

## EAR, NOSE AND THROAT SPECIALTY AS A FUTURE CAREER PREFERENCE FOR MEDICAL STUDENTS IN NORTHERN GHANA

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### Abstract

**Objective:** There is a limited number of Ear, Nose, and Throat (ENT) specialists in Ghana with only three ENT specialists in Northern Ghana. This study examined the factors that influenced fifth and final year medical students at the University for Development Studies (UDS) preference for ENT specialization.

**Methodology:** A self-developed semi-structured electronic questionnaire was used to collect data. The study involved a total of 114 medical students.

**Results:** The majority of the study participants were males (64.9%) and were between the 21-35 age bracket (91.2%) with a mean age of  $28.20 \pm 8.05$ . Comparatively, less than 1% and 15.8% of study participants indicated a preference for ENT specialty

before and after the ENT clinical rotation respectively. Significant motivating factors for ENT preference included good income ( $p < 0.001$ ), quality of life ( $p < 0.001$ ), work not too demanding ( $p=0.030$ ), personal liking ( $p= 0.027$ ) and having ENT specialist as a role model ( $p =0.012$ ). Having a family relation as a medical doctor was a predictor of ENT specialty preference (OR 0.001, 95 % CI =5.357E-6-0.361:  $p=0.020$ ).

**Conclusion:** The study demonstrated a very low preference for ENT career specialty among fifth and final year medical students in our setting. However, exposure during ENT clinical rotation greatly influenced their preference for a career in ENT.

**Key words:** ENT, Career Preference, Factors, Medical Students, Specialty

### Introduction

The medical profession education in Ghana and other countries is structured in a way that requires medical students to read compulsory courses till their final year where they are expected to branch into one of the several specialties in the medical field after school<sup>1</sup>. Previous studies have maintained that even before some students apply to study in medical schools, they have a preconceived preference for a particular medical specialty<sup>2-5</sup>. Other studies that had attempted to look at the factors that influenced medical students' career preferences in the medical field had indicated that medical school curricula<sup>6-9</sup>, quality of life, remuneration<sup>10</sup> and gender<sup>11,12</sup> are factors that would influence their future choice of a specialty in medicine.

It is important to emphasize that medical students' career preferences vary among countries and within countries<sup>13</sup>. As maintained by Abdul-Rahman and colleagues<sup>14</sup>, Ghana has an appreciable number of specialists in some areas of the medical practice, with

many doctors preferring those specialties over the other ones. This situation tends to affect the medical workforce in some important areas of the healthcare delivery system in Ghana.

Current studies on medical career preferences by medical students for specialties in medical practice in Ghana have been limited to specialties such as anesthesia<sup>14</sup> and family medicine<sup>15</sup>. This demonstrates the low level of attention given to other important specialties in the medical practice including the ENT specialty. This is not surprising as Ghana currently has about 50 ENT specialists with only 2 in Northern Ghana. The growing number of ENT cases in Ghana and especially in the northern parts of Ghana (16,17) has the potential to overwhelm the few ENT specialists currently in Ghana.

Understanding the underlying factors that motivate or demotivate medical students' career preference in ENT could help provide the preliminary information needed to address the low number of ENT specialists in the country, including the northern parts of Ghana. The study examined the factors that influenced fifth and final year medical students at the School of Medicine, University for Development Studies (UDS) preference for ENT medical specialization.

### Materials and Methods

#### Study Setting

The study was conducted at the School of Medicine (SoM), University for Development Studies (UDS). The

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University is currently the only public tertiary educational institution in the Northern Region of Ghana that trains medical students.

### Study Design

This was a school-based cross-sectional study with a quantitative approach to research, conducted between November 2020 to April 2021.

### Study population

The study was conducted among fifth and final year medical students of SoM-UDS, who have completed their clinical rotation in the ENT Department.

### Data Collection

An electronic self-designed semi-structured questionnaire was used to survey the study participants. The semi-structured questionnaire was developed based on what has been described elsewhere (18,19). The semi-structured questionnaire was circulated to fifth and final year medical students' class WhatsApp pages. The questionnaire was designed to include socio-demographic data, student's preferences, and factors that might influence their choice of ENT as a future career specialty.

### Data analysis and presentation

The data entry and analysis were performed using Microsoft Excel and Statistical Package for Social Science (SPSS) version 25 (Chicago, IBM, 2017). Descriptive statistics such as frequencies, percentages, and tables were used initially to summarize and describe important study characteristics.

A Chi-square test was performed to test the association between ENT preference and motivating and demotivating factors. Multinomial logistic regression models were used to predict factors that influence the preference for ENT specialty among study participants. P-value less than 0.05 was considered statistically significant for the study.

### Ethical Approval

Ethical approval for the study was obtained from the Institutional Review Board (IRB) of UDS. Permission to conduct the study were obtained from the Registrar, UDS, and the Dean of SoM. Written informed consent was sought before their recruitment into the study. Participating in this study was strictly voluntary and participants had the liberty to choose to withdraw at any point in time.

Equally, the confidentiality of the study participants was maintained by using codes for the identification of the data instead of using their names. The electronic data have been secured and password protected with only access to only the researchers.

### Results

A total of 114 (48.7%) fifth and final-year medical students participated in the study out of 235 students.

Their ages ranged from 23 to 56 years with a mean age of  $28.20 \pm 8.05$ . Study participants in the 21-35 age bracket constituted the majority (91.2%). Males and participants in their final year constituted the majority with proportions of 64.9% and 60.5% respectively (Table 1).

**Table 1. Social Demographic Characteristics**

Characteristics	Mean	SD
Age (years)	28.2	8.05
	N (114)	(%)
Age(years)		
21-35	104	91.2
36-50	2	1.8
51-65	8	7.0
Sex		
Female	40	35.1
Male	70	64.9
Course level		
500	45	39.5
600	69	60.5
Marital status		
Married	9	7.9
Single	105	92.1
Nationality		
Ghanaian	111	97.4
Indian	3	2.6
Ethnicity		
Akan	36	31.6
Dagomba	25	21.9
Ewe	11	9.6
Gujarati	3	2.6
Zanbrama	6	5.3
Others	33	28.9

**Other Ethnicity Groups: Bimoba, Builsa, Busanga, Dagao, Frafra, Ga, Gonja, Hausa, Kessena, Waala, Moshi, Kusasi, and Sissala**

The majority of the study participants (69.3%) had a family history of a healthcare professional with the nursing profession (47.4%) being the most common, followed by the medical profession (19.3%) and other health professionals (13.2%).

Less than 1% of study participants indicated a preference for the ENT specialty before the clinical rotation in ENT. After ENT clinical rotation, approximately 16% of the study participants indicated a preference for the ENT specialty. Major preferences before and after clinical rotations included General Surgery (before 33.3% and after 20.2%), Obstetrics & Gynaecology (before 14.9% and after 12.3%), and Internal Medicine (before 9.6% and after 5.3%) (Table 2).

**Table 2. Medical Career Preferences Before and After Clinical Rotations**

Specialty	Preference Before Clinical Rotations N (%)	Preference After Clinical Rotations N (%)
Anaesthesia	1 (0.9)	0(0.0)
Dermatologist	4 (3.5)	2 (1.8)
Ear, Nose, & Throat*	1(0.9)	18 (15.8)
Emergency Medicine	1 (0.9)	3 (2.6)
Family Medicine	3 (2.6)	3 (2.6)
Internal Medicine	11 (9.6)	6 (5.3)
Obstetrics & Gynaecology	17 (14.9)	14 (12.3)
Ophthalmology	4 (3.5)	11 (9.6)
Orthopaedics	4 (3.5)	3 (2.6)
Paediatrics	2 (1.8)	2 (1.8)
Psychiatry	5 (4.4)	5 (4.4)
Public Health	6 (5.3)	3 (2.6)
Radiology	1 (0.9)	2 (1.8)
General Surgery	38 (33.3)	23 (20.2)
Urology	2 (1.8)	0(0.0)
Undecided	14 (12.3)	19 (16.7)
<b>Total</b>	<b>100.0(114)</b>	<b>100.0(114)</b>

ENT = Ear, Nose and Throat

Preference for ENT was found to be significant with age ( $p=0.001$ ) and ethnicity ( $p=0.038$ ). However, the majority of participants (87.5%) who were between the ages of 21-35 years had no preference for ENT as a medical specialization. Sex ( $p= 0.713$ ), marital status ( $p= 0.176$ ), nationality ( $p= 0.447$ ), family history of health profession ( $p= 0.412$ ) and type of health profession ( $p= 0.653$ ) were not significant for ENT preference.

Good income ( $p < 0.001$ ), quality of life ( $p < 0.001$ ), work not too demanding ( $p= 0.030$ ), personal liking ( $p= 0.027$ ) and having ENT specialist as a role model ( $p= 0.012$ ) were significantly associated with preference for ENT specialty. However, prestige of specialty ( $p= 0.092$ ), curriculum ( $p=0.321$ ), family and friends influence ( $p= 0.791$ ) and exposure during ENT clinical rotation ( $p= 0.304$ ) were not significantly associated with preference for ENT specialty.

The work of ENT specialists as too demanding, was a significant ( $p =0.035$ ) demotivating factor for choosing ENT as a preferred specialty, whereas ENT still evolving in Ghana ( $p= 0.432$ ), evolving and not interesting ( $p= 0.911$ ), complex and difficulty specialty

( $p= 0.363$ ) and not prestigious ( $p= 0.343$ ) were not demotivating for choosing ENT as a preferred specialty.

Having a family relation as a medical doctor was a good factor to influence medical students' preference for ENT medical specialty ( $p= 0.020$ ). However, these students are less likely to select ENT medical specialty compared to those without family relations as a medical doctor (OR **0.001**, 95 % CI =**5.357E-6-0.361**) (Table 3).

**Table 3. Predictors of Ear, Nose & Throat Preference**

Characteristics	P-value	Odds Ratio	95% Confidence Interval	
			Lower Bound	Upper Bound
21-35	0.996	5.952E-10	0.000	-
36-50	-	3.005E-10	3.005E-10	3.005E-10
51-65 (R.C)	-	-	-	-
Female	0.076	12.402	0.772	199.305
Male (R.C)	-	-	-	-
Married	0.998	1.782E-8	0.000	-
Single (R.C)	-	-	-	-
Akan	0.966	0.951	0.091	9.951
Dagomba	0.453	0.375	0.029	4.870
Ewe	0.997	9.238E-9	0.000	-
Gujarati	-	13.168	13.168	13.168
Zanbrama	0.967	0.897	0.005	165.588
Others (R.C)	-	-	-	-
FHP No	0.086	0.048	0.001	1.543
Yes (R.C)	-	-	-	-
Medical doctor	<b>0.020*</b>	0.001	5.357E-6	0.361
Nurse	0.067	0.033	0.001	1.265
Others	0.155	0.043	0.001	3.283
None (R.C)	-	-	-	-
Good income (Yes)	0.554	0.386	0.017	9.022
No (R.C)	-	-	-	-
Quality of life (Yes)	0.157	0.088	0.003	2.549
No (R.C)	-	-	-	-
Work is not too demanding (Yes)	0.270	0.290	0.032	2.622
No (R.C)	-	-	-	-
Exposure during ENT clinical rotation (Yes)	0.879	1.178	0.142	9.748
No (R.C)	-	-	-	-
Family and friends influence (Yes)	0.689	2.490	0.029	215.814
No (R.C)	-	-	-	-
Curriculum (Yes)	0.996	1.303E-9	0.000	-
No (R.C)	-	-	-	-
Prestige of specialty	0.193	0.102	0.003	3.173
No (R.C)	-	-	-	-
Personal liking (Yes)	0.227	4.244	0.407	44.286
No (R.C)	-	-	-	-
ENT specialist as role model (Yes)	0.136	5.828	0.575	59.026
No (R.C)	-	-	-	-

E=Exponent, R.C.=Reference Category, Pseudo-R-Square (Cox and Snell=0.399; Nagelkerke; 0.684; McFadden; 0.581)

Medical students who indicated ENT as still evolving in Ghana were about 2.2 times more likely not to prefer to choose ENT as a career specialty compared to those who did not indicate ENT as evolving in Ghana (OR 2.249, 95% CI 0.624-8.101). Similarly, medical students who perceived that ENT was evolving and not interesting were about 2 times not likely to prefer ENT as a career specialty compared to students who did not indicate ENT as evolving and not interesting (OR 2.074, 95% CI 0.547-7.857) (Table 4).

**Table 4. Predictors of Ear, Nose, and Throat Demotivating Factors**

Preference for ENT	P-value	Odd Ratio	95% Confidence Interval	
			Lower Bound	Upper Bound
Still evolving in Ghana (Yes)	0.215	2.249	0.624	8.101
No (R.C)	-	-	-	-
Evolving and not interesting (Yes)	0.283	2.074	0.547	7.857
No (R.C)	-	-	-	-
Work is too demanding (Yes)	0.082	0.147	0.017	1.272
No (R.C)	-	-	-	-
Complex and difficult specialty	0.085	2.764	0.871	8.775
No (R.C)	-	-	-	-
Does not come with prestige (Yes)	0.411	0.368	0.034	3.981
No (R.C)	-	-	-	-

*R.C.=Reference Category, Pseudo R-Square (Cox and Snell)=0.080; Nagelkerke; 0.137; McFadden; 0.095)*

## Discussions

Medical career preferences are important indicators to guide human resource management and planning in healthcare systems and development. Our study presents the maiden findings on factors for ENT preference in a medical school in Northern Ghana.

Majority of our study participants were within the 21-35 age category, similar to a study in Nigeria by Akpayak et al.,<sup>18</sup> with the majority of students within the age group of 21-30 years. However, the slight variations in the age range might stem from the difference in our age structure combined with the categorizations made. Males constituted the majority in our study, consistent with analogous studies described elsewhere<sup>14,19</sup>. This observation might describe the male-female distribution in SoM-UDS and other medical schools in Ghana.

Most of the study participants had family members who were healthcare workers such as nurses and

medical doctors, consistent with a previous study that reported that medical students had relations in the medical or health profession<sup>1</sup>.

Previous studies have consistently demonstrated an exceptionally low preference for a career in the ENT specialty<sup>1,18,20,21</sup>. In our study we found out that, before the ENT clinical rotation, only one student indicated a preference for ENT as a medical career specialty. Comparing the findings to the results reported by Khader et al.,<sup>1</sup> among medical students in their second, fourth, and sixth years, ENT preference was low. Only three and two students preferred ENT in years two and six respectively with no student in year four indicating interest in the ENT specialty<sup>1</sup>. The results reported by Akpayak et al.,<sup>18</sup> on medical career preferences showed that not even a single student indicated a preference for the ENT specialty. Similarly, Cleland et al.,<sup>20</sup> study among first and fifth year medical students' career choices showed that none of the students indicated a preference for the ENT specialty. These observations portray a general lack of interest in the ENT specialty among many regions of the world, Ghana not being an exception. Addressing the seeming lack of interest in ENT specialty by medical students will play a critical role in increasing the small number of ENT specialists in the country.

After the ENT clinical rotation, we found that approximately 16% of the study participants indicated a preference for the ENT specialty. This observation is good news, but not surprising since most of them indicated that the exposure during the ENT clinical rotation increased their awareness of the existence of such a specialty and their understanding of it and what it can do for their future growth and mankind in general. Multiple studies have equally reported exposure as a key influencer in medical career preference<sup>1,14</sup>. This finding can be employed by stakeholders, including lecturers in the field of ENT to positively lure more medical students to take ENT as a preferred career specialty.

Our findings further showed that medical students are about 1.2 times more likely to select ENT medical career specialty after being exposed to the specialty. This emphasizes the role of the few ENT specialists and lecturers to build the interest of medical students in the opportunities in ENT. The findings in our study showed significant association among factors that swayed medical students to choose the ENT specialty. These factors included: good income, quality of life, work not too demanding, personal liking, and ENT specialist as a role model. Boyd et al.,<sup>22</sup> reported significant factors including “mentors and role models”, and “salary expectations” to be associated with the selection of medical specialty among medical students. Similarly, Khader et al.,<sup>1</sup> study showed that the factors such as “flexibility of the specialty”, and “anticipated income” as significantly associated with their participants' medical specialty preference. As reported in our study and elsewhere, these elements could be factored into the design of policies to attract medical students to select

ENT as a medical career specialty. Incentives such as increased allowances, and improvement in conditions of service for improved quality of life could serve a great deal to attract more medical students to the field of ENT. Addressing positively the demotivating factor for medical students' refusal to venture into the ENT specialty such as a demanding workload would equally attract them to specialize in ENT. This factor was also reported in a study by Abdul-Rahman and colleagues<sup>14</sup>. Dispelling the notion that ENT is still evolving in Ghana and also that it is evolving and not interesting will greatly impact students' preference for ENT career specialty. One sure way of achieving this is to introduce a housemanship rotation in ENT to whip up interest in house officers as was done for some selected deprived specialties such as anaesthesia and psychiatry<sup>23</sup>. It is therefore important that all stakeholders in the medical profession education (including the Ministry of Health, Ghana Health Service, Ghana College of Physicians and Surgeons, Teaching Hospitals, Ghana Medical Association and Ghana Medical and Dental Council) find ways to address the human resource challenges in ENT in Ghana. It is recommended that ENT should be included as a six-month rotation option in the curriculum for housemanship training as being done currently for other deprived specialties.

This study considered only one medical school (SoM-UDS), hence generalization among the other medical schools would be difficult.

### Conclusion

The study demonstrated a very low preference for ENT medical career specialty among fifth and final year medical students in our setting. However, exposure during ENT clinical rotation greatly influenced the preference for ENT medical career.

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### References

1. Khader J, Al-Zoubi D, Amarin Z, Alkafgei A, Khasawneh M, Burgan S, et al. Factors affecting medical students in formulating their specialty preferences in Jordan. *BMC Med Educ.* 2008. doi: 10.1186/1472-6920-8-32
2. Wright B, Scott I, Woloschuk W, Brenneis F. Erratum: Career choice of new medical students at three Canadian universities: Family medicine versus specialty medicine. *Can Med Assoc J.* 2004;170:1920–1924.
3. McManus IC, Lefford F, Furnham AF, Shahidi S, Pincus T. Career preference and personality differences in medical school applicants. *Psychol Health Med.* 1996;1:235–248.
4. Hutt R, Parsons D, Pearson R. The timing of and reasons for doctors' career decisions. *Heal Bull (Edinb).* 1981;39:171–183.
5. Zeldow PB, Preston RC, Daugherty SR. The decision to enter a medical specialty: Timing and stability. *Med Educ.* 1992;26:327–332.
6. Goldcare MJ, Turner G, Lambert TW. Variation by medical school in career choices of UK graduates of 1999 and 2000. *Med Educ.* 2004;38:249–258.
7. Maiorova T, Stevens F, Scherpbier A, van der Zee J. The impact of clerkships on students' specialty preferences: What do undergraduates learn for their profession? *Med Educ.* 2008;42:554–562.
8. Ward AM, Kamien M, Lopez DG. Medical career choice and practice location: Early factors predicting course completion, career choice and practice location. *Med Educ.* 2004;38:239–248.
9. Stagg P, Greenhill J, Worley PS. A new model to understand the career choice and practice location decisions of medical graduates. *Rural Remote Health.* 2009;1–10.
10. Hiher BF, Zeh M. Relative income expectations, expected malpractice premium costs, and other determinants of physician specialty choice In: *J Heal Soc Behav.* 1998;39:152–167.
11. Soethout M arc BM, Heymans MW, Cate OTJ Ten. Career preference and medical students' biographical characteristics and academic achievement. *Med Teach.* 2009;30:15–22.
12. Dorsey ER, Jarjoura D, Rutechi GW. Influence of controllable lifestyle on recent trends in specialty choice by US medical students. *J Am Med Assoc.* 2003;290:1173–1178.
13. Rogers LQ, Finchedr R-ME, Lewis LA, Nance LD. A survey to determine factors influencing medical students' carere choices. *Acad Med.* 1989;64:417.
14. Abdul-Rahman M, Aryee G, Essuman R, Djagbletey R, Lamptey E, Owoo C, et al. Factors influencing the choice of anaesthesia as a field of specialty in university of Ghana school of medicine and dentistry, Korle-Bu teaching hospital. *S Afr J Anasesth Analg.* <http://dx.doi.org/10.1080/22201181.2015.1089666>
15. Essuman A, Anthony-Krueger C, Ndanu TA. Perceptions of medical students about family medicine in Ghana. *Ghana Med J.* 2013;47:178–184.
16. Adjeso T, Damah MC, Murphy JP, Teddy T, Anyomih K. Foreign body aspiration in Northern Ghana: a review of paediatric patients. *Int J Otolaryngol.* 2017; 1478795. doi: 10.1155/2017/1478795
17. Adjeso T, Damah MC MJ. Emergency ear, nose and throat admissions in Northern Ghana. *Postgrad Med J Ghana.* 2017;6:83–85.
18. Akpayak IC, Okonta KE, Ekpe EE. Medical students' preference for choice of clinical specialties: A multicentre survey in Nigeria. *Jos J Med.* 2014;8:49–52.
19. Saigal P, Takemurta Y, Nishiue T, Fetters MD. Factors considered by medical students when

- formulating their specialty preferences in Japan: Findings from a qualitative study. *BMC Med Educ.* 2007;7. doi: 10.1186/1472-6920-7-31
20. Cleland JA, Johnson PW, Anthony M, Khan N, Scott NW. A survey of factors influencing career preference in new-entrant and exiting medical students from four UK medical schools. *BMC Med Educ.* 2014;14. <http://dx.doi.org/10.1186/s12909-016-0528-1>
21. Dossajee H, Obonyo N, Ahmed SM. Career preferences of final year medical students at a medical school in Kenya-A cross sectional study
- Career choice, professional education and development. *BMC Med Educ.* 2016;16. <http://dx.doi.org/10.1186/s12909-016-0528-1>
22. Boyd JS, Clyne B, Reinert SE, Zink BJ. Emergency medicine career choice: A profile of factors and influences from the Association of American Medical Colleges (AAMC) graduation questionnaires. *Acad Emerg Med J.* 2009;16:544–558.
23. Medical and Dental Council. Guidelines for housemanship in Ghana. 2015. <http://www.mdcghana.org/docs/GUIDELINES-ON-HOUSEMANSHIP-TRAINING-2015.pdf>
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