

Cognizance of Orthodontic Management among School enrolled Children in Raiwind, Lahore

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Abstract

Introduction: Awareness is the state of having knowledge or be cognizant of something. Children between the age of 12 and 16 years would benefit with the knowledge of orthodontic treatment need, because early orthodontic treatment is more favorable and could be beneficial in preventing further malocclusion complications. The aim of this study was to determine orthodontic treatment cognizance among school enrolled children of Raiwind, Lahore.

Methodology: This cross-sectional survey included students of age group 12-16 years in the duration of 02 month at various schools of Raiwind District Lahore. A pre-validated questionnaire was used to assess the cognizance of school children towards Orthodontic management. Data was analyzed through SPSS version 25. Chi-square test (p-value <0.05) was used to assess gender and age based difference in the cognizance. P-value <0.05 was considered to be statistically significant.

Results: Out of 522 school children, only 104 (44% males and 56% females) have information about an orthodontist role and only 92(38%) females knew that orthodontist align teeth. Stratification of data was done for gender and the difference was statistically significant for 7 questions out of 12. Stratification of data was done for age and the difference was statistically significant for 6 questions out of 12.

Conclusions: There is low awareness of the term "Orthodontist" and that they align teeth, among school children of Raiwind. However, bulk of respondents was aware that speech and chewing can be affected by irregular teeth and that the treatment time is long and costly.

Keywords: Awareness, knowledge, malocclusion, orthodontic treatment, questionnaires, surveys.

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Introduction

The Oral health is inseparable from overall health that effectively link physical oral state with quality of life (QOL) and its knowledge is essentially important for health associated behavior.¹ Malocclusion is caused by different genetic and environmental factors

and is now widely considered as third most commonly addressed issue after dental caries and periodontal health.² World Health Organization has declared malocclusion as public health problem that may negatively affect patient's QOL.³ A person's lifestyle is detrimentally affected by malocclusion due to its disturbances in mastication, speech, swallowing as well as esthetics.⁴ It can affect not only individual's appearance but also their psychological, social and emotional life aspects.⁵

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The ability of being conscious, having knowledge or to feel and perceive something is known as awareness.¹ For every individual, there is a need to recognize the level of awareness to develop a better oral health related programs that leads to a balanced lifestyle. Children between the ages of 12 to 16 years would benefit with the orthodontic treatment knowledge.⁵ In early permanent dentition stages, orthodontic treatment is more favorable and could prevent further malocclusion complications.^{5,6} Moreover, it helps the orthodontist in providing education and advice to the patients and their parents.⁶

Moreover, dentist to population ratio in Pakistan is (1:1305811) which is low as compared with the WHO-recommendation level of 1:7500, and orthodontist to population ratio is even lower.^{7,8} Orthodontics is a true specialty of dentistry and there is lack of awareness regarding orthodontic treatment that should be done by a specialist. Orthodontic treatment can improve the QOL, by bringing psychological, social and physical changes.⁸

The major advantages of orthodontic treatment are to prevent tissue damage, enhance function and esthetic component. Previously research was aimed on adult patients mostly to refine their understanding about malocclusion and insight about the orthodontic treatment needs.⁹ Until now, there are few studies conducted in Pakistan, which assess the cognizance about orthodontic management among school enrolled children. Thus, this survey aimed to analyze the level of cognizance towards orthodontic management among school enrolled children of Raiwind Lahore, Pakistan.

Methodology

This cross-sectional survey was under-taken utilizing multi-stage random sampling technique in the duration of 02 month at various schools of Raiwind District Lahore,

after approval of Sharif Medical Research Center and Ethics Committee SMDC. World Health Organization (WHO) calculator was utilized to calculate the sample size (n=350) with 95% confidence level, taking 65% male students having knowledge of orthodontist with absolute precision 0.05.¹ Prior permission was taken from the principals of schools and written consent forms were signed by parents. School children of age range 12-16 years were included. A pre-validated questionnaire comprising of 12 questions with Cronbach's alpha 0.845 was used to assess the cognizance towards Orthodontic management 1 (Table-I).

The questionnaire consisted of two parts: 1st component included survey related to the demographics (age and gender), 2nd part comprised of 12 questions based on the cognizance level towards orthodontic management. Questions were asked by three trained post-graduate residents and three trained house-officers.

Two house-officers helped in coordination and management in the field. All responses along with demographic data were recorded on printed questionnaires. For better response rate an incentive of free dental consultation was offered to the children. Inclusion Criteria: School children (boys & girls) with age range 12-16 years. Exclusion criteria: Children with history of orthodontic treatment or are currently undergoing and those whose consent form was not signed by parents.

Statistical analysis:

Data was analyzed through SPSS version 25. Descriptive statistics were analyzed for quantitative variables, and frequency/percentage for qualitative variables. Data was stratified for age and gender. Chi square test (P-value <0.05) was used to evaluate the difference in cognizance among both genders and different ages.

Sr No.	Questions	Yes	No
1	Have you heard of an Orthodontist?		
2	Are you aware that they align your teeth?		
3	Have you noticed people having irregular teeth?		
4	Do you believe teeth should be properly aligned for a better facial appearance?		
5	Are you aware that few teeth may have to be removed for aligning irregular teeth?		
6	Have you seen people wearing braces?		
7	Has anyone advised you to get your teeth aligned?		
8	Did you know that braces treatment at an earlier age would improve facial appearance?		
9	Do you think irregular teeth can affect chewing ability?		
10	Do you think irregular teeth can affect speech?		
11	Do you know the duration for braces treatment is longer than other dental procedures?		
12	Do you know that orthodontic treatment is costly?		

Table-I: Pre-validate Questionnaire to evaluate the awareness towards Orthodontic treatment by M. Zakirulla et al¹

Result

The sample of 522 children was taken which exceeds the minimum calculated sample of 350 children. Mean age of 522 children observed in this study was 13.3±1.33 years with a range of 12 - 16 years, including 285(54.6%) males & 237(45.4%) females. Age distribution is shown in the figure I. This study concluded that a total of 104(20%) students out of which 46 (44%) were males and 58 (56%) were females, heard about an orthodontist and only 92(38%)

females said that orthodontist align teeth. This shows low awareness of the term "Orthodontist" and that they align teeth, among school children of Raiwind District. However, majority of total students noticed irregular teeth (87%) and knew that teeth should align for improved facial aesthetics (76%) and have seen people wearing braces (81%) respectively. There was positive awareness among students that speech and chewing can be affected by irregular teeth, required longer treatment time and also knew that orthodontic procedure was very costly as compared to other dental treatments. Stratification of data was done for gender and the difference was statistically significant for 7 questions out of 12 (Figure II & Table-II). Stratification of data was done for age and the difference was statistically significant for 6 questions out of 12 (Table-III).

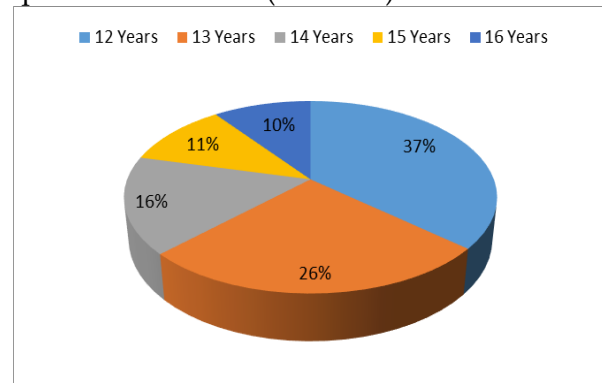


Fig. I: Age Distribution

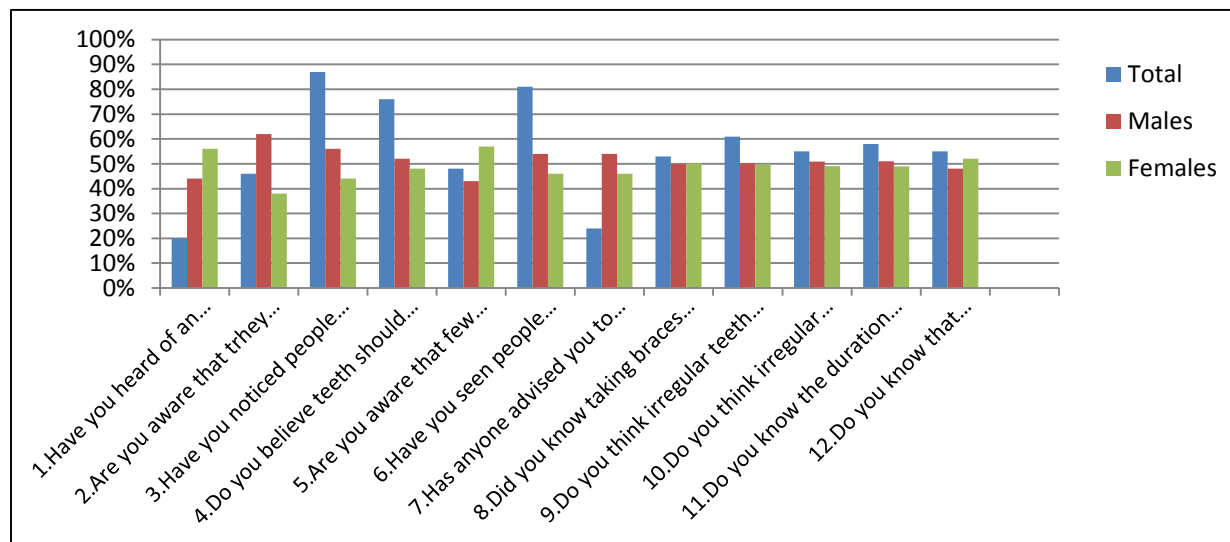


Fig. II: Percentage distributions of males and females with the positive response of questionnaire.

Questions	Total		Males		Females		p-value
	Yes (N)	Percentage (%)	Yes (N)	Percentage (%)	Yes (N)	Percentage (%)	
Q1	104	20%	46	44%	58	56%	0.018*
Q2	239	46%	147	62%	92	38%	0.004*
Q3	452	87%	255	56%	197	44%	0.034*
Q4	396	76%	207	52%	189	48%	0.059
Q5	251	48%	108	43%	143	57%	0.001*
Q6	424	81%	228	54%	196	46%	0.432
Q7	123	24%	67	54%	56	46%	0.974
Q8	279	53%	139	49.8%	140	50.2%	0.019*
Q9	320	61%	161	50.3%	159	49.7%	0.013*
Q10	287	55%	146	50.9%	141	49.1%	0.059
Q11	301	58%	154	51%	147	49%	0.066
Q12	286	55%	138	48%	148	52%	0.001*

Table-II: Stratification with respect to Gender (chi-square)

*Statistically significant difference $p < 0.05$

Questions	Total	Age 12 years	Age 13 years	Age 14 years	Age 15 years	Age 16 years	p-value
	Yes N (%)	Yes N (%)	Yes N (%)	Yes N (%)	Yes N (%)	Yes N (%)	
Q1	104(20%)	38(36.5%)	29(27.9%)	16(15.4%)	11(10.6%)	10(9.6%)	0.993
Q2	239(46%)	82(34.3%)	65(27.2%)	53(22.2%)	20(8.4%)	19(7.9%)	0.005*
Q3	452(87%)	171(37.8%)	119(26.3%)	71(15.7%)	46(10.2%)	45(10.0%)	0.351
Q4	396(76%)	147(37.1%)	118(29.8%)	65(16.4%)	34(8.6%)	32(8.1%)	0.001*
Q5	251(48%)	106(42.2%)	56(22.3%)	33(13.1%)	35(14.0%)	21(8.4%)	0.003*
Q6	424(81%)	157(37.0%)	115(27.1%)	59(14.0%)	46(10.8%)	47(11.1%)	0.031*
Q7	123(24%)	42(34.1%)	21(17.1%)	25(20.3%)	14(11.4%)	21(17.1%)	0.006*
Q8	279(53%)	89(32.0%)	76(27.2%)	47(16.8%)	32(11.5%)	35(12.5%)	0.125
Q9	320(61%)	113(35.3%)	89(28.0%)	46(14.3%)	39(12.1%)	33(10.3%)	0.389
Q10	287(55%)	96(33.4%)	80(27.9%)	48(16.7%)	28(9.8%)	35(12.1%)	0.227
Q11	301(58%)	99(32.9%)	77(25.6%)	58(19.3%)	36(11.9%)	31(10.3%)	0.129
Q12	286(55%)	85(29.7%)	84(29.3%)	50(17.5%)	32(11.2%)	35(12.3%)	0.009*

Table-III: Stratification with respect to Age (chi-square)

*Statistically significant difference $p < 0.05$

Discussion

Malocclusion is a relatively common oral health problem that can affect adversely a person's QOL as it not only influences oral functions like speech, swallowing and mastication but also has detrimental effects on psychosocial lifestyle because of its impact on aesthetics.³ Malocclusion is described as an anomalies in tooth positioning exceeding normal limits or a malalignment between

jawbones, cranial bones and dental arches in any of three planes of space.^{11,12}

This study showed that at least half of the participants were positive about questions related to orthodontic treatment but there is minimal awareness about the term "Orthodontist" in school going children of the studied population. This survey also concluded that males are more aware in

general than females. This is in contrast to Quadri et al. who surveyed awareness of orthodontic treatment age group of 10–16 years, and found a moderate level of awareness about crooked teeth and orthodontists, but less knowledge about orthodontic treatment. He also observed equal level of understanding about braces treatment among both genders.¹³

Cigerim SC et al also reported that the level of awareness was average (49.6%) regarding mal-alignment and irregular teeth, but low awareness (15.9%) about the visits to the orthodontist but contrary to this survey, they found that females had greater awareness of orthodontic treatment than males.¹⁴

Pandey M et al concluded in his study that awareness of orthodontist was 45.1% by evaluating students of age range 12–15 years, which is higher in girls than boys.⁶ Adyasti et al reported moderate amount of perception about braces treatment among early adolescents in Junior High School, Jakarta.¹⁵ Ilyas M et al conducted a questionnaire-based survey on local population and dental students and concluded that dental students had better self-awareness, understanding and positive mindset about orthodontic treatment while local population lacked the knowledge and awareness.¹⁶

This study was conducted on the limited group of selected schools; also, long-term retention of information was not assessed. However, the strength of the current study was simple and easy language of questionnaire that could be understandable by a wide range of educational capacity. Further studies in future are required to conduct more even-handed on a larger scale regarding knowledge of orthodontics procedure and treatment. Orthodontics is a field where less awareness directs to a choice of either to a stage where malocclusion has further intricate by multiple factors or never getting a

treatment.¹⁷ Hence, for an orthodontist, awareness towards orthodontics & different treatment options to the patient is a foremost and essential prerequisite to take the best treatment outcome.^{1,17}

Orthodontic awareness should not only be focused on school children, but also on teachers and parents who plays an integral part in encouragement for orthodontic treatment.¹⁷ It is expected that child's pre-emptive behavior and attitude is substantially impacted by parents' attitude, awareness and knowledge regarding malocclusion helps them supervising their child oral-facial health.^{11,12} Therefore, enhancing educational interventions, seminars, giving presentations and distribution of brochures at school will aim at enhancing awareness and promoting positivity among children, parents and teachers that leads to superior compliance to orthodontic practice and enhancing potential treatment outcomes, therefore, encouraging improved oro-facial health as well as fostering child's general development.^{11,17,18,19}

Conclusion

- The questionnaire assessed that there is low awareness of the term "Orthodontist" and that they align teeth, among school children of Raiwind District, Lahore.
- A bulk of respondents have noticed people having irregular teeth and were aware that malaligned teeth may affect speech and mastication, longer treatment time and that orthodontic procedures are expensive as compared to general dental treatment.

Ethical Approval

The study was approved by the Ethical Committee of Sharif Medical & Dental College, Lahore (No. SMDC/SMRC/312-23)

Funding Declaration

This study received no grant from any funding agency, commercial, or not-for-profit sectors.

Conflict of Interest

It is declared that the authors don't have any conflict of interest.

Authors' Contribution

FR: Design of the work, or the acquisition, analysis, or interpretation of data, drafting the work, Agreement of integrity of any part of the work are appropriately investigated and resolved.

FM: Design of the work, or the acquisition, analysis, or interpretation of data, Drafting the work, Final approval, Agreement of integrity of any part of the work are appropriately investigated and resolved.

UH: Design of the work, data collection, analysis, or interpretation of data.

FK: Data Collection, analysis, or interpretation of data.

MA: Data Collection, analysis, or interpretation of data.

LM: Data Collection, analysis, or interpretation of data.

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