Knowledge and Awareness of Medical Students on Orthodontics: A Cross Sectional Study

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Abstract

Healthcare providers are the primary caregivers for a variety of health-related complaints. If they are unaware of the relationship between the malocclusion and orthodontics on general well-being of the patient, they may not educate, motivate and refer patients for orthodontic care. Considering that the present-day medical students are the future healthcare providers; we have assessed their level of orthodontic awareness. This cross sectional survey was conducted in Sree Balaji Medical College & Hospital, Bharath Institute of Higher Education & Research. The total sample size includes 375 male and female medical students selected by simple random sampling technique. A pre-piloted validated self-administered questionnaire was used and the collected data was subjected to statistical analysis using SPSS software version 24.0. Response rate was 70.4% (n=264) of which 49.2% were males (n=130) and the rest others were females. Half of the respondents (50.1%, (n=131) know the term 'orthodontics'. 31.4% (n=81) knew that orthodontics is related to correcting malocclusion. 40.1% (n=106) had received orthodontic treatment. Around half of the respondents (54.5%, (n=144) have relatives who are undergoing orthodontic treatment during the study period and 47.4% (n=125) felt aesthetics is the most important criteria affected by malocclusion. Similarly, 56% (n=148) would make referrals and 38.6% (n=102) cited duration of treatment as a discouraging factor. The medical students surveyed had only less awareness of orthodontics as a separate speciality. The female students showed a higher level of awareness towards oral health, aesthetics and orthodontics as compared to the male students. So a basic introduction to the dental sub-specialties, especially orthodontics would enable them to identify and educate on malocclusions and make informed referrals appropriately.

Keywords: *Malocclusion, medical students, orthodontics.*

Introduction

The term 'malocclusion' refers to incorrect relationship between the upper and lower arches and malalignment of teeth[1]. Malocclusion is the third common oral health problem in the world and it is often associated with improper oral hygiene, periodontal disease, temporo-mandibular joint disorders, speech problems, mouth breathing and many other complications[2]. The orthodontic treatment often can correct these complications or at least prevent them from progressing on early detection; by ensuring proper alignment of the teeth and thereby achieving harmonious occlusal and jaw relationships[3].

Orthodontic problems are usually not well associated with high mortality or morbidity; hence, they are often overlooked by most health care providers to be less important. However, studies indicate that malocclusion has significant impact on the psychosocial health and social activities of the affected person[4]. General practitioners and physicians are the primary care givers and their role in oral healthcare delivery is very important in educating and motivating for proper oral hygiene due

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to the lack of awareness of patients concerning on the treatment of oral health problems. Prevention of oral diseases is possible to be effective if the physicians in developing countries are actively participated in screening and prevention of oral diseases[5]. The prevalence of malocclusion has been ranging from 20 to 43% in India[6], 20 to 35% in the United States[7], 88.1% in Colombia[8] and 76 to 87.7% in Nigeria[9]. A prevalence rate ranging from 46.4% to 69.3% was reported in the Kingdom of Saudi Arabia (KSA)[10]. Furthermore, prevention of oral diseases is not a high priority in Chennai and majority visit dental clinics only when they suffer from toothache[11]. Knowledge stuffed at the undergraduate level from the curriculum influences the style and orientation of medical practice after the graduation[5]. Considering that the present-day medical students are the future healthcare providers, the present study sought to assess their level of orthodontic knowledge and awareness.

Materials and Method

This cross sectional survey was conducted in Sree Balaji Medical College & Hospital, Bharath Institute of Higher Education & Research. Taking into account the role of sum of awareness of 50% and the confidence interval of 95% and an absolute precision of 5%, the sample size needed for the present study was calculated to be 375 male and feminine students. The sample was selected from second to final year medical students by simple random sampling technique. A pre-piloted and validated self-administered questionnaire (Table 1) was formulated to collect the information and was distributed to the students during class intervals. Verbal and written informed consent were obtained from the participating students after informing them the objective of this study. The students were instructed to return the questionnaire once they have completed. Participation was purely voluntary and the overall response rate was 70.4%. The statistical software package SPSS, version 20 for Windows was used for the data analysis. If the questionnaire was not completely filled up, they are not excluded as a whole, but the answered questions were taken into consideration for statistical analysis. Pearson's Chi square test was used and a *p* value less than or equal to 0.05 was considered to be statistically significant.

Results

Questionnaires were returned by 264 participants after completing, giving a response rate of 70.4%. 49.2% (n=130) were males and 51.8% (n=134) were females. The participants range of age was 18-25 years with mean (SD) of 22 (7.7). The demographic characteristics of respondents are summarized in Table 2. 73.8% of the respondents (n=195) had visited the dental physician within the past six months. Concerning the rationale for visiting the dentist, 76.4% (n=149) of them had visited with tooth pain, 11.2% (n=22) for a routine check-up, 12.3% (n=24) for other reasons, in which only 3% (n=6) of the study population had consulted dentist for orthodontic treatment (Fig. 1). Only 50.1% (n=131) of the population were acquainted with the term 'orthodontics' and only 31.4% (n=81) of the population correctly answered that orthodontics involves correcting malocclusion. 40.1% (n=106) of the study population have received orthodontic treatment and 54.5% (n=144) of them had relatives who have received orthodontic treatment either in past or at present. Majority of the respondents (47.4%, n=125) felt aesthetics is mostly affected by malocclusion, followed by mastication (30.6%, n=81) and speech (22%, n=58) (Fig. 2). 38.6% (n=102) of them felt increased treatment time period discourages them from either undergoing or advising treatment (table 2). 56% (n=148) of them would refer relatives with malocclusion for orthodontic treatment and 48.1% (n=127) would suggest orthodontia as a career choice for their close relatives. Pearson's Chi square test was used and a *p* value less than or equal to 0.05 was considered to be statistically significant. There was a statistically significant difference between male and female students awareness of orthodontia. Gender differences among the respondents values are summarized in Table 2.

Table 1: Demographic characteristics of the participants

Characteristics	Frequency	Percent
Age (Years)		
18-19	56	21.3
20-21	102	38.6
22-23	67	25.3
24-25	39	14.8
Gender		
Females	134	49.2
Males	130	51.8

Table 2: Frequency, Chi square values and statistical significance among the variables.

Questions	Gender		Total n (%)	Chi-square	P-value
	Male n (%)	Female n (%)			
Dental visit in last 1 year (n=264)					
Yes	83 (31.4%)	112(42.4%)	195(73.8%)	13.3	0.001
No	47 (17.8%)	22 (8.4%)	69(26.2%)		
Reason for the recent visit (n=195)		12(6.1%)	22(11.2%)		
Routine checkup	0(5.1%)				
Pain	79(40.5%)	70(36%)	149(76.5%)	23.4	0.001
Orthodontic treatment	0(0%)	6(3%)	6(3%)		
Any other	0(0%)	24(12.3%)	24(12.3%)		
Know the term "Orthodontics" (n=261)					
Yes	46(16.6%)	88(33.6%)	131(50.2%)	24.2	0.001
No	84(32.2%)	46(17.7%)	130(49.9%)		
Orthodontic treatment nature (n=258)					
Dentures	46(17.8%)	24(9.3%)	70(27.1%)	34.3	0.001
Restorations (fillings)	69(26.7%)	48(18.7%)	117(45.4%)		
Correcting malaligned teeth	15(5.8%)	56(21.7%)	71(27.5%)		
Received orthodontic treatment present or past (n=264)					
Yes	55(20.8%)	51(91.3%)	106(40.1%)	0.496	0.481
No	75(28.4%)	83(31.5%)	158(59.9%)		
Relatives received orthodontic treatment past or present (n=264)					
Yes	57(21.5%)	87(33%)	144(54.5%)	11.82	0.001
No	73(27.7%)	47(17.8%)	120(45.5%)		
Problems with the malaligned teeth Aesthetics (n=264)					
Food	57(21.6%)	68(25.8%)	125(47.4%)	30.1	0.001
Grinding	56(21.2%)	25(9.4%)	81(30.6%)		
Speech	13(4.9%)	45(17.1%)	58(22%)		
Referring close relatives with malaligned teeth (n=264)					
Yes	50(18.9%)	98(37.1%)	148(56%)	32.2	0.001
No	80(30.3%)	36(13.7%)	116(44%)		
Problems associated with orthodontic treatment (n=264)					
Cost	55(20.9%)	40(15.1%)	95(36%)	10.3	0.006
Duration	53(20.1%)	49(18.5%)	102(38.6%)		
Treatment discomfort	22(8.3%)	45(17.1%)	67(25.4%)		
Suggesting orthodontics as a career choice (n=264)					
Yes	48(18.1%)	79(30%)	127(48.1%)	12.8	0.001
No	82(31%)	55(20.9%)	137(51.9%)		

Discussion

The purpose of the present study was to assess the level of orthodontic knowledge and awareness among the undergraduate medical students in Bharath Institute of higher Education & Research, Sree Balaji medical college & hospital. Although dental malocclusion in itself is neither a disease nor a life-threatening condition, but it has some significant impact on the physical, emotional and psychosocial health of the person[12]. People with severe malocclusions have more severe periodontal diseases, temporomandibular joint (TMJ) disorders and decreased masticatory load efficiency[13]. There are many benefits of orthodontic treatment including improved self-esteem, self-confidence and physical attractiveness, improvements in masticatory function and occlusion, maintaining good oral hygiene with reduced dental caries and periodontal disease relatively[14]. Medical students in Sree Balaji Medical College & Hospital receive oral health education through continuing education programmes (CDE), healthcare camps. At the outset, this study was conducted as an attempt to assess the medical students level of knowledge and awareness

in orthodontics. 76.5% (n=149) of the study population visited a dentist in the last one year with dental pain and only 11.2% (n=22), for a routine checkup. The fact that only 50.2% (n=106) were familiar with the term 'orthodontics', indicates a sub optimal level of awareness of orthodontics among the study population. This is further highlighted by their inability to correctly identify the procedures carried out by an orthodontist. Many erroneously selected dentures and fillings as components of the orthodontist's treatment schedule and only 27.5% (n=71) could correctly identify the type of treatment offered by orthodontists. This may be because many of the respondents have had little exposure to dentistry. Female students, in comparison to males, showed significantly greater awareness in their familiarity with orthodontics, correct perception of the treatment offered by orthodontists and visits to dentist for routine dental checkups (p=0.001). In a society with a higher prevalence of malocclusion, it was not surprising to find 40% (n=106) of them by themselves and 54.5% (n=144) have relatives receiving orthodontic care. Despite this, their perception of orthodontics was largely incorrect, a finding confirmed by research suggesting that the public awareness of malocclusion differs widely from that of the dental professional[15]. Only 56% of the respondents (n=148) considered referring their close relatives with malocclusion for orthodontic treatment. This number justifies the need for more educational opportunities to create more orthodontic awareness amongst medical students in order to ensure appropriate referral patterns in their future careers as medical doctors. There was no significant difference between male and female students in receiving orthodontic treatment either at present or in the past (p=0.481).

Majority (47.4%, n=125) felt aesthetics is most affected by malocclusion (Fig. 2). This may be due to the fact that demand for orthodontic treatment is motivated primarily by esthetic values and the high social premium placed on well-aligned teeth and attractiveness in general[4]. 38.6% (n=102) of them felt treatment duration discourages them from either undergoing or advising orthodontic treatment (Fig. 3). 56% (n=148) of them would refer close relatives with malocclusion for orthodontic treatment and 48.1% (n=127) would suggest orthodontics as a career choice to their close relatives. There was significant difference between males and females regarding their suggestion of orthodontics as a career choice and referring close relatives with malocclusion (p=0.001). Chi square tests revealed significant gender differences, with female students showing a higher level of awareness towards oral health and orthodontics as compared to male students, as evidenced in Table 3.

Limitations of the Study: The sample size used was small and therefore the results cannot be generalized to all medical students. In addition, cross-sectional studies are often limited by respondent bias, but can serve as impetus for further studies in this area. There is limited research conducted in this area; therefore, it was difficult to make comparisons. Despite these limitations, our results have important implications, as the findings prompt for an educational initiative to improve the orthodontic knowledge of medical students.

Conclusion

The medical students surveyed had limited awareness of orthodontics as a specialty. A basic introduction to dental subspecialties, especially orthodontics would improve their ability to identify malocclusions, educate the patients and make informed referrals appropriately. Incorporating oral health education into the medical curriculum is a natural way to make a positive impact on patients health and well-being. Formal training opportunities have to be offered to the students; thus helping they understand the concepts of oral health, orthodontics and health-related quality of life.

Conflict of Interest: None

Ethical Approval: Ethics committee approval obtained from Sree Balaji Dental college & Hospital (SBDCH/IEC/08/2015/5).

Funding: Self funded

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