

Full Length Research Paper

Medical students' specialty preferences: A survey in a medical school in Northern Nigeria

Oche M. O.^{1,2*}, Raji M. O.^{1,2}, Kaoje A. U.^{1,2}, Gana G.², Ango J. T.,^{1,2} Okafogun N.², Adamu H.² and Umar A.S.¹

¹Department of Community Health, Usmanu Danfodiyo University Sokoto, Nigeria.

²Department of Community Health Usmanu Danfodiyo University Teaching Hospital Sokoto, Nigeria.

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Studying specialty preference can help provide important information to aid in planning educational programs, set priorities, and plan for the provision of adequate health care for our different countries. This study aims to identify the career preferences among medical students in a tertiary educational institution and also to explore factors that affect their choice of specialty and differences that may arise in preferences of male and female students. The study was a descriptive cross-sectional design carried out between September and October 2011. A total of 160 medical students from 400 to 600 levels studying at the Usmanu Danfodiyo University Medical School were recruited for the study using stratified sampling method. A set of semi-structured self-administered questionnaire was used to obtain data from the respondents. Surgery was the most preferred specialty among male respondents (30.4%), while Obstetrics and Gynecology was the most preferred (26.7%) among female respondents. Some of the reasons proffered by the respondents for specialty preference include interest in research (10%), focus on urgent care (10%), reputation of the specialty (8.8%), and diversity of patients (8.8%). Logistic regression model was able to explain between 42.7% (Cox & Snell R Square) and 43.2% (Nagelkerke R Square) of variance in specialty preference of respondents with respondents' sex, and fathers education level) contributing significantly to the model.

Key words: Specialty preference, medical students, career, Nigeria.

INTRODUCTION

Nigeria with a population of over 150 million people (NPC, 2006) is the most populous country in Africa. The health sector is currently faced with dearth of medical doctors and specialists as the country in 2010 can only boast of about 62,000 doctors (National Bureau of Statistics, 2010). Currently, the combined output of all the 30 medical schools in Nigeria is between 3,500 and 4,000 new doctors annually and the country presently posts a poor doctor-patient ratio of 1:3,500 as against the World Health Organization recommended ratio of 1:600 (WHO, 2013). The West African Postgraduate Medical

College and the National Postgraduate Medical College are the only two institutions saddled with the responsibility of producing specialist doctors in Nigeria. Since the establishment of both colleges, a total of 5,557 specialists in different fields of medicine have been produced, even though most have left in search of greener pastures (MDCN, 2011).

Undergraduate medical students are taught, and study a wide range of subjects during the course of their training. It is often believed that they do not make their career preferences until after they have graduated from

medical school, but even medical school applicants, often have strong preferences for or against some medical careers (McManus et al., 1996; Yousef et al., 2008). Every moment spent in the process of medical learning has the potential to alter the student's preference of medical specialty. Reading a textbook, attending a conference, attending ward rounds, the bedside clinics, presentations and research experience may all contribute to it (Shah, 2009).

Career choices are however influenced by both the students' interest before starting medical school and during training in medical school (Senf et al., 2005). Several studies have been conducted in the past which concentrated on areas such as characteristics of individuals choosing particular careers (Saigal et al., 2007; Pawelczk et al., 2007; Paris and Frank, 1983; Crimlisk and McManus, 1987) and on associations with particular personality types while other studies concentrated on the careers of specific groups, such as women doctors (Dorsey et al., 2005). Gender also influences not only the specialty chosen, but also the reasons that contribute to making this choice. Generally men and women prefer specialties that are congruent to their gender roles (Valian, 1999).

Although several studies have been carried out to assess the factors that influence career choices among medical students in different settings (Lambert and Holmboe, 2005; Buddeberg-Fischer et al., 2003; Schwartz et al., 1989; Fukuda and Harada, 2010), there is scarcity of data from countries in Sub Saharan Africa. These studies are based on developed countries whose health care demands differ from developing countries such as Nigeria. With the frequent changes in health care delivery systems and with advances in medical technology, there is a need for appropriate specialty mix within the medical workforce. Reports indicated a huge disparity in the proportion of medical specialist in the country. For instance Environmental/Public health specialist and Psychiatrist have the lowest ratio of 0.3 and 0.05) per 100,000 population respectively (WHO, 2013). Furthermore, the National Human Resources for health policy of 2006 and the Human resources data for 2006, indicated that North west (including study area) and North east zones of Nigeria have the lowest number of health specialists in all areas compared to the South west, South-south and South east zones of the country (Health Reform Foundation of Nigeria, 2007). However it is important to note that even within the best placed South west zone there are huge disparities. For instance, Osun state has nine consultant Psychiatrists and two clinical Psychologists (WHO, 2011) which translates to a ratio of 1: 500,000 and 1: 2 million respectively (WHO, 2013). The low number of Specialists in Psychiatry as an example was aptly summed up by Gureje and Lasebikan (2006) that 90% of Nigerians with mental disorders have no access to specialist services. The scenario with the public health specialist is not different

as none of the 186 and 112 local government areas (LGAs) in north west and north east of Nigeria respectively has a Medical officer of Health unlike Lagos state where all the 20 LGAs are manned by a Medical doctor with a postgraduate public health training. Hence, studying specialty preference can help provide important information to aid in planning educational programs, set priorities, and plan for the provision of adequate health care for our different countries. The preference of medical specialties chosen by medical graduates plays an important part in the future workforce in health-care system, especially in times of over or undersupply of doctors (Mwachaka and Mbugua, 2010).

This study aims to identify the career preferences among senior medical students in a tertiary educational institution in Sokoto State and also to explore factors that affect their choice of specialty and differences that may arise in preferences of male and female students. It is expected the findings will provide additional information on the manpower development policy of Nigeria.

METHODOLOGY

The study was carried out at the Usmanu Danfodiyo University Sokoto, Nigeria, a tertiary educational institution involved in the research and training of all cadres of Health Manpower in line with the National Health System reform of 2006.

The study was a descriptive cross-sectional design carried out between September and October 2011. The study population comprised of medical students training at the Usmanu Danfodiyo University.

All medical students who were in the clinical school (400 to 600 level) were eligible to participate in the study. Medical students in the pre-clinical school (100 to 300 level) were not eligible to participate in the study since they are not exposed to Clinical specialties'.

Using the formula for cross sectional study (Kirkwood and Sterne, 2003) and a prevalence of 9.5% from previous studies (Ajayi and Sofola, 2010) a minimum desired sample size was calculated.

A stratified sampling technique was employed using the three levels in the clinical phase of medical training program of the university with a total of 326 students. The line list of students in each level served as the sampling frame to select the participants using the table of random numbers. The number of participants in each level was based on the weighted proportion of each level to the total student population in the three clinical levels in the medical school. A total of 160 participants were proportionately recruited from the 326 students in the three levels.

The instrument of data collection was a set of semi-structured self-administered questionnaire which sought to obtain information on respondents' socio demographic characteristics, specialty preference and reasons for the preference (Table 1 and 2). The questionnaires were self administered after obtaining informed consent. A total of 160 questionnaires were completely filled and returned (100% response rate).

The questionnaires were entered into and analyzed using SPSS statistical software package version 17. The data was analysed using descriptive statistics and Logistic regression to identify the factors that influence the choice of specialty with alpha level set at 5%.

Permission to carry out the study was obtained from the ethical committee of the Usmanu Danfodiyo University Teaching Hospital,

Table 1. Socio-demographic data.

Variable	n (%)
Age (years)	
21-25	109 (68.1)
26-30	46 (28.8)
>30	5 (3.1)
Mean age = 25.09 ± 2.4 years	
Gender	
Female	45 (28.1)
Male	115 (71.9)
Religion	
Islam	142 (88.8)
Christian	16 (10)
Others	2 (1.2)
Tribe	
Hausa	112 (70)
Ibo	6 (3.8)
Yoruba	9 (5.6)
Others	33 (20.6)
Level of study	
400	63 (39.4)
500	51(31.9)
600	46(28.7)
Educational status of father	
None/ Quranic only	33 (20.6)
Primary	6 (3.8)
Secondary	7 (4.4)
Tertiary	114(71.3)
Fathers occupation	
Civil servant	97 (60.6)
Business	48 (30.0)
Farmer	13 (8.1)
Unemployed	2 (1.3)
Mothers educational status	
None/ Quranic only	65 7 (40.7)
Primary	8 (5.0)
Secondary	25 (15.6)
Tertiary	62 (38.8)
Mothers occupation	
Civil servant	44 (27.5)
Business	34 (21.3)
Unemployed	3 (1.9)
Full time housewife	79 (49.4)

Sokoto.

RESULTS

The respondents' ages ranged from 21 to 38 years with a

Table 2. Distribution of specialty preferences.

Specialties	n (%)
Surgery	35 (21.9)
Internal medicine	28 (17.5)
Public health	23 (14.4)
Obstetrics and Gynaecology	21 (13.1)
Paediatrics	17 (10.6)
Ophthalmology	10 (6.3)
Dermatology	6 (3.8)
Family medicine	5 (3.1)
ENT	3 (1.9)
Anaesthesia	2 (1.3)
Radiology	2 (1.3)
Orthopaedics	1 (0.6)
Psychiatry	1 (0.6)
Others	6 (3.8)

mean age of 25.09 ± 2.4 years. Majority of the respondents were males (71.9%), Muslim (88.8%) and Hausa (70%). Majority, (71.3%) of the parents of the respondents had tertiary education and was mostly civil servants (60.6%), while most of the respondents' mothers were full time house wives (49.4%). Only 6 (3.8%) of the respondents had their parents as medical doctors.

The most preferred specialty among the respondents was surgery (21.9%), followed by Internal Medicine (17.5%) and Public Health (14.4%).

Surgery was the most preferred specialty among male respondents (30.4%), followed by Internal Medicine (17.4%) and Public Health (13%). Among female respondents, Obstetrics and Gynecology was the most preferred (26.7%) followed by public health (17.8%) and Internal Medicine (17.8%). No female student chose surgery as an area of specialization (Table 3). More males, 28.1% were into surgical specialties compared to females (7.5%).

Reasons for preferred choice of specialty were coded into two categories; work/professional related and personal reasons.

Some of the reasons proffered by the respondents for specialty preference include interest in research (10%), focus on urgent care (10%), reputation of the specialty (8.8%), and diversity of patients (8.8%). Only 1 respondent proffered advice from parent as the reason for specialty preference (Table 4).

Table 5 showed the model of the logistic regression used to assess factors that determine the specialty preference among medical students. The model contained five independent variables (age, sex, parents' educational attainment, and reasons for preference). The model was statistically significant χ^2 (40, N=160) 89.1; $P < .001$. The model was able to explain between 42.7% (Cox and Snell R Square) and 43.2% (Nagelkerke R Square) of variance in specialty preference of respondents

Table 3. Distribution of specialty preference by gender.

Subspecialty	Males	Females
	n (%)	n (%)
Surgery	35 (30.4)	0
Anaesthesia	2 (1.7)	0
Radiology	1 (0.9)	1 (2.2)
Family medicine	4 (3.5)	1 (2.2)
ENT	1 (0.9)	2 (4.4)
Obstetrics and Gynaecology	9 (7.8)	12 (26.7)
Paediatrics	11 (9.6)	6 (13.3)
Internal medicine	20 (17.4)	8 (17.8)
Public health	15 (13)	8 (7.8)
Orthopaedics	1 (0.9)	0
Psychiatry	1 (0.9)	0
Ophthalmology	6 (5.2)	4 (8.9)
Dermatology	4 (3.5)	2 (4.4)
Others	5 (4.4)	1 (2.2)

Table 4. Reasons for preferred area of specialization.

Variables	n (%)
Hours of practice	6 (3.8)
Diversity of patient	14 (8.8)
Anticipated income	2 (1.3)
Focus on community health	7 (4.4)
Focus on urgent care	16 (10)
Content of curriculum	6 (3.8)
Intellectual content of specialty	5 (3.1)
Individual competencies	13 (8.1)
Mentor emulation	7 (4.4)
Advice from faculty members	2 (1.3)
On call schedule	1 (0.6)
Advice from parents	1 (0.6)
Advice from practising physicians	4 (2.5)
Flexibility of specialty	18 (11.3)
Interaction with other specialty	11 (6.9)
Reputation of the specialty	14 (8.8)
Duration of residency program	3 (1.9)
Work pressure	8 (5)
Interest in research	16 (10)
Interest in long term relationship with patients	6 (3.8)

and correctly classified 89.1% of cases. However, only two of the independent variables (Sex, and Fathers education level) had significantly contributed to the model (Table 6).

DISCUSSION

Choosing a career especially in the medical profession could sometimes be a difficult task which is usually

influenced by several factors. Although students have strong career preferences from the beginning of their training period, their choices undergo several changes before a final decision is made on the choice of a career. The experiences gathered by students in chosen specialties during training as well as the social milieu of the medical school, the teaching programme as well as the influence of role models can affect career preferences (Newton et al., 2005).

In this study, the most preferred specialty among the study subjects was surgery. This is consistent with findings from other studies (Yousef et al., 2008; Mwachaka and Mbugua, 2010; Rehman et al., 2011). However the findings by Huda and his colleague contradicts our data by showing that internal medicine was preferred over general surgery (Huda and Yousuf, 2006).

We found significant gender differences in the choice of surgery and obstetrics - gynecology subspecialties (Table 3). Gender has been found not only to influence the specialty chosen, but also the reasons that contribute to making this choice as men and women preferred specialties that are appropriate to their gender (Valian, 1999); consistent with other studies, females generally preferred pediatrics and gynecology-obstetrics (Redman et al., 1994; Jaafar and Ahmed, 1993; Kassebaum et al., 1996; AAMC, 1999; Reed and Fischer, 2001) and men preferred surgical specialties (Monleon-Moscardo et al., 2003). This might not be unrelated to ethno-religious influences prevalent in the community particularly the preference for same sex to attend to respective clients/patients since nearly 90% of all respondents are Muslim where Purdah (keeping women in seclusion) is widely practiced (NPC and ICF Macro, 2009); for most females choice of specialty requires balancing of family life (Park et al., 2005).

The preference for obstetrics and gynecology by the female students may not be unconnected with the culture and religion of the study area where female patients would prefer to be attended to by fellow female doctors (Ityavyar, 1984). These cultural and religious reasons could account for the decreased number of male students interested in choosing Obstetrics and gynecology as a career choice for specialization. This is in consonance with a similar study carried out among medical students in Pakistan which is similarly a Muslim dominated community as our study area (Huda and Yousuf, 2006). Consistent with the findings from the study in Kenya (Mwachaka and Mbugua, 2010), our respondents also have the tendency to select a controllable lifestyle specialty, which is a specialty that allows more personal time free of practice requirements for leisure, family, and control of total weekly hours spent on professional responsibilities (Dorsey et al., 2005; Schwartz et al., 1989). The influence of controllable lifestyle on the choice of specialization by female medical students has been well documented in studies from Jordan and Pakistan (Yousuf et al., 2008; Huda and Yousuf, 2006).

Table 5. Predictive model fitting on specialty preferences of participants.

Model fitting information					R-Square	
Model	-2 Log Likelihood	Chi-Square	df	Sig.	Cox and Snell	Nagelkerke
Intercept Only	697.891					
Final	608.795	89.096	40	0.000	0.427	0.432

Link function: Logit.

Table 6. Factors that determines specialty preferences of participants.

Predictor	Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval		
						Lower bound	Upper bound	
Threshold	Specialty preference	-1.050	2.734	0.148	1	0.701	-6.409	4.308
Location	Age (years)	-0.006	0.079	0.006	1	0.939	-0.160	0.148
	sex	-1.083	0.424	6.505	1	0.011	-1.914	-0.251
	Father education level	1.922	0.951	4.086	1	0.043	0.058	3.786
	Reason for preference	3.181	1.005	10.013	1	0.002	1.211	5.152

Link function: Logit.

Findings from several studies have shown that women consider flexibility of work and opportunity for part time working in their choice of careers that will enable them manage their careers effectively without hindrance to family responsibilities (Harris et al., 2013; Harris et al., 2005; Redman et al., 1994; Sanfey et al., 2006; Salter, 2007).

Some of the major reasons for the choice of specialty selection amongst our study subjects were flexibility of specialty which is in tandem with findings from other studies that allows women to integrate family responsibilities with their career choices (Sanfey et al., 2006; Redman et al., 1994; Scott et al., 2008); individual competences as observed in the study from Jordan (Yousuf et al., 2008) and prestige of the specialty as observed in the study from Turkey (Dikici et al., 2008).

Unexpectedly, anticipation of better income did not feature prominently amongst the reasons for choice of specialty as only two of our respondents gave that as a reason. This is so considering that the Nigerian doctor is among the least paid in Africa with a net take home pay of between \$900 to \$2000 and this had necessitated several industrial actions aimed at attracting better remunerations for the doctors. This is in contrast to other studies where better financial opportunities were highly rated amongst the reasons for the choice of specialization by their studied subjects (Yousuf et al., 2008; Morra et al., 2009; Gorenflo et al., 1995; Wright et al., 1997). In Nigeria, the educated elites usually dictate the choice of studies for their wards in the universities as exemplified by the fact that majority of the respondents' fathers had tertiary education (71.3%) and are civil

servants (60.6%).

Role models especially of the same gender have been reported as a key factor in career choice (Dorsey et al., 2005; Harris et al., 2005; Valian, 1999), however, role models who served as influencers to choice of specialty accounted for only 4.4% of our participants. A similar low percentage was reported from other parts of the world (Saigal et al., 2007; Goronflo and Ruffin, 1995). However, findings from a Swedish study reported no gender differences in specialty preferences despite the fact that there is gender inequity in physician population in Sweden (Diderichsen, et al., 2013). In our study no female student chose surgery as a career of choice possibly because there is no practicing female surgeon in the study center. Consequently these students turn to other specialties that have more female representation such as obstetrics and gynecology. This might be one of the plausible explanations for the observed high preference for obstetrics and gynecology among female students in the current study.

Limitation of the study

The results of this study should be viewed in the context of the following limitations. Firstly we measured specialty preference at only one point in time. It has been observed that specialty choice does not remain stable over the course of medical education as students tend to use their clinical years as well as internship period to refine their specialty preferences. Secondly, the study was only conducted in one medical school. Thus, the results may

not be generalized to the entire country.

Conclusion

Findings from this study showed that the most preferred specialty amongst the study subjects was surgery, however female subjects preferred obstetrics and gynaecology. In future, a more comprehensive prospective study to follow up the students from the early years in medical school to the actual time they choose the specialties is required. This will provide some insights that will guide health manpower planners to come up with attractive options which in turn will encourage students to choose specialties that will address topical health issues in the country as well as paving way to reduce sex disparity in physician work force.

REFERENCES

- Association of American Medical Colleges (1999). Women in U.S. Academic Medicine Statistics 1998–1999. Washington, DC: AAMC.
- Ajayi O, Uti O, Sofola O (2010). Specialty Preference of Nigerian Dental students, University of Lagos, Lagos, Nigeria. The preliminary program for IADR General Session, 2010.
- Buddeberg-Fischer B, Klaghofer R, Abel T, Buddeberg C (2003). The influence of gender and personality traits on the career planning of Swiss medical students. *Swiss Med. Wkly.* 133(39-40):535-540.
- Crimlisk H, McManus IC (1987). The effect of personal illness experience on career preference in medical students. *Med. Edu.* 21:464-467.
- Diderichsen S, Johansson EE, Verdonk P, Lagro-Janssen T, Hamberg K (2013). Few gender differences in specialty preferences and motivational factors: A cross-sectional Swedish study on 1st-year medical students. *BMC Med. Edu.* 13:39.
- Dikici MF, Yaris F, Topsever P, Filiz MT, Gurel FS, Cubukcu M, Gorpelioglu S (2008). Factors affecting choice of Specialty among First year Medical students of Four Universities in different regions of Turkey. *Croat. Med. J.* 49(3):415-420.
- Dorsey ER, Jarjoura D, Rutecki GW (2005). The influence of controllable lifestyle and sex on the specialty choices of graduating U.S. medical students, 1996-2003. *Acad. Med.* 80:791-796.
- Fukuda Y, Harada T (2010). Gender differences in specialty preference and mismatch with real needs in Japanese medical students. *BMC Med. Edu.* 10:15-22.
- Gorenflo DW, Ruffin MT 4th, Sheets KJ (1995). A multivariate model for specialty preference by medical students. *J. Fam. Pract.* 40:536-537.
- Gureje O, Labesikan VO (2006). Use of mental health services in a developing country. Results from the Nigerian survey of mental health and well-being. *Soc. Psychiatr. Epidemiol.* 41:44-49.
- Harris, JE, Lopez-Vlrcel, BG, Ortun, V, Bar ber, P (2013). Specialty choice in terms of economic crises: A cross-sectional survey of Spanish medical students. *BMJ Open*, 3:e002051. Doi:10.1136/bmjopen-2012-002051.
- Harris, MG, Gavel, PH, Young, JR (2005). Factors influencing the choice of specialty of Australian medical students. *MJA* 183(6):295-300.
- Health Reform Foundation of Nigeria (2007). Primary Health Care in Nigeria: 30 years after Alma-Ata. The Nigerian Health review 2007; Health Reform Foundation of Nigeria, Mmm-nat Educational Window Consultant Ltd, Nigeria, Abuja.
- Huda N, Yousuf S (2006). Career preference of final year medical students of Ziauddin Medical University. *Educ. Health (Abingdon)* 19:345-53.
- Ityavyar DA (1984). A traditional midwife practice in Sokoto State, Nigeria. *Soc. Sci. Med.* 18(6):497-501.
- Jaafar R, Ahmed Z (1993). Career preferences of medical students in a community-oriented medical school. *Ann. Network Commun. Oriented Educ.* 6:301-310.
- Kassebaum DG, Szenas PL, Schuchert MK (1996). Determinants of the generalist career intentions of 1995 graduating medical students. *Acad. Med.* 71:198-209.
- Kirkwood B, Sterne J (2003). *Essential Medical Statistics* 2 ed. Oxford, UK: Blackwell Science Ltd; 2003. pp. 196-197.
- Lambert EM, Holmboe ES (2005). The relationship between specialty choice and gender of US medical students, 1990-2003. *Acad. Med.* 80:797-802.
- Medical and Dental Council of Nigeria (2011). Retrieved from www.mdcnigeria.org (Accessed RE20th January, 2013).
- Mwachaka PM, Mbugua ET (2010). Specialty preferences among medical students in a Kenyan University Pan Afr. *Med. J.* 5:18.
- McManus IC, Lefford F, Furnham AF, Shahidi S, Pincus T (1996). Career preference and personality differences in medical school applicants. *Psychol. Health Med.* 1:235-248.
- Monleon-Moscardo PJ, Rojo-Moreno J, Monleon-Moscardo A, Garcia-Merita ML, Alonso-Fonfria A, Valdemoro-Garcia C (2003). Influence of gender in vocational preferences and personality traits in medical students. *Actas Espana Psiquiatrica.* 31:24-30.
- Morra DJ, Regehr G, Ginsburg S (2009). Medical students, money, and career selection: Students' perception of financial factors and remuneration in family medicine. *Fam. Med.* 41:105-110.
- National Population Census (2006). National population commission of Nigeria. www.population.gov.ng (Accessed 12th January, 2013).
- National Population Commission (NPC) and ICF Macro (2009). Nigeria demographic and health survey 2008. Abuja, Nigeria/ Calverton, MD USA: National Population Commission and ICF Macro. http://pdf.usaid.gov/pdf_docs/PNADQ923.pdf.
- National Bureau of Statistics (2010). Review of the Nigerian economy, 2010. Retrieved from www.nigeriastat.gov.ng (assessed 20th March, 2013).
- Newton DA, Grayson MS, Thompson LF (2005). The variable influence of lifestyle and income on medical students' career specialty choices: data from two US medical schools 1998–2004. *Acad. Med.* 80:809-814.
- Park J, Minor S, Taylor RA, Vikis E, Poenaru D (2005). Why are women deterred from general surgery training? *Am. J. Surg.* 190(1):141-146
- Paris J, Frank H (1983). Psychological determinants of a medical career. *Can J. Psychiatr.* 28:354-357.
- Pawelczyk A, Pawelczyk T, Bielecki J (2007). The effect of some factors on medical student specialty choice of non-primary care – A synthesis of the literature. *Pol. Merkur Lekarski.* 22:575-579.
- Reed V, Fischer BB (2001). Career obstacles for women in medicine: An overview. *Med. Edu.* 35:139-147.
- Redman S, Saltman D, Straton J, Young B, Paul C (1994). Determinants of career choices among women and men medical students and interns. *Med. Edu.* 28(5):361-371.
- Saigal P, Takemura Y, Nishiue T, Fetters MD (2007). Factors considered by medical students when formulating their specialty preferences in Japan: findings from a qualitative study. *BMC Med. Edu.* 11:7-31.
- Senf J, Campos-Outcalt D, Kutob R (2005). Family medicine specialty choice and interest in research. *Fam Med.* 37(4):265-270.
- Schwartz RW, Jarecky RK, Strodel WE, Haley JV, Young B, Griffen WO Jr (1998). Controllable lifestyle: A new factor in career choice by medical students. *Acad Med.* 64(10):606-609.
- Scott IM, Matejcek AN, Gowans MC, Wright BJ, Brenneis FR (2008). Choosing a career in surgery: Factors that influence Canadian medical students' interest in pursuing a surgical career. *Can. J. Surg.* 51:371-377.
- Shah SU (2009). The medical students' dilemma: Which postgraduate specialty to pursue? *J. Postgrad. Med.* 55:294-5.
- Valian V (1999). *Why So Slow? The Advancement of Women.* Cambridge, Massachusetts: MIT Press.
- World Health Organisation (2011). Nigeria integrates mental health in to Primary Health Care: mental Health Gap Action Programme, MHGAP Newsletter, June 2011 edition, WHO, Geneva. Retrieved from http://www.who.int/mental_health/mhGAP_nl_jun2011_en.pdf.
- World Health Organization (2013). *World Health Statistics 2013: Health*

- system and health work force. WHO, Geneva. Retrieved from http://apps.who.int/iris/bitstream/10665/81965/1/9789241564588_eng.pdf.
- Wright S, Wong A, Newill C (1997). The impact of role models on medical students. *J. Gen. Int. Med.* 12:53-56.
- Yousef K, Dema A-Zouhair A, Ahmad A, Mohammad K, Samar B, Khalid El S, Mousa O (2008). Factors affecting medical students in formulating their specialty preferences in Jordan. *BMC Med. Edu.* 8:32. Available online: <http://www.biomedcentral.com/1472-6920/8/32>.