

# Perceptions and preferences for dental specialties among undergraduate students and dental interns in Kenya

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## ABSTRACT

### Introduction

Uptake of various dental specialties does vary globally. There is scarce information regarding motivations and preferences for various dental specialties in developing countries.

### Aims and objectives

This study aimed to determine perceptions, preferences and factors that influence dental specialty choice in Kenya.

### Design and methods

This was a cross-sectional study among dental students and dental interns conducted at two dental schools in Kenya. It was a census study that used self-administered questionnaires to collect information.

### Results

Most (76%) participants indicated a desire to specialise, more so by Moi University students (82%). The most preferred

specialties were maxillofacial surgery, restorative dentistry, prosthodontics and orthodontics. Female respondents reported highest preference for restorative dentistry whereas male respondents reported highest preference for maxillofacial surgery. Perceived financial returns and personal interest were the most important factors influencing choice of specialty. Maxillofacial surgery was perceived to guarantee higher financial returns, whereas dental public health was perceived to have the highest impact to the community. Most participants preferred working in the private sector.

### Conclusion

There was a high desire to specialise among participants, especially in maxillofacial surgery and restorative dentistry. Key factors influencing choice of specialty were personal interest and better financial returns.

## INTRODUCTION

Dentistry has several areas of specialisation that can be pursued by dentists upon qualification with a first degree.<sup>1,2</sup> With specialised training, dentists gain additional in-depth knowledge and skills to enable them to focus their career on a specific field of dentistry, and to better serve select groups of patients with dental and oral health service needs. Availability of opportunities and uptake of various specialisations in dentistry does vary from one part of the world to another. Perceptions regarding specialisation and factors that influence the desire to specialise also vary from one country to another.<sup>3-5</sup>

In many parts of the world, graduates tend to be influenced more by financial returns, with specialties perceived to bring higher financial returns being the most preferred.<sup>3,6</sup> Other key factors include availability of training opportunities, personal interest, desire to serve a select group of dental patients, dental specialist's quality of life and opportunities for employment.<sup>3,7</sup> Based on these factors and perceptions, dentists make choices to pursue specific specialties that best fulfil their expectations. Those who wish for higher financial returns tend to pursue specialties perceived to have higher incomes such as maxillofacial surgery and orthodontics.<sup>3</sup> Graduates who are more influenced by personal interest and enjoyment of the specialty practice tend to prefer restorative dentistry and prosthodontics, whereas those who wish to have a higher societal impact tend to choose dental public health and general dental practice.

In some western countries such as the US, one factor that greatly influences choice of specialty is the amount of debt accrued during training.<sup>3</sup> In the UK, among major influencing

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Data curation	40	30	30
Methodology/formal analysis/validation	40	30	30
Project administration	40	20	40
Writing original draft	80	10	10
Writing – review & editing	10	50	40

factors were the perceived enjoyment in providing the specific specialised care to patients, and gender, where female participants preferred to specialise in pediatric dentistry and special care dentistry whereas males were more likely to pursue orthodontics or oral surgery.<sup>8</sup> In countries such as China and many parts of Africa, key influencing factors tend to be the expected financial returns as well as prestige.<sup>6,9</sup> There are reports of changing trends in factors that influence choice of specialty, where the newer generation of doctors and women tend to favour specialties that allow them more flexible working hours, more time with family and better work-life balance.<sup>10</sup>

Studies in Nigeria and the Congo have reported a high desire to specialise in dentistry, with a preference for maxillofacial surgery, pediatric dentistry and dental public health, and the choice being influenced mainly by economic reasons such as the cost of study.<sup>9,11</sup> In South Africa, orthodontics and oral and maxillofacial surgery have been reported as the most popular specialties among dental students, with a large proportion of students worried about the debt accrued as part of dental studies.<sup>12</sup> There are, however, some specialties as well as career choices that tend to attract less interest across the world, and these include oral radiology, oral pathology and academics and research in dentistry.

Previous studies on perceptions regarding dental specialties and factors that influence choice of dental specialty have mainly been carried out in the developed world, with limited literature on this issue in developing countries such as Kenya. With the rapid population growth and increase in oral diseases in the country, there is an increase in demand for oral health services, including specialised oral health services. The developing world is also increasingly becoming a key source of oral health care workers for the developed world due to increased migration in search of better employment opportunities.<sup>13,14</sup> There is, therefore, a need for more studies looking at perceptions regarding dental specialties and factors that influence choice of dental specialties in Kenya and other developing countries. The purpose of this study was to investigate future plans of dental students and dental interns by exploring their perceptions regarding various dental specialties, their preferred specialties and factors that influenced their choice of specialty.

## MATERIALS AND METHODS

This was a cross-sectional study conducted among clinical year dental students (years 4 and 5 of dental training) and newly graduated dentists (dentists on internship training) in Kenya. Currently, Kenya has only two dental schools, one at University of Nairobi and another at Moi University. At the time of this study, there were 124 clinical year dental students and 29 dentists on internship training in the country constituting a study population of 153. All these were eligible to participate since this was a census study.

Ethical approval was granted by the Institutional Research Ethics Committee (IREC, approval number 0002044), based in Eldoret, Kenya. Permission to conduct the study was also granted by the administration of the two dental schools. Information about this study was sent out to all eligible participants through their class and study group representatives, with permission from their school administrations. The purpose of the study was clearly explained to the participants and all those willing to participate were requested to sign consent forms prior to participation in the study. Data was collected by use of a self-administered questionnaire that had no identifying information. Questionnaires contained structured questions with both open ended and closed questions drawn from similar studies in other parts of the world.

The study used a five-point Likert-type scale where the students were asked to indicate their level of agreement with various statements that assessed their plans, preferences and perceptions regarding various dental specialties. For the purpose of this study, the specialty of restorative dentistry was defined as the diagnosis, treatment and prevention of dental conditions that affect natural teeth, whether vital or non-vital, and to restore them in terms of function and aesthetics, whereas prosthodontics was defined as the specialty concerned with the design, fabrication and fitting of artificial replacements for missing teeth and other parts of the mouth.

### Ethical considerations, data management and statistical analysis

For ethical reasons, researchers who were tutors did not directly contact their student participants but did so

Table I: Sociodemographic characteristics

Variable	Category	Frequency (N=108)	Percentage
Age	Mean (SD)	24.6 (1.7)	-
Gender	Female	61	56.5
	Male	47	43.5
Training level	Level 4	53	49.1
	Level 5	29	26.8
	Internship	26	24.1
Training institution	Moi University	48	44.9
	University of Nairobi	59	55.1
Parents' occupation	Health sector	5	5.6
	Education sector	21	23.6
	Financial sector	37	41.6
	Farmer	13	14.6
	Other	13	14.6

Table 2: Preference for various specialties among the respondents

	Institution of training			Gender		
	Moi University (N=45)	University of Nairobi (N=53)	Total (98)	Female (N=56)	Male (N=43)	Total (N=99)
Maxillofacial Surgery	8	6	14	3	11	14
Restorative Dentistry	10	3	13	13	1	14
Prosthodontics	6	8	14	9	5	14
Orthodontics	2	8	10	4	6	10
Endodontics	5	4	9	4	5	9
Oral Surgery	2	5	7	4	3	7
Dental Public Health	1	5	6	5	1	6
General Dental Practice	4	2	6	2	4	6
Periodontology	0	5	5	4	1	5
Pediatric Dentistry	1	3	4	4	0	4
Oral Pathology	2	2	4	1	3	4
Academics and Research	3	1	4	3	1	4
Oral Radiology	1	1	2	0	2	2

only through research assistants. Questionnaires were distributed to the participants physically through their class representatives. On completion, they were collected from participants and handed over to the researchers or their assistants.

All questionnaires were checked for completeness, particularly to assess the extent of missing values. Data were manually sorted, entered and stored electronically in the software SPSS (Statistical Package of Social Sciences version 22, IBM-SPSS, IL, USA). Measures to ensure data validity included entry of data by one researcher, and verification of the entries by a different researcher, checking entered data against predefined codes and rules, cleansing of data and correction of wrong or irrelevant entries. In line with objectives of the study, only descriptive statistics were conducted during

analysis. Age of participants was summarised as means and standard deviations. Gender, institution of training and level of training was summarised in proportions. Variables regarding preferences or perceptions on various specialties were summarised in form of frequencies. Data were presented in form of tables and bar graphs.

## RESULTS

### Sociodemographic information

A total of 108 out of a potential 153 dental students and interns participated in the study, giving a response rate of about 71%. Most participants were female, and their age ranged from 23 to 32 years, with a mean of 24.6 years. Most participants were from the University of Nairobi, and the majority had parents working within the financial sector (Table 1).

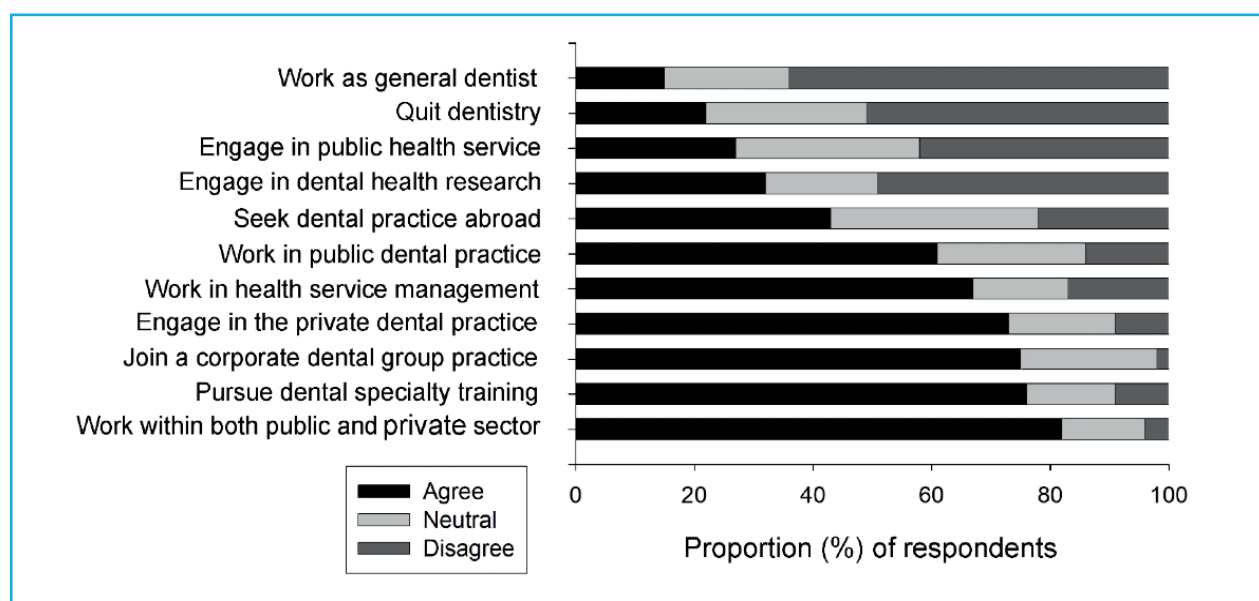


Figure 1: Most preferred future plans for the respondents

Table 3: Perception regarding specialties that had the highest financial returns, quality of life and impact on humanity

Specialty	Doctor's financial returns N=93	Doctor's quality of life N=78	Patient's quality of life N=84	Impact on the nation N=86	Impact on humanity N=88
Maxillofacial Surgery	31	13	16	19	4
Restorative Dentistry	7	8	10	7	4
Prosthodontics	3	9	10	9	13
Orthodontics	30	19	2	0	0
Endodontics	9	6	4	4	3
Oral Surgery	4	3	10	12	9
Dental Public Health	1	6	5	20	30
General Dental Practice	0	6	7	5	16
Periodontology	4	2	7	0	1
Pediatric Dentistry	3	1	5	1	2
Oral Pathology	1	0	5	2	0
Academics and Research	0	2	1	5	2
Oral Radiology	0	0	0	0	3
Oral Medicine	0	0	2	0	1

**Future plans**

Most (76%) participants expressed a desire to specialise as part of their future plans, this being higher among Moi University students (82%) than among University of Nairobi students (70%) (Figure 1). Respondents preferred private practice (73%) more than they did public service (60%). However, a majority desired to work in public service, but still have some time to engage in private dental service (82%). Very few respondents would consider quitting the profession altogether (22%) to engage in some other profession or income generating activity, and much fewer would consider working throughout as general dental practitioners (15%).

**Preferences for dental specialties**

Generally, respondents preferred surgical dental specialties (maxillofacial surgery and oral surgery) which when combined had a total of 21 respondents. The most preferred specialties were maxillofacial surgery, restorative dentistry and prosthodontics (n=14 respondents each) (Figure 2). The least favoured career choices were academics and research (n=4), oral radiology (n=2) and oral medicine (n=0). Respondents from Moi University reported highest preference for maxillofacial surgery and restorative dentistry whereas University of Nairobi respondents reported highest preference for orthodontics and prosthodontics (Table

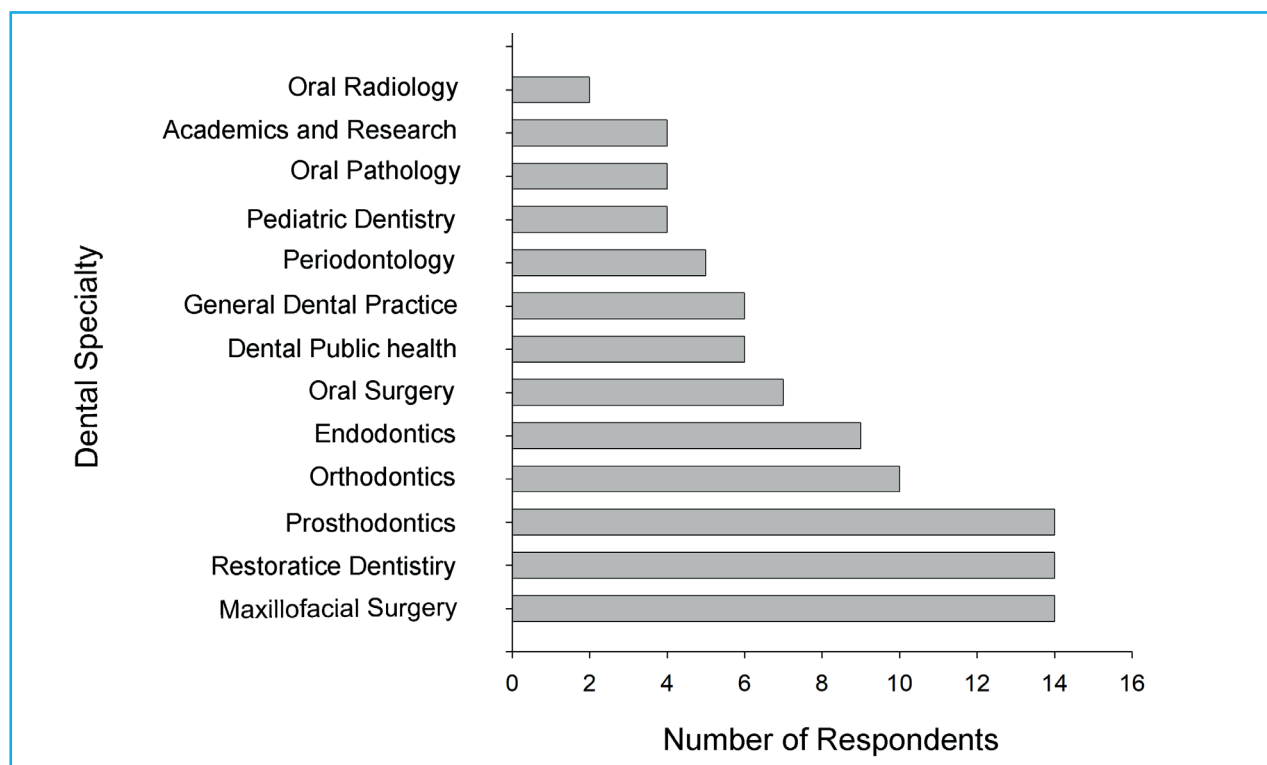


Figure 2: Most preferred specialties for the respondents

2). Female respondents reported highest preference for restorative dentistry and prosthodontics whereas male respondents reported highest preference for maxillofacial surgery and orthodontics (Table 2). There was no male respondent who indicated a preference for pediatric dentistry. Also, only 1 out of 5 and 1 out of 6 of those who indicated a preference for periodontology and dental public health, respectively, were male.

### Factors influencing choice of dental specialties

Personal interest in the various dental specialties as well as the perceived enjoyment in providing the specific specialised care to patients (n=19) were reported as the main factors influencing their choice of specialty. This preference was similar in both males and females, as well as in both institutions. Other factors that were reported to have higher influence on choice of specialty were prospects for higher financial returns (n=15), better ability to put theoretical knowledge into practice (n=15) and better employment opportunities (n=14).

Those who reported maxillofacial surgery as their preferred specialty indicated the four main factors influencing their choice to be: personal interest (19%), better financial return (19%), better employment opportunities (17%) and ability to put theoretical knowledge to practice (17%) (Table 5). Better financial returns (17.2%) as well as personal interest (17.2%) were also key in the choice of orthodontics as the preferred specialty. Personal interest was reported as the main factor and particularly high by those who preferred pediatric dentistry (42%), restorative dentistry (22.6%), endodontics (20.5%) and oral pathology (20%). Influence by faculty was seen to play a key role in the choice for periodontology (18.5%) and restorative dentistry (14.5%) as preferred specialties (Table 5).

### Perceptions regarding specific dental specialties

Maxillofacial surgery (n=31) and orthodontics (n=30) were perceived as specialties that best guaranteed higher financial returns (Table 3). Orthodontics and maxillofacial surgery were also perceived to guarantee the highest quality of life for the dental specialist. Respondents perceived dental

public health as the specialty with the highest impact to the nation, the community and humanity in general (Table 3). Career options perceived to have the lowest financial return for the specialist were academics and research (n=14), dental public health (n=10) and prosthodontics (n=10) (Table 4). Even though maxillofacial surgery was perceived to have the best financial returns, it was also perceived to have the least quality of life for the specialist (n=14). Oral radiology and orthodontics were perceived to have the least impact to humanity in general (n=17) (Table 4).

### Discussion

This study revealed a high desire (strong wish) to specialise among dental clinical year students and dental interns in Kenya. Since personal interest was also found to be the main factor influencing the choice of specialty, the likely reason for the strong wish for specialisation could be to gain the ability to practice in a narrow field of dentistry that best satisfies the interest of the dentist. However, other potential reasons cannot be ruled out. In Kenya, specialisation in dentistry does provide better opportunities for employment, and often leads to promotion at the workplace as well as improved financial returns. These reasons did come out strongly among factors influencing choice of specialty in this study. The higher number of female respondents compared to male respondents in this study is in agreement with universal trends where more women than men are taking up the dental profession across the world.<sup>6,15</sup>

Personal interest was the main motivating factor for specialty choice. We have previously reported that personal interest is a key motivating factor in the choice of dentistry as a career in Kenya.<sup>16</sup> However, similar to other studies, particularly in the developing world, perceived higher financial returns was also an important factor in this regard. An interesting finding in this study was that specialist training would enable respondents to put theoretical knowledge into practice. This appears to support the finding that personal interest (enjoyment in providing the specialised service) is indeed a key motivating factor among Kenyan dental students. Other than variation in the duration of training, other parameters

Table 4: Perception regarding specialties that had the least financial returns, quality of life and impact on humanity

Specialty	Doctor's financial returns (N=67)	Doctor's quality of life (N=61)	Patient's quality of life (N=52)	Impact on the nation (N=60)	Impact on humanity (N=61)
Maxillofacial Surgery	0	18	2	1	2
Restorative Dentistry	2	1	3	2	2
Prosthodontics	10	2	0	1	2
Orthodontics	0	5	6	13	17
Endodontics	1	0	0	2	1
Oral Surgery	1	1	1	0	0
Public Health	14	4	3	0	2
General Practice	7	4	0	2	1
Periodontology	2	3	2	4	2
Pediatric Dentistry	1	2	0	2	0
Oral Pathology	6	2	0	5	3
Academics and research	10	9	17	9	6
Oral Radiology	7	9	12	14	17
Oral Medicine	6	1	6	5	6

Table 5: The top five factors influencing the choice for the most preferred specialties. All are in percentages of total respondents for the specific specialty

	Personal interest	Better financial returns	Theory to practice	Better employment opportunities	Influence by faculty	Other reasons
Oral/Maxillofacial Surgery	19.0	19.0	17.0	17.0	13.0	15.0
Restorative Dentistry	22.6	12.9	17.7	12.9	14.5	19.4
Prosthodontics	16.4	16.4	17.9	11.9	13.4	24
Orthodontics	17.2	17.2	13.7	15.5	8.6	27.8
Endodontics	20.5	11.3	9.1	13.6	9.1	36.4
Dental Public Health	17.4	4.3	17.4	8.7	4.3	47.9
General Dental Practice	13.9	10.3	13.9	10.3	13.9	37.7
Periodontology	18.5	14.8	11.1	11.1	18.5	26
Pediatric Dentistry	42.8	0	0	14.2	14.2	28.8
Oral Pathology	20.0	15.0	15.0	15.0	10.0	25.0
Academics and Research	5.0	10.0	0	5.0	10.0	70.0

such as cost of training do not vary much among specialties in Kenyan universities. This could explain why training cost was not reported to influence the choice of specialty.

Previous studies have suggested that a desire for specialisation could vary based on the motivating factors, with financial factors as well as personal interest driving the desire higher, whereas humanitarian factors and cost of specialised training lead to a somewhat lower desire to specialise.<sup>8,17</sup> In the UK, where the key motivating factor was enjoyment of the practice and type of patients seen, the preference for specialisation was lower than in our study.<sup>8</sup> Similar findings have been reported in other studies where, for example, a higher desire to specialise was seen among Chinese and Nigerian dentists due to the perceived associated better financial returns when compared to a lower desire among Japanese, Australian and New Zealand students whose motivation in the profession was to help people and intellectual stimulation.<sup>6,9,18,19</sup> Contrary to findings in this study, some countries such as Saudi Arabia<sup>20</sup> and Japan<sup>6</sup> have reported influence by family members as a key factor determining choice of career in dentistry. The preference for pediatric dentistry by females more than males is consistent with a number of studies such as one in the UK.<sup>8</sup>

In this study, the most preferred specialties were maxillofacial surgery, restorative dentistry, prosthodontics and orthodontics. This could be explained by the fact that participants perceived these specialties to have better financial returns, and that

these specialties also evoked high personal interest among the participants. Similar findings have been reported across the world where desire for higher financial gain drives dentists to pursue specialties perceived to have higher incomes such as maxillofacial surgery and orthodontics,<sup>3,17</sup> whereas those more influenced by personal interest and enjoyment of the specialty practice tend to prefer restorative dentistry and prosthodontics.<sup>6,20</sup> Personal interest as a motivation for specialising in pediatric dentistry is almost universal.<sup>21</sup> Positive influence from faculty has been reported to influence choice of specialties such as orthodontics and prosthodontics.<sup>22,23</sup> In this study, those who preferred the specialty of periodontology indicated that faculty were a key factor influencing their choice. Though not reported in other studies, it appears that those who wish to have a higher societal impact tend to choose dental public health and general dental practice as their preferred specialties.

Our finding here revealed that most participants favoured working in the public sector. In Kenya, public sector dentists are among the most well-paid public-sector workers, and this could have been one of the reasons for this preference. Public sector work also often comes with reasonable job security, especially within national government institutions. Another possible reason could be that public sector workers also do get some time to work part time within private enterprises and institutions to make an extra income. Preference for work in the public sector has been seen among dentists in Saudi Arabia.<sup>20</sup>

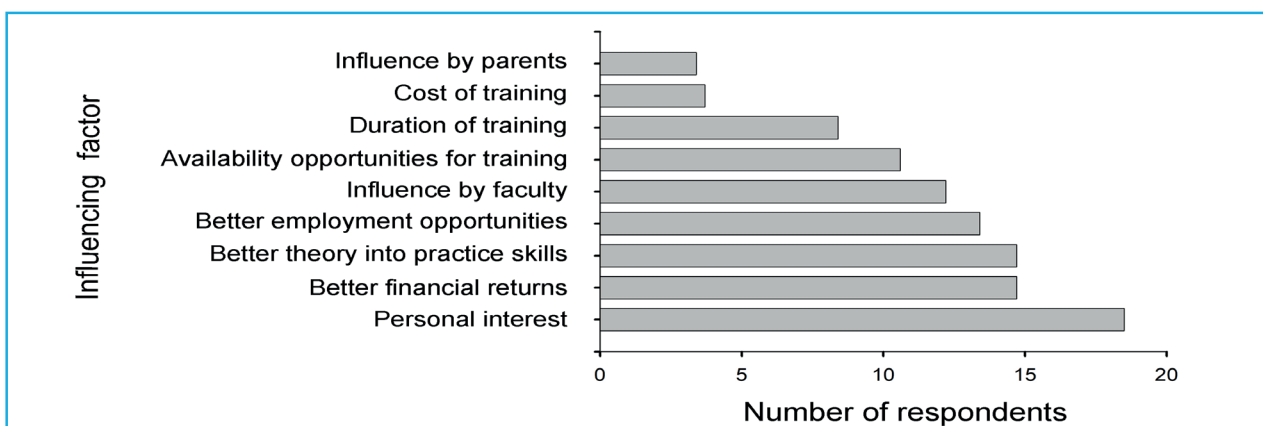


Figure 3: Most relevant factors influencing choice of specialty among the respondents



## CONCLUSION

This study found a high preference for specialisation among dental students and dental interns in Kenya, with maxillofacial surgery, restorative dentistry, prosthodontics and orthodontics being the most preferred specialties. Key factors influencing choice of specialty were personal interest, better financial returns and ability to put theoretical knowledge into practice. Most participants preferred working in the private sector, but future careers that would allow for both public and private service dental practice were favoured more.

## RECOMMENDATIONS

There is need for expansion of postgraduate training facilities in dental schools in Kenya to take care of the existing need for this training. Further, dental schools should enhance career mentorship opportunities, particularly through involvement of faculty, to enable better career choices by students.

## Study limitations

Though very useful for research, Likert-type scales as used in this study do have some limitations, among them the restricted choice for participants. Our study also reflects perceptions at one point in time, yet it has been shown previously that motivating factors for dental specialty choices do change over periods of time. Follow-up studies may be necessary to address this issue.

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## Conflict of interest

The authors declare there is no conflict of interest regarding the publication of this paper and there was no external funding for this work beside that from the researchers.

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