ORIGINAL ARTICLE

Awareness of Orthodontic Treatment among Primary, Middle, and High School Teachers in Pakistan

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OBJECTIVE: The aim of this study was to assess the level of awareness of schoolteachers towards orthodontic treatment and treatment options, as they can play a pivotal role in the early treatment of cases by motivation and referring the patients.
METHODOLOGY: A 16 questions based questionnaire was circulated among schoolteachers. The responses received to the online form were analyzed for the level of awareness of schoolteachers towards orthodontic treatment. Chi-square test was applied to study the means between gender, level of teaching, and other questions. P-value of <0.05 was considered significant.
RESULTS: There was significant association between the response of question 12 (Braces treatment is expensive) with group-III and age group 31-40 years old, question 5 with group-III and question 16 with group-I, p-value < 0.05.
CONCLUSION: The questionnaire found that there is a lack of awareness towards orthodontic treatment, treatment timings and payment information among the primary, middle and high school teachers in Pakistan.
KEYWORDS: Age, Awareness, School, Socioeconomic status, Teachers, Treatment
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INTRODUCTION

Dental awareness has increased in the past few years amongst the Pakistani population. Although it is a major step toward better dental health, many people still only consider filling and tooth pain as dental treatment possibilities. People are slowly but gradually getting more and more awareness about the different fields in dentistry and the existing treatment options. Orthodontics is one such field where a lack of awareness leads to the option of either never getting a treatment or one where the patient reports at a stage where the problem has been complicated by several factors. Awareness about Orthodontics and the different treatment options available for different age groups can easily solve this problem.

There has been a huge increase in the number of orthodontic treatment options and their availability in developed as well as developing nations over the past few decades. It is a well- known fact that patient satisfaction is influenced by sex, age,[1,2] total treatment time, socioeconomic and financial status, as well as convenience of orthodontic facilities.[3-6] Studies have observed and confirmed that girls, on average, receive orthodontic treatment more frequently than boys and that a large number of people undergo orthodontic treatment[7] because they were told by a relative or friend that your dental problem can be corrected.

To expect awareness about orthodontics in the general population it is vital to start from the younger generation. Children and teenagers[8] are the majority of orthodontic patients.[9] Their parents and teachers play a vital role in introducing orthodontic care. Parents and teachers are the most important factor in the motivation for orthodontic treatment.

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Orthodontic awareness campaigns should be focused on targeting school children. The aim of these campaigns should be to convey knowledge about their occlusion and malocclusion and when should one visit a dentist or an orthodontist concerning a dental issue. School teachers are a group that has a close routine association with these children and teenagers, and they are highly inspired by them.[6,8-9] Ehizele et al.[10] concluded that teachers may accomplish the function of oral health educators if they have good knowledge, attitude, and practice of oral health; therefore, primary school teachers can help as oral health educators after organized training to expand their understanding of oral health.[10]

It is thus important to know as to what degree our schoolteachers are aware of the field of orthodontics and how often can we rely upon them to recommend and refer their students to an orthodontist.

METHODOLOGY

This observational study was performed after the ethical approval of institutional review board at Abbottabad International Dental College. The data collection and manuscript writing were done within a period of six months. A questionnaire was converted into online forms (via google forms) and circulated among schoolteachers. The responses received were then compiled into the results of this study. The inclusion criteria were based on schoolteachers of primary (Grade 1-5), middle (Grade 6-8) and high school (Grade 9-12). Any form missing a response to one or more questions, or any form where more than one option is selected were excluded from the study.

DATA ANALYSIS

A total of One hundred and seventy-five responses were received. Data was analyzed using SPSS version 24. The categorical data like age groups, gender and responses were analyzed. Chi-square test was applied to see association between categorical variables (e.g., groups, age groups, and gender) taking p-value ≤ 0.05 as significant.

RESULTS

Two of the One hundred and seventy-five responses received were rejected due to failure of answering a question. The remaining One hundred and seventy-three responses were analyzed statistically. The categorical data like age groups, gender and responses are presented in form of frequency (Table-1). Association between categorical variables (e.g., groups, age groups, and gender) taking p-value ≤ 0.05 as significant is shown in Table-2,3. Figure-1 shows the responses to the questionnaire distributed (Questions in Figure-1 Key).

Table-1: Frequency distribution of all variables

		Frequency N=173	Percent
Age	20-30 years old	58	33.5
	31-40 years old	61	35.3
	41-50 years old	46	26.6
	51-60 years old	8	4.6
Gender	Male	4	2.3
	Female	169	97.7
Teaching level	Pre School, Primary School Grade 1-5 (GROUP-1)	50	28.9
	Middle School, Grade 6-8 (GROUP-2)	43	24.9
	High School & Secondary, Grade 9-12 (GROUP-3)	80	46.2

Table-2: Comparison of responses in age groups (years) and gender

Questions	Responses	Age years)				p-value	Gender		p-value
		20-30	31-40	41-50	51-60		Male	Female	
Q1	Yes	6(26.1%)	9(39.1%)	7(30.4%)	1(4.3%)	0.873	1(4.3%)	22(95.7%)	0.48
	No	52(34.7%)	52(34.7%)	39(26%)	7(4.7%)		3(2%)	147(98%)	
Q2	Yes	57(34.3%)	57(34.3%)	44(26.5%)	8(4.8%)	0.543	4(2.4%)	162(97.6%)	0.678
	No	1(14.3%)	4(57.1%)	2(28.6%)	0(0%)		0(0%)	7(100%)	
Q3	Yes	39(40.2%)	30(30.9%)	22(22.7%)	6(6.2%)	0.088	2(2.1%)	95(97.9%)	0.805
	No	19(25%)	31(40.8%)	24(31.6%)	2(2.6%)		2(2.6%)	74(97.4%)	
Q4	Yes	35(33.7%)	30(28.8%)	32(30.8%)	7(6.7%)	0.064	2(2.1%)	102(98.1%)	0.676
	No	23(33.3%)	31(44.9%)	14(20.3%)	1(1.4%)		2(2.9%)	67(97.1%)	
Q5	Yes	50(32.5%)	56(36.4%)	40(26%)	8(5.2%)	0.544	4(26%)	150(97.4%)	0.477
	No	8(42.1%)	5(26.3%)	6(31.6%)	0(0%)		0(0%)	19(100%)	
Q6	Yes	40(37.4%)	34(31.8%)	29(27.1%)	4(3.7%)	0.438	2(1.9%)	105(98.1%)	0.622
	No	18(27.3%)	27(40.9%)	17(25.8%)	4(6.1%)		2(3%)	64(97%)	
Q7	Yes	41(29.7%)	48(34.8%)	41(29.7%)	8(5.8%)	0.057	2(1.4%)	136(98.6%)	0.116
	No	17(48.6%)	13(37.1%)	5(14.3%)	0(0%)		2(5.7%)	33(94.3%)	
Q8	Yes	53(33.3%)	56(35.2%)	42(26.4%)	8(5%)	0.861	3(1.9%)	156(98.1%)	0.21
	No	5(35.7%)	5(35.7%)	4(28.6%)	0(0%)		1(7.1%)	13(92.9%)	
Q9	Yes	20(25.3%)	30(38%)	23(29.1%)	6(7.6%)	0.096	1(1.3%)	78(98.7%)	0.40
	No	38(40.4%)	31(33%)	23(24.5%)	2(2.1%)		3(3.2%)	91(96.8%)	
Q10	Yes	57(34.3%)	59(35.5%)	44(26.5%)	6(3.6%)	0.019	4(2.4%)	162(97.6%)	0.68
	No	1(14.3%)	2(28.6%)	2(28.6%)	2(28.6%)		0(0%)	7(100%)	
Q11	Yes	43(31.4%)	46(33.6%)	40(29.2%)	8(5.8%)	0.157	2(1.5%)	135(98.5%)	0.146
	No	15(41.7%)	15(41.7%)	6(16.7%)	0(0%)		2(5.6%)	34(94.4%)	
Q12	Yes	40(26.8%)	58(38.9%)	43(28.9%)	8(5.4%)	<0.001**	4(2.7%)	145(97.3%)	0.42
	No	18(75%)	3(12.5%)	3(12.5%)	0(0%)		0(0%)	24(100%)	
Q13	Yes	50(34%)	49(33.3%)	40(27.2%)	8(5.4%)	0.448	3(2%)	144(98%)	0.57
	No	8(30.8%)	12(46.2%)	6(23.1%)	0(0%)		1(3.8%)	25(96.2%)	
Q14	Yes	34(34.3%)	32(32.3%)	29(29.3%)	4(4%)	0.701	2(2%)	97(98%)	0.76
	No	24(32.4%)	29(39.2%)	17(23%)	4(5.4%)		2(2.7%)	72(97.3%)	
Q15	Yes	24(25.5%)	36(38.3%)	30(31.9%)	4(4.3%)	0.081	2(2.1%)	92(97.9%)	0.86
	No	34(43%)	25(31.6%)	16(20.3%)	4(5.1%)		2(2.5%)	77(97.5%)	
Q16	Yes	17(29.8%)	22(38.6%)	15(26.3%)	3(5.3%)	0.875	1(1.8%)	56(98.2%)	0.73
	No	41(35.3%)	39(33.6%)	31(26.7%)	5(4.3%)		3(2.6%)	113(97.4%)	

Table-3: Comparison of responses in study groups

	Groups			p-value		Groups			p-value
	I	II	III			I	II	III	
Q1	5(21.7%)	7(30.4%)	11(47.8%)	0.664	*Q9*	22(27.8%)	18(22.8%)	39(49.4%)	0.736
	45(30%)	36(24%)	69(46%)			28(29.8%)	25(26.6%)	41(43.6%)	
Q2	48(28.9%)	41(24.7%)	77(46.4%)	0.971	*Q10*	46(27.7%)	41(24.7%)	79(47.6%)	0.160
	2(28.6%)	2(28.6%)	3(42.9%)			4(57.1%)	2(28.6%)	1(14.3%)	
Q3	33(34%)	21(21.6%)	43(44.3%)	0.213	*Q11*	34(24.8%)	36(26.3%)	67(48.9%)	0.069
	17(22.4%)	22(28.9%)	37(48.7%)			16(44.4%)	7(19.4%)	13(36.1%)	
Q4	28(26.9%)	25(24%)	51(49%)	0.649	*Q12*	44(29.5%)	31(20.8%)	74(49.7%)	0.007*
	22(31.9%)	18(26.1%)	29(42%)			6(25%)	12(50%)	6(25%)	
Q5	46(29.9%)	33(21.4%)	75(48.7%)	0.012*	*Q13*	40(27.2%)	40(27.2%)	67(45.6%)	0.197
	4(21.1%)	10(52.6%)	5(26.3%)			10(38.5%)	3(11.5%)	13(50%)	
Q6	33(30.8%)	30(28%)	44(41.1%)	0.212	*Q14*	28(28.3%)	23(23.2%)	48(48.5%)	0.768
	17(25.8%)	13(19.7%)	36(54.5%)			22(29.7%)	20(27%)	32(43.2%)	
Q7	41(29.7%)	35(25.4%)	62(44.9%)	0.787	*Q15*	24(25.5%)	23(24.5%)	47(50%)	0.484
	9(25.7%)	8(22.9%)	18(51.4%)			26(32.9%)	20(25.3%)	33(41.8%)	
Q8	46(28.9%)	41(25.8%)	72(45.3%)	0.584	*Q16*	23(40.4%)	15(26.3%)	19(33.3%)	0.030*
	4(28.6%)	2(14.3%)	8(57.1%)			27(23.3%)	28(24.1%)	61(52.6%)	

**Highly Significant (Chi-square test was applied)
*Significant (Chi-square test was applied)

Group-1: Teachers teaching to Grade 1-5
Group-2: Teachers teaching to Grade 6-8
Group-3: Teachers teaching to Grade 9-12

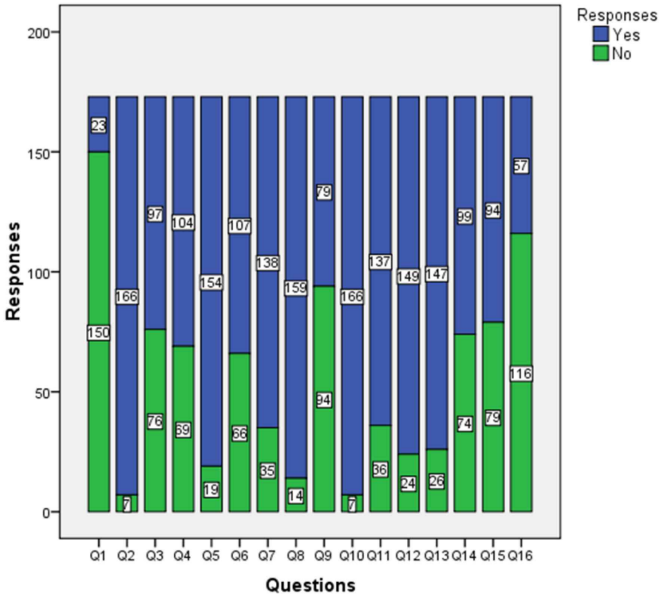

Fig-1: Responses to questions

Q1	Have you taken braces treatment	Q9	Do you know that braces treatment cannot be done at advanced age
Q2	Have you heard about braces	Q10	Do you know that braces treatment is done for straightening teeth
Q3	Do you know braces treatment is called orthodontics	Q11	Do you know that braces treatment is done for cosmetic purpose
Q4	Do you know that teeth can be moved in bone	Q12	Do you know that brace treatment is expensive
Q5	Do you know anyone who had braces	Q13	Do you know that braces treatment lasts for years
Q6	Do you know braces treatment can be done at any age	Q14	Do you know anyone whose teeth have gone back after braces treatment
Q7	Do you know that age is important in beginning braces treatment	Q15	Did you or anyone you know not get treatment because of being expensive
Q8	Do you know that braces treatment is more beneficial at young age	Q16	Do you know that treatment payment can be done in installments

STATISTICAL ANALYSIS

In this study 58(33.5%) subjects were 20-30 years old, 61(35.3%) were 31-40 years old, 46(26.6%) subjects were 41-50 years old, and 8(4.6%) subjects were 51-60 years old. There were only 4(2.3%) male participants and 169(97.7%) female participants. Group-1 (n=50, 28.9%) was comprised of teachers teaching preschool, primary school i.e., Grade 1-5, group-2 (n= 43 i.e., 24.9%) consisted of teachers involved in teaching to Middle School i.e., Grade 6-8 while grade-3 (n= 80 i.e., 46.2%) consisted of teachers teaching students at high school i.e., grade 9-12. There were 23(13.3%) teachers who had ever taken braces treatment, 166(96.0%) heard about braces, 97(56.1%) knew that braces treatment is called orthodontics, 104(60.1%) knew that teeth can be moved in bone, 154(89.0%) teachers knew anyone who had used braces and 107(61.8%) knew that braces treatment can be done at any age. A total of 138(79.8%) teachers knew that age is important in beginning braces treatment, 159(91.9%) told that braces treatment is more beneficial at young age and 79(45.7%) teachers were agreed that braces treatment cannot be done at advanced age. There were 166(96.0%) knew that braces treatment is done for straight teeth, 137(79.2%) were agreed that braces treatment is done for cosmetic purpose and according to 149(86.1%) teachers that brace treatment is expensive, 147(85.0%) said braces treatment lasts for years, 99(57.2%) knew anyone whose teeth has gone back after braces treatment, 94(54.3%) told that they or anyone did not get treatment because of expensive and 57(32.9%) teachers knew treatment payment can be done in installments (Table-2,3).

There was significant association between the response of braces treatment is expensive with group-III, know anyone who had braces with group-III and know treatment payment can be done in installments with group-I, p-value < 0.05 (Table-3). Braces treatment is expensive was also significant with 31-40 years old teachers, p-value < 0.05 (Table-2).

DISCUSSION

The study was aimed at finding the level of awareness schoolteachers had about Orthodontic treatment and its timing. Studying the results showed that most of the teachers knew or had known someone who had undergone orthodontic treatment, a favorable point for our study as it shows that Orthodontic awareness indeed is present up to a certain level among the population. This can help with our task of teaching them how to identify orthodontic cases and give a general overview regarding treatment, while encouraging a student or his/her parents to seeks treatment. Although the level of awareness towards what orthodontics is? was found to be sufficient but a major lack of awareness is present towards what the treatment is and how is it achieved? This lack of information can be met by conducting educational seminars and giving presentations at schools. Brochures can also be distributed among teachers for this purpose. Educational seminars and presentations can be given directly to students as well. Ilyas2 and Wang6 concluded that schoolteachers are probably one of the major elements in our society for influencing young students to demand for orthodontic treatment. They also play a pivotal role in their compliance towards the treatment progress by encouraging them every step of the way.

Teachers are mostly aware of the socioeconomic status of their students and can thus help them in asking for affordable treatment options. They will not only be able to encourage their students but can also help them overcome bullying from peers.[10]

86% of the teachers responded positively to orthodontic treatment being expensive. This can be considered a major disadvantage. Lack of interest in finding out about different treatment modalities can be tied to this perception9. Although some treatment options are indeed expensive not all can be

termed the same, and sometimes instead of a comprehensive treatment plan a minor correction is enough to solve an individual's malocclusion.

Anderson et al concluded that providing adequate knowledge to teachers via different information packages is helpful in creating awareness toward orthodontics and orthodontic treatment options. It can also help with providing treatment at the right time and age.[8]

The following study did not include teachers from all over Pakistan. Forms were circulated among friends and family members who were teachers or had access to teachers. Requesting individuals to respond to forwarded forms was the hardest part of data collection procedure. Similar studies should be carried out on a wider scale and include teachers from remote areas as well. No conflict of interest is present.

CONCLUSION

The questionnaire assessed the knowledge of schoolteachers regarding orthodontics and orthodontic treatment. The was a lack of sufficient knowledge regarding the treatment method and timing of the treatment while most people only knew that the treatment was expensive but were not aware of the different methods the expenses could be handled in.

CONFLICT OF INTEREST

None declared

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