

# Awareness and Knowledge of Orthodontics as a Specialty of Dentistry Amongst Students of the University of Ghana Medical School.

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## Abstract

**Background:** Awareness of Malocclusion and its effects on the individual is important for the medical practitioner, as the primary care giver, to assist him to refer clients appropriately to the Orthodontist and to enable him to practice the philosophy of Total Health Care. The aim of this study was to investigate the awareness of malocclusion and its effects amongst University of Ghana Medical Students.

**Methods:** A total of 130 students participated in this cross-sectional study using self-administered questionnaires. The data was captured and analyzed using SPSS software version 17. Frequency distribution was generated for all variables and measures of central tendency obtained for all numerical values.

**Results:** The age range was 20- 34 years with majority (73%) in the 20-24 yr age group. Slightly more than half (58.9%) were clinical medical students and half of them (50.9%) had never visited a dentist. The main source of information on oral health was from Lectures (27%) followed by television /radio (25%) and dentists (19%). Regarding the treatment procedures carried out by an orthodontist, majority (72.5%), answered correctly that rearrangement of teeth was involved but almost half of the respondents incorrectly selected the procedures of fillings (35.7 %), extractions (36.6%) and scaling and polishing (25.9%) as being carried out by orthodontists. With regard to appliances used by Orthodontists, majority (73.2%) correctly selected braces but (42.0%) incorrectly selected dentures and only 39.3% correctly selected removable appliances. Majority of respondents correctly selected appearance (84.8%) and self- esteem (82.1%) as being affected by malocclusion and only slightly more than half (52.7%) correctly identified quality of life as being affected.

**Conclusion:** The medical students in this study did not have adequate knowledge of orthodontics and dentistry as a whole and would therefore benefit from increased introductory lectures that specifically address dental specialties including Orthodontics.

**Key words:** Awareness, Knowledge, Orthodontics, Dental Specialty, Ghana.

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## Introduction

Orthodontics, as a dental specialty, is concerned with the identification, study and treatment of malocclusions, which can result from the effects of irregularities of teeth and disproportionate jaw relationships acting alone or together. Malocclusion can be defined as an occlusion in which there is mal-relationship between the arches in any of the planes or anomalies in tooth position beyond normal limits

Poor occlusion has been shown to impinge on the oral health status of individuals, increasing the prevalence of tooth decay and has been cited as a possible cause of temporomandibular disorders. However, the quest to receive Orthodontic Treatment is largely driven by the desire to look attractive and to improve upon self-esteem and self-perception. The prevalence of malocclusion varies widely and has been reported to range from 20 to 35% in the United States, 20 -40% in India, 62.4% in Saudi Arabia, 88.1% in Colombia, 76% and 87.7% in Nigeria. In Ghana, a prevalence of 97.9% has been reported in a sample of clients seeking Orthodontic Treatment. In developed nations, there has been a steady rise in the awareness of Orthodontics as a Dental Specialty amongst both children and adults. The increased awareness may be attributed to the early development of the specialty in these nations. Edward Angle, known as the Father of Orthodontics, established the first school of Orthodontics in the year 1900, in St Louis but it was not until 1979 that the first Nigerian

Orthodontist, Michael Isiekwer returned home from Belfast to teach and practice this specialty. It was 14 years later (in 1993) that the first Ghanaian Orthodontist, Merley Newman, returned from training in Canada to Ghana to do likewise.

Presently, Ghana, with a population of 27 million, has seven registered orthodontists and six orthodontic residents. In developing countries, like Ghana, the primary providers of health care are Medical Practitioners who are faced with addressing a large array of health-related issues. They are inundated with pressing, acute and life threatening cases and Orthodontic conditions tend to be overlooked because they are not associated with high mortality or morbidity.

Medical Practitioners, in two Nigerian studies, demonstrated poor knowledge of Dental Subspecialties. In addition, a cross-sectional questionnaire-based study carried out amongst Medical Students in Lagos State University College of Medicine, established that the students had limited knowledge of Orthodontics as a specialty.

This study investigates the Awareness of Malocclusion and its Effects amongst students of the University of Ghana Medical School in an attempt to identify deficiencies so that steps may be taken to address them.

## Methods

### *Study Location*

Ghana is a country located in West Africa with a population estimated at 27,000,000. She is bounded by francophone countries in the north, east and west: Burkina Faso, Togo and La Cote d'Ivoire. There are ten regions in the country and in 1957, Ghana became the first African country to declare independence from European colonization. It is also home to Lake Volta, the largest artificial lake in the world by surface area. There are four medical schools and two dental schools in the country. This study was undertaken at the University of Ghana Medical School in Accra, the capital city.

### *Questionnaire*

A cross-sectional questionnaire was

administered to clinical and non-clinical level Medical students of the University of Ghana Medical School (UGMS) after pretesting on 25 students. The questionnaires were designed to collect both demographic information and knowledge and awareness of Orthodontics as a dental specialty from the participants.

### *Sample Selection*

All medical students of UGMS were eligible. The number of students at the school at the time of the study was about 450. A total of 130 questionnaires were administered out of which 18 were discarded because there were incompletely filled. As far as possible the questionnaires were administered to the students before lectures and retrieved immediately afterwards. The response rate was therefore 86.2%

### *Data Entry and Analysis*

The data was captured and analyzed using SPSS software version 17. Frequency distribution was generated for all variables and measures of central tendency obtained for all numerical values.

## Results

### *Socio-demographic Features*

Table II shows the socio demographic features of the study population. Slightly over half of the respondents were male (56%) and almost all the respondents (94.6%) were single.

The age range was 21-34 years with majority of students in the 20-24 yr (73%) age group. The 1% that was in the 30-34 year age group were in the Graduate Entry Medical Program (GEMP). (Figure 1)

Slightly more than half of the respondents (58.9%) were clinical medical students and about half of the respondents had never visited a dentist.

### *Respondents Knowledge of Orthodontics*

The main source of information on oral health was from lectures (27%) followed by television /radio (25%) and dentists (19%). (Figure 2) Regarding the treatment procedures

carried out by an orthodontist, majority, ( 72 . 5 % ) , answered correctly that rearrangement of teeth was involved but a third to a quarter of the respondents incorrectly selected fillings (35.7%) , extractions (36.6%) and scaling and polishing (25.9%) as procedures carried out by orthodontists.

With regard to appliances used by Orthodontists, majority (73.2%) correctly selected braces but 42.0% incorrectly selected dentures and only 39.3% correctly selected removable appliances.

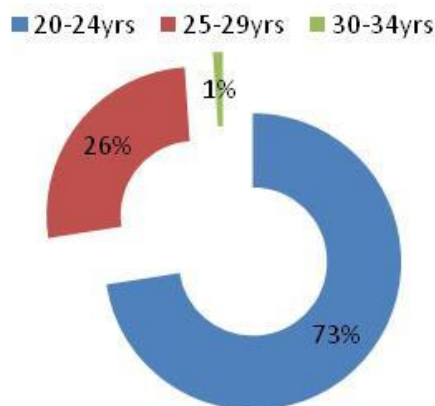
Majority of respondents correctly selected appearance (84.8%) and self- esteem (82.1%) as being affected by malocclusion and only slightly more than half (52.7%) correctly identified quality of life as being affected.

Table (III)

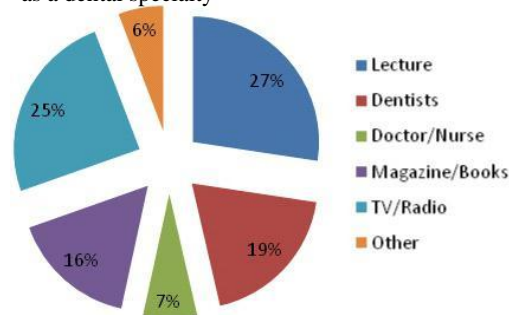
**Table 1. Socio-demographics of participants**

No.	Percentage	
<b>Gender</b>		
Male	63	56.3
Female	49	43.8
<b>Marital Status</b>		
Single	106	94.6
Married	6	5.4
<b>Past Dental Experience</b>		
Yes	55	49.1
No	57	50.9
<b>Level of Study</b>		
Non-Clinical	46	41.1
Clinical	66	58.9

**Figure 1. Age distribution of participants**



**Figure 2. Sources of oral health information**  
Respondents' knowledge of orthodontics as a dental specialty



**Table 2. Procedures carried out by orthodontist**

Procedures carried out by orthodontists	Yes		No		No Idea	
	n	%	n	%	n	%
<b>Filling</b>	40	35.7	20	17.9	52	46.4
<b>Extractions</b>	41	36.6	21	18.8	50	44.6
<b>Scaling and polishing</b>	29	25.9	30	26.8	53	47.3
<b>Rearrangement of teeth</b>	81	72.3	2	1.8		

**Table 3. Appliances used by orthodontist**

Appliances used by orthodontists n	Yes		No		No Idea	
	%	n	%	n	%	
Braces	73.2	82	26.8	30	-	
Dentures	42.0	47	14.3	16	43.8	
Removable appliances	39.3	44	15.2	17	54.5	

**Table 4. Functions affected by malocclusion**

	Frequency	Percentage
<b>Speech</b>		
Yes	61	54.5
No	20	17.9
No idea	31	27.7
<b>Appearance</b>		
Yes	95	84.8
No	3	2.7
No idea	14	12.5
<b>Mastication</b>		
Yes	71	63.4
No	14	12.5
No idea	27	24.1
<b>Self-Esteem</b>		
Yes	92	82.1
No	4	3.6
No idea	16	14.3
<b>Quality of Life</b>		
Yes	59	52.7
No	24	21.4
No idea	29	25.9

## Discussion

The fundamental philosophy of modern health care is the Total Health care. It is therefore essential that even though developing( countries, have such poor doctor population ratios compared to the developed world, we should strive towards this ideal. Even though oral hygiene, decreased masticatory efficiency and temporomandibular joint implications exist, the main reason for seeking orthodontic treatment is for the improvement of the physical attractiveness of the clients thereby improving upon their self-esteem and self-confidence.

The aim of this study was to assess the awareness of orthodontics amongst medical students at the University of Ghana Medical School. Less than half (49.1%) of the medical students had ever visited a dentist. This compares with the Nigerian study (45.9%) and indicates low oral health awareness. In a similar study in Saudi Arabia <sup>17</sup>a higher percentage (76.5%) had visited a dentist in the last six months but with dental pain. Only 11.2% had seen a dentist for a routine checkup, also supporting low oral health awareness. In this study, 72.3% correctly identified the type of treatment offered by an Orthodontist, which is

higher than the reports from Nigeria<sup>20</sup> (54.1%) and Saudi Arabia<sup>17</sup> (27.5%). This may be due to a few dental lectures given to them during their clinical rotation in the Department of Child Health.

Even though a large percentage in this study correctly identified rearrangement of teeth as the treatment carried out by the orthodontist, too many wrongly selected other treatments like extractions (36.6%), fillings (35.7%) and scaling and polishing (25.9%) as treatment carried out by the orthodontist. This mirrored the lack of specific and adequate knowledge about orthodontics and dentistry as a whole.

Again in this study, a higher percentage (73.2%) were aware that braces were used by the Orthodontist as compared with Nigeria<sup>20</sup> (57.7%). However in both studies in Ghana and Nigeria few respondents ( 39.3%, 34% respectively) correctly identified removable appliances as components of orthodontic treatment.

A high percentage (84.8%) agreed that appearance would be affected by malocclusion and this compares favorably with the Nigerian study <sup>20</sup> (83.5%). This confirms the assertion that the primary motivation for seeking orthodontic treatment is to improve aesthetics and that even amongst the general population the allure of an attractive and improved smile is a major drive to

receive Orthodontic care. However both studies in Ghana and Nigeria the students did not equate improved attractiveness and self-esteem with improved quality of life.

## Conclusion

The medical students in this study did not have adequate knowledge in orthodontics and dentistry as a whole and would therefore benefit from increased introductory lectures that specifically address dental specialties including Orthodontics. The aim of these lectures would be to furnish the future physician with information to first and foremost, improve upon his personal oral health awareness and then that of his future clients. It would also assist him to refer appropriately and confidently when he is faced with patients with malocclusion and other oral health anomalies in order to practice Total Health Care.

## Contributors

Newman - Nartey M, was principal investigator.

Osei-Tutu K - collected the data

Ogunbanjo BO and Adegbite KO, conceptualized the idea and developed the questionnaire.

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