posting is student oriented. Also, since among the urban areas in Nigeria, some differences can exist hence there may be the need to designate at least one medical school (preferably a federal university) in each geo-political zone in Nigeria as a rural medical school. These schools may specifically serve for the purpose of training of doctors for rural practice with emphasis on good community experiences.

Another significant factor that affected the willingness of the students to practice in rural area after graduation were students whose intention were to specialize in Community Medicine or Public Health after graduation. This finding may be related to that on satisfaction with rural community posting. It may also be seen as falling in line with the objective of setting up the rural community programme in Nigerian universities. It is also worthy of mention that in the postgraduate training programme for Community Medicine/ Public Health, the concept of rural posting and rural community experiences receives higher attention and greater emphasis hence the need for a focus on this rural community experiences for student doctors.

5. CONCLUSION

Majority of the students were unwilling to work in rural area after graduation and were of the opinion that doctors working in rural area should earn more than their urban counterparts. This was based on the perception of the students that the rural areas lack social amenities, their health facilities are poorly equipped and the doctors working in these areas are not adequately remunerated.. Satisfaction with rural community posting which is a mandatory and rotational two to three months rural community experience by medical students during the period of training was significantly associated with willingness to practice in rural area after graduation. Knowing the need for doctors in rural practice, a re-orientation of the students on rural practice, through adequate community exposure during

rural posting is essential. There is also need for increased allowances for doctors working in rural areas, availability of better social amenities and opportunities for training and, or further studies. Our study has demonstrated a need for earlier intervention during the medical school curriculum to overcome these perceptions and attitudes of the students towards practice in rural area in order to reverse this disparity.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Speybroeck N, Ebener S, Sousa A, Paraje G, Evans D, Prasad A. Inequality in access to human resources for health measurement issues. Geneva, World Health Organization; 2006.
2. World Health Organization. World Health Report. working together for health. Geneva World Health Organization; 2006.
3. World Health Organization. Increasing access to health workers in remote and rural areas through improved retention. Global policy recommendations. Geneva. World Health Organization; 2010.
4. Chen L, Evans T, Anand S, Boufford JI, Brown H, Chowdhury M, et al. Human Resources for health: overcoming the crisis. *Lancet*. 2004;364:1984-90.
5. Haines A, Cassels A. Can the Millennium Development Goals be attained? *BMJ*. 2004;329:394-97.
6. Dreesch N, Dolea C, Dal Pox MR, Goubarev A, Adams O, Aregawi M, et al. An approach to estimating human resource requirements to achieve the Millennium Development Goals. *Health Policy and Plan*. 2005;20:267-76.
7. Dussault G, Franceschini MC. Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce. *Hum Resour Health*. 2006;4:12. DOI:10.1186/1478-4491-4-12.
8. Ossai EN, Ibiok NC, Chukwuogo O, Umeobieri AK, Aniwada EC, Ugwunna NC. Rural Retention of Human Resource for Health. *NigerJ Med*. 2012;21:138-45.
9. The World Bank, Working for a world free of poverty. Rural population (% of total population) Data.

- Available:www.data.worldbank.org/indicators (Assessed 12th February; 2015)
10. National Population Commission [Nigeria] and ORC Macro. National Demographic and Health Survey 2013. Calverton, Maryland: National Population Commission and ORC Macro; 2014.
 11. Ebuehi OM, Campbell PC. Attraction and retention of qualified health workers to rural areas in Nigeria: a case study of four LGAs in Ogun state, Nigeria. *Rural and Remote Health*. 2011;11:1515.
 12. Federal Republic of Nigeria. (FRN). Official Gazette. Lagos. Nigeria; 2007.
 13. Federal Republic of Nigeria. National Bureau of Statistics. Annual Abstract of Statistics. Abuja. Nigeria; 2010.
 14. Owoeye JS, Yara PO. School location and academic achievement of secondary school in Ekiti state, Nigeria. *Asian Social Science*. 2011;7(5):170-75.
 15. Adepoju TL, Oluchukwu EE. A study of secondary school students' academic performance at the Senior School Certificate examinations and implications for educational planning and policy in Nigeria. *African Research Review*. 2011;5(6):314-33.
 16. Oghuvbu EP. Distribution of teachers among secondary schools in Delta state; Gender and location analysis. *Journal of Research in National Development*. 2008;6(2).
 17. Nworgu BG, Nworgu LN. Urban-Rural disparities in achievement at the Basic Education level. The plight of the rural child in a developing country. *Developing Country Studies*. 2013;3(14):128-41.
 18. Kotha SR, Johnson JC, Galea S, Agyei-Baffour P, Nakua E, Asabir K, et al. Lifecourse factors and likelihood of rural practice and emigration: a survey of Ghanaian medical students. *Rural Remote Health*. 2012;12:898.
 19. Deressa W, Azazh A. Attitudes of undergraduate medical students of Addis Ababa University towards medical practice and migration, Ethiopia. *BMC Med Educ*. 2012;12:68. DOI:10.1186/1472-6920-12-68.
 20. Saini NK, Sharma R, Roy R, Verma R. What impedes working in rural areas? A study of aspiring doctors in the National Capital Region, India. *Rural Remote Health*. 2012;12:1967.
 21. Shankar PR, Thapa TP. Student perception about working in rural Nepal after graduation: a study among first and second year medical students. *Human Resources for Health*. 2012;10:27-35.
 22. Wandiraa G, Maniple E. Do Ugandan medical students intend to work in rural health facilities after training? *Health Policy and Development*. 2009;7:203-14.
 23. National Salaries Income and Wages Commission. Circular of 19th June, Abuja. Nigeria; 2001.
 24. De Vries E, Reid S. Do South African medical students of rural origin return to rural practice? *S Afr Med J*. 2003;93:789-93.
 25. Grobler L, Marais BJ, Mabunda SA, Marindi PN, Reuter H, Volmink J. Interventions for increasing the proportion of health professionals practising in rural and other underserved areas. *Cochrane Database of Systematic Reviews*. 2009;1: Art. No: CD005314. DOI:10.1002/14651858.CD005314.pub2.
 26. Puddey IB, Mercer A, Playford DE, Pognault S, Riley GJ. Medical student selection criteria as predictors of intended rural practice following graduation. *BMC Medical Education*. 2014;14:218-30.
 27. Isaac V, Watts L, Forster L, McLachlan CS. The influence of rural clinical school experiences on medical students' levels of interest in rural careers. *Human Resources for Health*. 2014;12:48.
 28. Shelker W, Zaharic T, Sijnja B, Glue P. Influence of rural background and rural medical training on postgraduate medical training and location in New Zealand. *NZ Med J*. 2014;127(1403):12-6.
 29. Walker JH, Dewitt DE, Pallant JF, Cunningham CE. Rural origin plus a rural clinical school placement is a significant predictor of medical students' intentions to practice rurally: a multi-university study. *Rural Remote Health*. 2012;12:1908.
 30. Mateen FJ. Future practice location and satisfaction with rural medical education: survey of medical students. *Can Fam Physician*. 2006;52:1106-7.
 31. Longombe AO. Medical schools in rural areas- necessity or aberration? *Rural and Remote Health*. 2009;9:11-31.
 32. Ogunlesi TO. The basic philosophy and founding objectives. In: Oyediran ABO, Brieger WR, editors. 25 years of The Ibarakpa Community Health Programme. African Press Limited Ibadan, Nigeria; 1989.

b). What made the Department/Specialty above most interesting.
.....
.....

20. a). What Department/ Specialty was the least interesting.
.....

b). What made the Department/ Specialty above the least interesting.
.....
.....

21. a). Do you intend to pursue Specialist Training (Residency Programme) after graduation

- A. Yes ()
- B. No ()
- C. Not yet Sure ()

b). What is your reason for the Yes, No or Not yet Sure above
.....
.....

c). If Yes, when was the decision made.

- A. Before admission into medical school ()
- B. During the preclinical period ()
- C. During the Clinical rotations ()
- D. Others (specify)

d) What specialty do you intend to specialize in
.....

e). What is your **major reason** for choosing the Specialty
.....
.....

22. Did you receive any form of **career guidance** while in the Medical School.

- A. Yes ()
- B. No ()
- C. Not Sure ()

Perception about working in Rural area after graduation.

23. a). Do you intend to practice in the rural area after graduation.

- A. Yes ()
- B. No ()
- C. Don't know ()

b). What is your reason for your Yes, No or Don't know above
.....
.....

c). If yes, how long do you intend to practice in the rural area.

d). If you are going to **leave** the rural area, what will be your reason

.....
.....

24. What do you think make doctors reject to live and practice in the rural area. (multiple answers are encouraged)

.....
.....
.....

25. If these conditions as specified above (Question 24) are put in place will you be willing to live and practice in the rural area.

- A. Yes ()
- B. No. ()
- C. Don't know ()

26. What do you think the Government can do to encourage doctors (especially newly graduated doctors) to live and practice in the rural area. (multiple answers encouraged)

.....
.....
.....

27. a). Should doctors working in the rural areas be paid more.

- A. Yes ()
- B. B. No ()
- C. C. Don't know ()

b). What is your reason for Yes, No or Don know above

.....
.....

c). If yes, what margin will you advocate.. eg $\times 1.5$, $\times 2$, $\times 2.5$, $\times 3$, of urban payments.

- A $\times 1.2$ B. $\times 1.5$
- C. $\times 2$ D. $\times 2$
- E. $\times 3$ F. Others specify

28. a). Have you done Rural/ Community posting.

- A. Yes ()
- B. No. ()

b). Are you satisfied with the Rural /Community posting.

- A. Yes ()
- B No ()
- C. Not sure ()

c). What is your reason for being satisfied or not satisfied

.....
.....

29. What do you think should be done to improve the quality of the rural community postings.
(multiple answers are encouraged)

.....
.....
.....

30. a). Do you think the Rural /Community postings could influence the doctors decision to practice in the rural area after graduation.

- A. Yes ()
- B. No ()
- C. Don't know ()

b). What is your reason for your answer above

.....
.....

Thank you.

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