

MEDICAL STUDENTS' AWARENESS OF ORTHODONTICS- A COMPARATIVE QUESTIONNAIRE SURVEY STUDY BETWEEN THE STUDENTS OF A MEDICAL COLLEGE ATTACHED WITH A DENTAL COLLEGE AND A STAND-ALONE MEDICAL COLLEGE

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ABSTRACT

BACKGROUND

The early treatment of malocclusion is important, because it affects quality of life. Medical practitioners have an important role to play for patients with a vast majority of health-related complaints, as they are the primary caregivers. Involvement of medical practitioners in the process of screening, detection and referral of patients with oral health problems including malocclusion will be beneficial for the prevention and management of oral diseases and effective delivery of oral health care. There have been no known studies which have compared the responses of a medical college attached with a dental college with a stand-alone medical college.

Hence, it was considered pertinent to conduct this study to assess as to whether there would be any differences in attitudes and awareness of orthodontics between medical students with an attached dental college and students in a stand-alone medical college.

MATERIALS AND METHODS

This comparative cross-sectional study was conducted in Mangalore among 132 first year MBBS students at a medical college with a dental college {A} and 127 first year MBBS students in a stand-alone medical college {B}. A pre-piloted, validated, self-administered questionnaire was distributed among the students. Data collected was entered in Microsoft Excel. The statistical software package SPSS version 16.0 for Windows was employed for data analysis. Pearson's Chi-square test was used and a p-value less than 0.05 were considered statistically significant.

RESULTS

There was a difference between male and female students' awareness and their attitudes towards orthodontics. There were significant differences in the attitudes and awareness of the subject of Orthodontics between those students studying in a medical college with an attached dental college when compared with those medical students studying in a stand-alone medical college.

CONCLUSION

The medical students who studied in an institution with an attached dental college had better awareness of the subject of orthodontics as compared to medical students of a stand-alone medical college. The medical students with and without a dental college had average awareness of orthodontics as a sub-specialty of dentistry. A basic introduction to dental sub-specialties would help them identify dentofacial problems and make appropriate referrals.

KEY WORDS

Students, Awareness, Orthodontics.

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BACKGROUND

There is increasing demand for orthodontic treatment in society today.¹ This can be due to increasing awareness of malocclusion, treatment availability, importance given to aesthetics and facial appearance.² Orthodontic conditions are often considered to be of lesser importance by most health professionals, as they are not considered as life-threatening conditions.³ However, the early treatment of malocclusion is important, because it affects quality of life.⁴ Medical practitioners have an important role to play for patients with a vast majority of health-related complaints, as they are the primary caregivers. Involvement of medical practitioners in

the process of screening, detection and referral of patients with oral health problems including malocclusion will be beneficial for the prevention and management of oral diseases and effective delivery of oral health care.⁵ Very few studies have been conducted to assess the medical students' awareness of orthodontics. There have been no known studies to have compared the responses of a medical college attached with a dental college with a stand-alone medical college. Hence, it was considered pertinent to conduct this study. The objective of this study was to assess as to whether there would be any differences in attitudes and awareness of orthodontics between medical students with an attached dental college {A} and students in a stand-alone medical college {B}.

MATERIALS AND METHODS

This comparative cross-sectional study was conducted in Mangalore among 132 first year MBBS students at a medical college with a dental college {A} and 127 first year MBBS students in a standalone medical college {B}.

Sample size estimation was done based on the formula-

$$(Z_{\alpha} + Z_{\beta})^2 (p_1q_1 + p_2q_2) / (p_1 - p_2)^2$$

Based on previous studies and results of my pilot study, considering 50% awareness among medical students attached with a dental college and expecting a minimum difference of awareness 15% among medical students without a dental college, about 90 students were needed in each group at 95% confidence interval and 80% power of study.

All first year medical students who were present on the day of the study were included in the survey to assess their awareness.

Permission was sought from the principal of {A} medical college to conduct the survey at a time of convenience for the medical college students, preferably before or after their theory or a practical class, so as to cause minimum interference with their academics. Permission was granted to conduct the questionnaire survey after the anatomy practical class, so as to cause minimal disturbance to students.

A presentation was made before the Ethics Committee of {B} medical college. A protocol was submitted to the Ethics Committee, which permitted the questionnaire survey study to be conducted subject to registration at the Clinical Trial Registry of India (CTRI). The CTRI trial acknowledgement number was REF/2015/11010154. Finally, permission was sought from the Dean of {B} medical college to conduct the survey just after the anatomy theory class.

A pre-piloted, validated, self-administered questionnaire used by Al Shahrani et al⁵ (Table 1) was distributed among the students. Prior permission from the concerned authorities and informed consent from the participants was taken. The students were informed of the objective of the

survey and were given instructions on how the forms were to be filled. Implied coercion was done away with as none of the authors were involved in classroom teaching. It was ensured for completeness of the questionnaire while collecting it back. The response rate was 100%. All forms were collected after 15 - 20 minutes.

Data collected was entered in Microsoft Excel. The statistical software package SPSS version 16.0 for Windows was employed for data analysis. Pearson's Chi-square test was used and a p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 259 first year MBBS students participated in the survey. Of them, 132 were from a medical college attached with a dental college {A} and 127 from a stand-alone medical college {B}.

Among the 132 students of {A}, 55 were males and 77 were females. Among the 127 students {B}, 40 were males and 87 were females.

Descriptive statistics, i.e. number and percentage was used to describe the variables (Table 2 and Table 3). Comparison of the knowledge of orthodontics is described in Table 4.

Only 26% of the participants in {B} (n= 34) had visited a dentist in the last 6 months as compared to {A} where 40% of participants did visit a dentist (n= 53). This value was statistically significant (Graph 1).

75% respondents in {B} (n= 95) were familiar with the term Orthodontics as compared to {A} 80% (n= 106).

Only 61% (n= 77) students in {B} responded orthodontists correcting crooked teeth as compared to 74% (n= 98) in {A}. This value was statistically significant.

Close to 45% (n= 57) of the students in {B} felt mastication was most affected by malocclusion. This was followed by aesthetics 37% (n= 47) and speech 18% (n= 23). This is similar to the results from the study of {A} where the score for mastication was 48% (n= 63), aesthetics was 44% (n= 58) and speech was 8% (n= 11).

Treatment discomfort was a cause for concern for both groups, in {B} and {A}. 51% (n= 66) for {B} and 44% (n= 58) for {A}.

More students in {B} 45% (n= 57) would not refer Orthodontics as a career to their close relatives as compared to {A} respondents 30% (n= 40). This value was statistically significant (Graph 2).

There was a difference between male and female students' awareness and their attitudes towards orthodontics (Table 5). There were significant differences in the attitudes and awareness of the subject of Orthodontics between those students studying in a medical college with an attached dental college (A) when compared with those medical students studying in a stand-alone medical college (B).

Table 1

Pre-piloted validated self-administered qu

Please tick the appropriate circle.

Age: years Gender: M F

1. Have you visited a dentist in the last 6 months? Yes

2. If yes, what was your reason for visiting the dentist? Pain

3. Are you familiar with the term Orthodontics? Yes N

4. Do you know which type of treatment is done in the orthodor
 Dentures Fillings Correcting crooked teeth

5. Are you receiving orthodontic treatment at present or underv
 Yes No

6. Are any of your relatives receiving orthodontic treatment pre:
 treatment previously?
 Yes No

7. In your opinion, which daily function would be most affected I
 Aesthetics Mastication Speech

8. Will you refer your close relatives to dentists in case you notic
 Yes No

9. Of the following, what would deter you from advising or persc
 treatment?
 Cost Time required Treatment discr

10. Would you suggest orthodontics as a career to any of your cl
 Yes No

Age in Years	Males	Females	Total
17	1	3	4
18	28	54	82
19	16	15	31
20	8	5	13
21	1	0	1
22	1	0	1
Total	55	77	132

Table 2. Socio-Demographic Characteristics of study population Medical College A (with an attached dental college)

Medical College B (Without an Attached Dental College)

Age in Years	Males	Females	Total
17	3	10	13
18	24	58	82
19	9	16	25
20	4	3	7
Total	40	87	127

- Total males and females in both A and B medical colleges, 259.
- Total males in both A and B medical college, 95.
- Total females in both A and B medical college, 164.

Question		Males No (%) (A)	Males No (%) (B)	Chi-square (A)	P value (A)	Females No (%) (A)	Females No (%) (B)	Total No (%) (A)	Total No (%) (B)
1. Have you visited a dentist in the last 6 months?	Yes	16(29.09)	13(32.50)	4.80	0.028*	37(48.05)	21(24.13)	53(40.15)	34(26.77)
	No	39(70.91)	27(67.50)			40(51.94)	66(75.86)	79(59.84)	93(73.22)
2. If yes, what was your reason for visiting the dentist? (n= 53)	Pain	2 (12.50)	2(15.38)	0.1	0.952	5(13.51)	6(28.57)	7(13.20)	8(23.52)
	Routine check-up	9 (56.25)	10(76.92)			22(59.45)	5(23.80)	31(58.49)	15(44.11)
	Others	5 (31.25)	1((7.69)			10(27.03)	10(47.61)	15(28.30)	11(32.35)
3. Are you familiar with the term Orthodontics?	Yes	41 (74.54)	25(62.50)	1.98	0.160	65(84.41)	70(80.45)	106(80.30)	95(74.80)
	No	14 (25.46)	15(37.50)			12(15.58)	17(19.54)	26(19.69)	32(25.19)
4. Do you know which type of treatment is done in the orthodontic specialty?	Dentures	5 (9.09)	4(10.00)	0.808	0.668	10(12.98)	16(18.39)	15(11.36)	20(15.74)
	Fillings	7 (12.72)	13(32.50)			12(15.58)	17(19.54)	19(14.39)	30(23.62)
	Correcting crooked teeth	43 (78.18)	23(57.50)			55(71.43)	54(62.06)	98(74.24)	77(60.62)
5. Are you receiving orthodontic treatment at present or underwent orthodontic treatment previously?	Yes	14 (25.45)	12(30.00)	3.13	0.077	31(40.26)	26(29.88)	45(34.09)	38(29.92)
	No	41 (74.54)	28(70.00)			46(59.74)	61(70.11)	87(65.90)	89(70.07)
6. Are any of your relatives receiving orthodontic treatment presently or have undergone orthodontic treatment previously?	Yes	32 (58.18)	19(47.50)	0.891	0.345	51(66.23)	38(43.67)	83(62.87)	57(44.88)
	No	23 (41.81)	21(52.50)			26(33.76)	49(56.32)	49(37.12)	70(55.11)
7. In your opinion, which daily function would be most affected by maligned and crooked teeth?	Aesthetics	19 (34.54)	12(30.00)	6.46	0.040*	39(50.64)	35(40.22)	58(43.94)	47(37.00)
	Mastication	28(50.9)	17(42.50)			35(45.45)	40(45.97)	63(47.72)	57(44.88)
	Speech	8(14.55)	11(27.50)			3(3.9)	12(13.79)	11(8.33)	23(18.11)
8. Will you refer your close relatives to dentists in case you notice maligned teeth?	Yes	53(96.36)	34(85.00)	0.522	0.470	72(93.5)	74(85.05)	125(94.69)	108(85.03)
	No	2(3.63)	6(15.00)			5(6.49)	13(14.94)	7(5.30)	19(14.96)
9. Of the following, what would deter you from advising or personally undergoing orthodontic treatment?	Cost	19(34.54)	7(17.50)	0.02	0.990	27(35.06)	28(32.18)	46(34.84)	35(27.55)
	Time required	12(21.81)	10(25.00)			16(20.78)	16(18.39)	28(21.21)	26(20.47)
	Treatment discomfort	24(43.63)	23(57.50)			34(44.15)	43(49.42)	58(43.94)	66(51.96)

10. Would you suggest orthodontics as a career to any of your close relatives?	Yes	37(67.27)	15(37.50)	0.262	0.609	55(71.43)	55(63.21)	92(69.69)	70(55.11)
	No	18(32.72)	25((62.50)			22(28.57)	32(36.78)	40(30.30)	57(44.88)

Table 3. Descriptive Statistics of the variables in the Study

*p < 0.05, significant

Question		College A	College B	Chi	P
1. Have you visited a dentist in the last 6 months?	Yes	53	34	5.194	0.02*
	No	79	93		
2. If yes, what was your reason for visiting the dentist?	Pain	7	8	2.2029	0.332
	Routine check-up	31	15		
	Others	15	11		
3. Are you familiar with the term Orthodontics?	Yes	106	95	1.127	0.2885
	No	26	32		
4. Do you know which type of treatment is done in the orthodontic specialty?	Dentures	15	20	5.6092	0.06*
	Fillings	19	30		
	Correcting crooked teeth	98	77		
5. Are you receiving orthodontic treatment at present or underwent orthodontic treatment previously?	Yes	45	38	0.517	0.4722
	No	87	89		
6. Are any of your relatives receiving orthodontic treatment presently or have undergone orthodontic treatment previously?	Yes	83	57	8.441	0.0037*
	No	49	70		
7. In your opinion, which daily function would be most affected by maligned and crooked teeth?	Aesthetics	58	47	5.59	0.06*
	Mastication	63	57		
	Speech	11	23		
8. Will you refer your close relatives to dentists in case you notice maligned teeth?	Yes	125	108	6.685	0.0097*
	No	7	19		
9. Of the following, what would deter you from advising or personally undergoing orthodontic treatment?	Cost	46	35	1.98	0.37
	Time required	28	26		
	Treatment discomfort	58	66		
10. Would you suggest orthodontics as a career to any of your close relatives?	Yes	92	70	5.873	0.0154*
	No	40	57		

Table 4. Comparison of Knowledge of Orthodontics among 2 of the Colleges

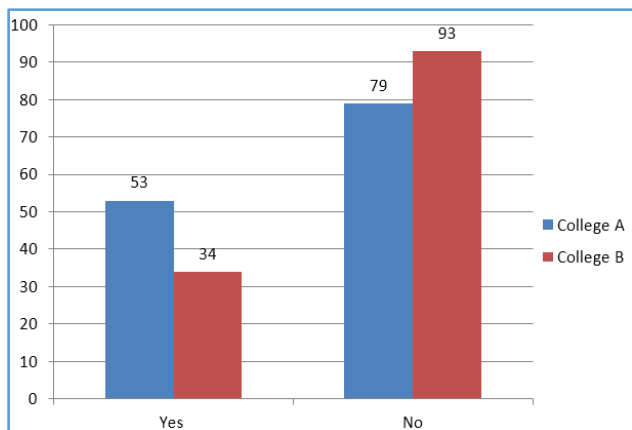
*p < 0.05, significant.

Question		Males A	Males B	chi square	p	Females A	Females B	chi square	p
1. Have you visited a dentist in the last 6 months?	Yes	16	13	0.127	0.72	37	21	10.219	0.0014*
	No	39	27						
2. If yes, what was your reason for visiting the dentist?	Pain	2	2	2.435	0.295	5	6	6.9	0.03*
	Routine check up	9	10						
	Others	5	1						
3. Are you familiar with the term Orthodontics?	Yes	41	25	1.584	0.2081	65	70	0.439	0.5075
	No	14	15						
4. Do you know which type of treatment is done in the orthodontic specialty?	Dentures	5	4	5.74	0.056	10	16	1.65	0.437
	Fillings	7	13						
	Correcting crooked teeth	43	23						
5. Are you receiving orthodontic treatment at present or underwent orthodontic treatment	Yes	14	12	0.241	0.6237	31	26	1.939	0.1638
	No	41	28						

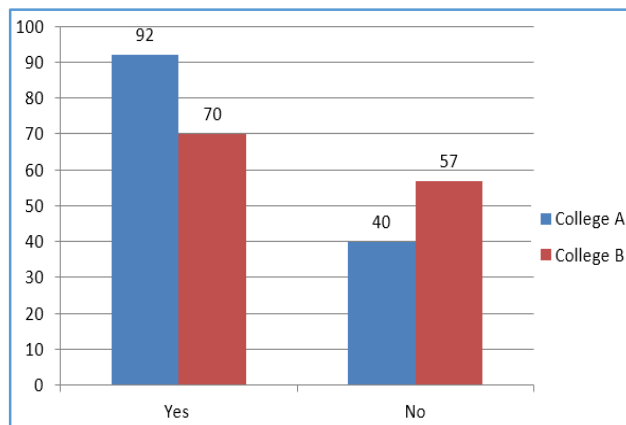
previously?									
6. Are any of your relatives receiving orthodontic treatment presently or have undergone orthodontic treatment previously?	Yes	32	19	1.063	0.3026	51	38	8.374	0.0038*
	No	23	21			26	49		
7. In your opinion, which daily function would be most affected by maligned and crooked teeth?	Aesthetics	19	12	2.43	0.295	39	35	5.359	0.068
	mastication	28	17			35	40		
	Speech	8	11			3	12		
8. Will you refer your close relatives to dentists in case you notice maligned teeth?	Yes	53	34	3.878	0.04*	72	74	2.984	0.0841
	No	2	6			5	13		
9. Of the following, what would deter you from advising or personally undergoing orthodontic treatment?	Cost	19	7	3.459	0.177	27	28	0.4621	0.79
	time required	12	10			16	16		
	treatment discomfort	24	23			34	43		
10. Would you suggest orthodontics as a career to any of your close relatives?	Yes	37	15	8.285	0.004*	55	55	1.247	0.2642
	No	18	25			22	32		

Table 5. Gender Wise comparison among Both Colleges

*p < 0.05, significant.



Graph 1. Students visiting a Dentist



Graph 2. Would you suggest Orthodontics as a Career

DISCUSSION

The general purpose of the present study was to assess the differences in the attitudes and awareness of Orthodontics between first year MBBS medical college students studying in a medical college with an attached dental college and those students studying in a stand-alone medical college. A validated questionnaire was used. Medical College students' exposure to the subject of dentistry is very minimal, let alone the field of Orthodontics. As tomorrow's medical practitioners they would probably encounter patients with

various malocclusions or dentofacial defects, who would not have an aesthetically pleasing profile. Hence, this study was conducted to assess the students.

Very few studies have been conducted to assess the medical students' awareness of orthodontics. There have been no known studies to have compared the responses of a medical college attached with a dental college with a stand-alone medical college.

In a study⁶ conducted in 2016 to assess the knowledge and attitudes towards orthodontics among paediatricians in

Haryana, it was observed that there was a low level of awareness regarding orthodontics among paediatricians. The study concluded by saying that there was a necessity for education of paediatricians regarding orthodontics. This corroborates with the findings of our study

In our study we found more medical students in {A} visiting a dentist as compared to {B}. This could be due to the fact that the medical students in {A} have better access to dental treatment as compared to those in {B}.

A statistically significant number of medical students in {A} responded correctly that orthodontists were involved in correcting crooked teeth than those medical students in {B}. This could be due to more exposure of students in {A} to a dental college.

When it came to deterrence from advising or personally undergoing orthodontic treatment, the treatment discomfort scored over the cost or the time required for orthodontic treatment. This finding suggests that orthodontists can advise patients about the various appliances available for orthodontic treatment. Communication between the orthodontist and the patient regarding diagnosis and treatment planning is very important, as has been noted in an article⁷ which states that patients and parents are often amused to know that there is more than one proper treatment plan for any case. Another article⁸ suggests the importance of good communication between the orthodontist and the patient.

It was observed in our study that a statistically significant number of students in {B} would not refer Orthodontics as a career to their close relatives as compared to respondents in {A}. The study⁵ done in 2014 has mentioned the need for creating more orthodontic awareness among medical students. This is in concurrence with our study.

The findings of a study⁹ conducted to observe professional opinions on the advantages of orthodontic treatment also states that both general dentists and orthodontists rated the psychosocial gain from orthodontic treatment higher than the dental gain. They also felt that orthodontic treatment reduces the chances of dental disease. The data from our study also suggests that aesthetics may be a motivation for seeking treatment, especially for female patients.

There was a difference between male and female students' awareness and their attitudes towards orthodontics. There was a difference among male and female students' responses regarding which daily function would be most affected by malocclusion. 45.12% of the total number of females (n= 164) felt aesthetics as being most affected as compared to 32.63% in males (n= 95). This data suggests that the female participants consider aesthetics to be more affected than mastication or speech. These findings are similar to similar studies conducted in Nigeria³ and Saudi Arabia.⁵

67.07% of the females (n=164) would suggest orthodontics as a career as compared to 54.73% males (n=95).

It has been mentioned in various studies^{10,11,12} that patients who have completed orthodontic treatment may benefit in their dental compliance and oral health indirectly by psychological factors.¹⁰ Also they have an improved oral health-related quality of life than did the untreated patients who were waiting for treatment.¹¹ The findings of our study

suggest that it would benefit society at large if there was better awareness of Orthodontics among medical college students.

General dental practitioners are often the first dental professionals to suggest orthodontic treatment and to refer patients to orthodontic specialists. With the growing emphasis on cosmetic dentistry, more adults are likely to seek information regarding orthodontic surgery.¹³

The limitation of this present study was a limited sample size. There is a scope for further studies of similar nature to be conducted on a larger scale in future. In spite of the limitations of the present study, the findings are useful for the orthodontic profession and also the fact that this study facilitates for a debate in the medical community as to the amount of awareness the medical students must have about the sub-specialties of dentistry.

The findings of a study¹⁴ conducted in 2009 to assess the current evidence of the relationship between malocclusion/orthodontic treatment need and quality of life, mentions that there is a need for further studies so that outcomes are uniform and thus amenable to meta-analysis. Hence, better coordination between the medical and dental fraternity would lead to more awareness and better treatment outcomes.

CONCLUSION

Medical students who studied in an institution with an attached dental college had better awareness of the subject of orthodontics as compared to medical students of a stand-alone medical college.

Medical students who studied in a medical college without an attached dental college had average awareness of orthodontics as a sub-specialty of dentistry. A basic introduction to dental sub-specialties would help them identify dentofacial problems and make appropriate referrals.

Orthodontists can improve their communication skills and allay patient's fears about treatment discomfort. Close contact with the orthodontist is a way to make patients aware of the importance of maintaining oral health.

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