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The awareness of 6th year dental students of Riyadh Colleges of Dentistry and Pharmacy toward basic knowledge of Orthodontics

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ABSTRACT

To evaluate the awareness of 6th year dental students in Riyadh Colleges of Dentistry and Pharmacy toward basic knowledge of Orthodontics, and to assess the adequacy of the courses that are given. A structured questionnaire was developed containing 18 questions, The questions addressed various aspects such as the understanding of orthodontics by dental students in their final year, their opinion regarding orthodontic treatment planning for patients and knowledge regarding functional appliances and similar concepts pertaining to orthodontic treatment of patients. An online survey was developed using survey monkey tool (www.surveymonkey.com). The average knowledge of male and female was adequate, there is no statistically significant difference between them; The result shown that majority of the respondent (70.5%) rated their theoretical information as adequate. In other hand, majority of them rated their practical exercise and clinical exposure as not enough. The result of this investigation revealed that the basic orthodontic knowledge of 6th year dental students of Riyadh Colleges of Dentistry and Pharmacy both males and females is generally adequate

Keywords: Awareness, Orthodontics

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INTRODUCTION

Orthodontics is one of several disciplines that compete for time in a busy curriculum, with limited opportunity for undergraduates to grasp the fundamentals of orthodontic theory and practice (Oliver and Hingston, 2006)[1]

Undergraduate clinical orthodontic experience may be expressed in a variety of ways. The most common way is by number of curriculum hours. Other ways include the number of patients seen, or number of procedures carried out. Whilst any of these methods may allow comparison between cohorts of students within a school or between schools, none of them are suitable to determine how much experience is 'satisfactory', nor do they indicate what the student should know, understand, or be able to do, to be considered 'satisfactory', and hence fit to graduate (Oliver et al, 2006)[1]

The American Dental Association accreditation guidelines state that "graduates must be competent to recognize malocclusion in the primary, mixed, and permanent dentition and treat limited developmental and acquired abnormalities" (Behrents and Keim, 1991)[2].

Modifications in the education system at the under graduate level in dental colleges to impart more diagnostic concepts can benefit the students (Niveda et al, 2014)[3]

A dental student should at least recognize a malocclusion, know which patient to refer, at what stage of dental development he/she should be referred and handle the orthodontic cases properly to improve the quality of dental care.

The aim of this study was to evaluate the awareness of 6th year dental students in Riyadh Colleges of Dentistry and Pharmacy toward basic knowledge of Orthodontics, and to assess the adequacy of the courses that are given. The study also aimed to determine in which field of Orthodontics the students lack information the most and to help suggest improvements both in theoretical knowledge and the clinical training to improve orthodontic diagnostic skills.

MATERIALS AND METHOD

A structured questionnaire was developed containing 18 questions. The questions addressed various aspects such as the understanding of orthodontics by dental students in their final year, their opinion regarding orthodontic treatment planning for patients and knowledge regarding functional appliances and similar concepts pertaining to orthodontic treatment of patients.

An online survey was developed using survey monkey tool (www.surveymonkey.com)

The survey comprised of an introduction of the survey in Arabic and English language explaining the aim of the survey and the required time to complete it. The introduction served

as a consent for participation in the study with participants being asked to tick a box stating their wish to continue with the survey.

The second page containing detailed information regarding the gender of the participants and the questions regarding orthodontics (see Appendix I).

A link of a survey was send to the students college email in Riyadh colleges and email ID was used to ensure that there were no double responses or responses by individuals who were not 6th year dental students.

Statistical Analysis:

The scores were entered into the SPSS version 21 data processing software (IBM, SPSS, and Armonk NY, USA). The descriptive analyses were applied and parametric analysis (student's t test) was utilized to compare between male and female students.

RESULTS AND DISCUSSION

1: The overall knowledge:

Table 1: The percentage of correct answer was high in each question

			Count	Column N %
1.A line drawn perpendicular to the interpupillary line from glabella to the tip of the nose, passing through the philtrum of the upper lip, and the midline of the chin:	Correct answer		64	90.1%
	B.	incorrect answer	7	9.9%
2.A malocclusion where the molar relationship shows the buccal groove of the mandibular first molar distally positioned when in occlusion with the mesiobuccal cusp of the maxillary first molar:	A.	Class I malocclusion	6	8.8%
	B.	Class II malocclusion	51	75.0%
	C.	Class III malocclusion	11	16.2%
3.A malocclusion where the mesiobuccal cusp of the upper first molar is aligned with the buccal groove of the mandibular first molar:	A.	Class I malocclusion	56	82.4%
	B.	Class II malocclusion	6	8.8%
	C.	Class III malocclusion	6	8.8%
4.A malocclusion where the molar relationship shows the buccal groove of the mandibular first molar mesially positioned to the 5.mesiobuccal cusp of the maxillary first molar when the teeth are in occlusion	A.	Class I malocclusion	6	8.7%
	B.	Class II malocclusion	13	18.8%
	C.	Class III malocclusion	50	72.5%
6.The Horizontal distance between the labial surfaces of the mandibular incisors and the incisal edge of the maxillary incisors is called :	A.	Overbite	6	8.7%
	B.	Overjet	57	82.6%
	C.	Crossbite	1	1.4%
	D.	primate space	5	7.2%
7.The amount of vertical overlap of the mandibular anterior teeth by the maxillary anterior teeth is called:	A.	Overbite	55	79.7%
	B.	Overjet	11	15.9%
	C.	Crossbite	1	1.4%
	D.	primate space	2	2.9%
8. A case where there is no vertical overlap of the maxillary and mandibular anterior teeth or no contact between the maxillary and mandibular posterior teeth. What is it called?	A.	Crossbite	6	9.0%
	B.	Openbite	58	86.6%
	C.	Overbite	3	4.5%
9.When one or more of the adjacent posterior teeth are either positioned completely buccally or lingually to the antagonistic teeth and exhibit a vertical overlap:	A.	Buccal crossbite	22	32.4%
	B.	Palatal crossbite	4	5.9%
	C.	Scissor-bite	42	61.8%

10. Can Malocclusion be treated during mixed dentition stage?	A. Yes	54	85.7%
	B. No	9	14.3%
11. Does Orthodontic treatment always require extractions?	A. Yes	1	1.6%
	B. No	62	98.4%
12.Orthodontics Growth Modification Treatment is most effective during:	A. Children's growth spurt	52	82.5%
	B. Puberty	11	17.5%
	C. Any time	0	0.0%
13. Can we start orthodontic treatment when the patient have active periodontal disease?	A.Yes	1	1.6%
	B. No	62	98.4%
14.A child with excessive overjet (10mm overjet, for example) needs prompt referral to an orthodontist because he has an increased risk of	A.Temporomandibular joint disorder	7	11.1%
	B. mouth breathing	10	15.9%
	C. chewing dysfunction	4	6.3%
	D. fracture of the maxillary incisors	37	58.7%
	E. mucogingival defect	5	7.9%
15. Karyn is 9 years old, and her lower left primary canine has been lost prematurely causing the lower midline to shift to the left. What is the most appropriate time to refer Karyn to an orthodontist to correct the midline?	A. when all her permanent teeth erupt	9	14.5%
	B. right before her growth spurt	7	11.3%
	C. when the lower canines are fully erupted	14	22.6%
	D. as soon as possible	32	51.6%
16. Susan is 10 years old with a convex profile and 8 mm of overjet. You decided to refer her for orthodontic treatment, but the mother wants to wait until Susan is 14 years old. What should you tell the mother?	A. orthodontic treatment during the growth spurt might avoid	3	4.8%
	B. orthodontic treatment during the growth spurt might avoid	7	11.3%
	C. the sooner Susan is treated the better it will be for her	5	8.1%
	D. all of the above are correct	47	75.8%
17. Diana is 8 years old with negative overjet: the upper incisors are behind the lower incisors when she is in maximum intercuspation. When do you think you should refer Diana for an orthodontist to correct this cross-bite?	A. as soon as possible	40	64.5%
	B. when all permanent teeth are fully erupted	10	16.1%
	C. after the eruption of lower canines	6	9.7%
	D. after the eruption of upper second premolars	3	4.8%
	E. this problem will correct itself by time, and does not ne	3	4.8%

2: The average knowledge of the male and female:

The average knowledge of male and female was adequate, there is no statistically significant difference between them, (Table 2)

Table 2: average knowledge of the male and female

	I am a	N	Mean	Std. Deviation	Std. Error Mean
Knowledge	A. male	13	12.4615	2.50384	.69444
	B. female	40	13.0500	2.07488	.32807
Sig:					0.40

3) The average knowledge between the two groups:

The average knowledge of both level was adequate, there is no statistically significant difference between them, (Table 3)

Table 3: the average knowledge between both groups

	Which level are you in?	N	Mean	Std. Deviation	Std. Error Mean
Knowledge	A. Level 11	33	13.1515	2.04819	.35654
	B. Level 12	19	12.4211	2.41099	.55312
sig					0.251

4) The self-evaluation of different aspect (their knowledge, practical experience) among the groups:

The result shown that majority of the respondent (70.5%) rated their theoretical information as adequate. In other hand, majority of them rated their practical exercise and clinical exposure as not enough.

Table 4:

Issue	**Not enough**	**Adequate**	**Too much**
Theoretical information	7(11.5%)	43(70.5%)	11(18%)
Practical exercise	37(60.7%)	21(34.4%)	3(4.9%)
Clinical exposure-diagnosis	38(62.3%)	22(36.1%)	1(1.6%)
Clinical exposure-treatment	46(75.4%)	14(23%)	1(1.6%)
Diagnosis of malocclusion	7(11.3%)	24(38.7%)	31(50%)
Referral to orthodontist	6(9.7%)	29(46.8%)	27(43.5%)
Making impression for study model	7(11.3%)	18(29%)	37(59.7%)
Placing a space maintainer	15(24.6%)	28(45.9%)	18(29.5%)
Diagnosing a space deficiency or excess	13(21.3%)	25(41.0%)	23(37.3%)
Correction of minor malocclusion	28(45.2%)	21(33.9%)	13(21%)

DISCUSSION

The result of this investigation revealed that the basic orthodontic knowledge of 6th year dental students of Riyadh Colleges of Dentistry and Pharmacy both males and females is generally adequate. Also, it showed that the students are generally confident about their orthodontic knowledge.

It is well known that the quality of dental care depends partially on the quality of the education and training received at the dental college at first, then throughout the practical life of those who provide it. In addition, knowledge that is acquired at the undergraduate level of study affect the style of dental practice. The general practitioner is usually the first one who examines the patient. That's why the undergraduate dental students who will be the future General practitioners should be able to properly diagnose different types of malocclusions, know when the best time to refer the patient to the orthodontist is and how to generally manage orthodontic patients.

It has been noticed that there is increase in the awareness of orthodontics as a dental specialty among children as well as adults (Anita and Asiya, 2010)[4]

Similar study was conducted by (Niveda S, 2014)[3] to evaluate the knowledge, attitude and awareness in the branch of Orthodontics amongst general dental practitioners and dentists from all specialties except Orthodontics. The knowledge and awareness prevalent among the study participants was moderately satisfactory. They found that most of the general dentists and non-orthodontic specialists were aware of the basic concepts of Orthodontics like age criteria for orthodontic treatment, diagnosis of malocclusion, and the need for orthodontic treatment.

In current study, Most of the students were able to distinguish between types of malocclusion. 82.4% of the participants were able to identify class I according to Angle's classification. As well, 75.0% were able to identify class II. And 72.5% of them were able to identify class III. On the other hand, 82.61% of them were able to correctly identify overjet and 79.71% were able to identify overbite.

Our findings are similar to those of AlShahrani (2014)[7] who stated that 87% percent (n = 52) of the respondents were able to correctly identify the Angles classification of the presented cases. He justified that the high percentage of correct answers may be due to the fact that Angles classification has been taught over the last 30 years in all undergraduate Orthodontic curricula and the respondents would have found it easy to understand and identify Angles classification of malocclusion understand and identify Angles classification of malocclusion. All of them (100%, n = 60) correctly diagnosed the case with increased over jet. Eighty-seven percent (n = 52) of them were able to diagnose overbite respectively.

Regarding the difference in the knowledge among different gender, our study showed that there is no statistically significant difference in the orthodontic knowledge between the males and females. In this regard our findings are similar to those of (Alsulaimani F, 2013)[5], who showed that there is an agreement between males and females

Niveda et al, 2014[3] conducted a survey to evaluate the knowledge, attitude and awareness in the branch of Orthodontics amongst general dental practitioners and dentists from all specialties except Orthodontics. Their survey revealed some interesting findings that reflected the existing scenario of orthodontic practice as perceived by dentists from other specialties. The knowledge and awareness prevalent among the study participants was moderately satisfactory. But the study results definitely highlight the need for more education of practice and treatment concepts in Orthodontics to the dentists who did not belong to this field. Adeghe et al., 2012[6] stated that female students were higher in their knowledge towards dental sub-specialties compared to the male students.

In this study, 20.97% of the participants were very confident about correction of minor malocclusions, 33.87% were somewhat confident and 45.16% were not confident at all. The data from another study showed that almost half of the male interns and close to third of the female interns were confident to treat minor orthodontic cases. This could be due to the extensive amount of information given to the student during their undergraduate courses. (Alsulaimani F, 2013)[7]

The major limitation of our study is that the response rate was relatively low. Only 104 students responded out of 197. Out of these 104, nearly one third of them skipped most of the questions. One of the reasons is the number of the questions in the survey. Obviously, the more questions there are in the survey, the more areas will be covered and the more reflective the survey will be regarding the level of the competency of the students. On the other hand, since the survey is taking the format of a test, the fewer the questions, the more the students will be willing to complete the survey.

Another limitation of our study is that the sample size was small and not really representative. Including level 9, level 10 and dental interns in the same college could've been more representative.

CONCLUSION

The result of this investigation revealed that the basic orthodontic knowledge of 6th year dental students of Riyadh Colleges of Dentistry and Pharmacy both males and females is generally adequate. Also, it showed that the students are generally confident about their orthodontic knowledge.

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