

Evaluation of awareness regarding orthodontic procedures among a group of preadolescents in a cross-sectional study

Madhu Pandey, Jaideep Singh¹, Garima Mangal², Pramod Yadav³

Department of Orthodontics, Rungta Dental College, Bhilai, Chhattisgarh, ¹Department of Orthodontics and Dentofacial Orthopaedics, Maharana Pratap Dental College, Kanpur, Uttar Pradesh, ²Department of Public Health Dentistry, Buddha Institute of Dental Sciences and Hospital, Patna, Bihar, ³Department of Public Health Dentistry, K.D Dental College, Mathura, India

Corresponding author (email: <drramanpal@gmail.com>)

Dr. Madhu Pandey, Department of Orthodontics, Rungta Dental College, Bhilai, Chhattisgarh, India.

Abstract

Objective: This study was carried out to know the level of awareness regarding orthodontic procedures among preadolescents as there is very high prevalence of malocclusion. **Methods:** This cross-sectional study was conducted among a sample of 1010 subjects with a mean age of (in years) was 13.02 ± 2.146 . A self-administered structured questionnaire proforma was used. Pilot study was done to validate the questionnaire, which was constituted of nine items. The Student's *t*-test and ANOVA test along with stepwise multiple linear regression were applied for the statistical evaluation of means. The level of significance was set at 0.05. **Results:** The overall awareness of orthodontist among the school going children was 45.1%. The knowledge of orthodontic procedures was significantly higher among girls (4.46 ± 1.671) when compared to boys (4.00 ± 1.489). When the results were compared according to the area of location most of the students in the urban areas gave a positive response regarding awareness when compared to children in the rural community. **Conclusion:** This group of preadolescents showed moderate level of awareness regarding orthodontic procedures as they mentioned that it helps in esthetics, better oral hygiene, mastication, and healthy lifestyle.

Key words: Awareness, malocclusion, orthodontic treatment, preadolescents

INTRODUCTION

The word malocclusion literally means bad bite.^[1] Malocclusion can be defined as an occlusion in which there is a molar relationship between the arches in any of the planes of spaces or in which there are anomalies in tooth position beyond the normal limits. Individuals with malocclusion usually have feeling of shame about their facial appearance and also feel shy in society.^[2]

Various factors such as adverse oral habits, anomalies in number of dentition, shape, and developmental position of teeth can cause malocclusion. Malocclusion affects periodontal health, causes dental caries and temporomandibular joint problems.^[3] Therefore, it is necessary to know the self-occurrence of malocclusion.

Awareness is the state of being aware of something. In every human being, there is a need to identify the awareness levels of children with respect to oral health as children play an important role in filling healthy lifestyle for a lifetime. Age groups between 12 and 15 years would be benefitted with the knowledge of orthodontic treatment as orthodontic treatment in early ages could be beneficial in preventing further malocclusion complications. Furthermore, it may assist the orthodontist in educating the patients and their parents and in providing advice.^[4]

Access this article online	
Quick Response Code:	Website: www.jispcd.org
	DOI: 10.4103/2231-0762.131264

Orthodontic treatment, more than improving the quality-of-life, can bring physical, psychological, and social changes.^[5] The major benefits of orthodontic treatment are to improve the physical function, prevention of tissue damage, and correction of esthetic component.^[6] Until date, there are very few studies, which evaluate the level of awareness among preadolescents regarding orthodontic treatment so, this study was planned.

METHODS

An epidemiological survey was conducted during the period of month between September and December 2013. A multi-staged simple random sampling technique was used for selecting six schools (three in urban areas and three in rural areas) in Bilaspur district. Official permission was obtained from the heads of the institutes participating in the survey. The students in the age group of 12-15 years were approached from different classes.

Pilot study was done to validate the closed-ended questionnaire, which was constituted of nine items as: Are you aware of an orthodontist, have you seen irregular teeth, do you believe that straitening the teeth makes better smile, helps in mastication, better oral hygiene, easier to speak, healthy lifestyle, are you aware of the duration for braces treatment, are you aware of the cost of orthodontic treatment. There was single examiner for obtaining details of the questionnaire from the subjects with its intra-examiner reliability that is, $\kappa = 0.87$.

After obtaining the prevalence of awareness regarding orthodontic treatment from the subjects, a total sample was obtained using a sample size calculation formulation taking consideration of prevalence obtained. From all the students pursuing education in each of the selected schools, all the available students between the selected age group and who agreed to participate in the survey were selected, that formed a sample size of 1010 subjects with a mean age of (in years) was 13.02 ± 2.146 . Children who were undergoing orthodontic treatment were excluded from the study.

A survey proforma was prepared using a self-administered structured questionnaire written in English to assess the level of awareness regarding orthodontic procedures.

The selected students in all the schools were invited to participate in the survey during the prescheduled time.

The purpose of this study was informed and explained to the students. Those who voluntarily agreed to participate in the survey and gave a written informed consent were asked to answer the questionnaire. The students took an average of 15 min to complete the procedure.

Data analysis

After scoring data was analyzed using the Statistical Package for Social Sciences version 16.0 software. The individual scores were summed up to yield a total score. Descriptive statistics were obtained and mean percentage scores, standard deviation, and frequency distribution were calculated to know the level of awareness. The Student's *t*-test and ANOVA test were applied for the statistical evaluation of means. The level of significance was set at 0.05. Stepwise multiple linear regression analysis was also done.

RESULTS

The total sample composed of 1010 subjects, including 556 boys and 454 girls; they were further categorized according to the area of location as 606 belong to urban locality and 404 to remote areas. The age of this study population varies from 12 to 15 years as mentioned in Table 1.

The overall awareness of orthodontist among the school going children was 45.1%. Around 55.0% have answered that they had seen irregularity of dentition. When it was asked that straightening of teeth makes better smile 69.8% replied positively. Orthodontic treatment helps in mastication was in view of 55.2% students, 55.3% said that it makes better oral hygiene, 45.0% mentioned that after treatment, we will be easy to pronounce and also results in a healthy lifestyle. Only 19.9% were aware of the duration of orthodontic treatment and 35.2% exactly knew the cost of orthodontic procedure.

The mean scores of awareness about orthodontic procedures were significantly higher among girls (4.46 ± 1.671) as compared with boys (4.00 ± 1.489) as

Table 1: Age-wise awareness of children toward orthodontic procedures using ANOVA test

Age	No.	Mean	Standard deviation	F value	P value
12 years	254	3.61	1.203	57.616	0.000*
13 years	200	3.75	2.283	81.486	0.000*
14 years	252	5.20	0.747	69.216	0.000*
15 years	304	4.35	1.499	51.816	0.000*

*Highly significant

illustrated in Table 2. When the results were compared according to the area of location most of the students in the urban areas gave a positive response regarding awareness as compared to children in the rural community [Table 3].

ANOVA test revealed a significant difference according to age wise regarding the awareness of orthodontist in which children of 14 years were more aware (4.35 ± 1.499) and children of 12 years were less aware (3.61 ± 1.203) as mentioned in Table 1.

Stepwise multiple linear regression showed that best predictors in descending order according to awareness of orthodontic procedure are age, gender, and area of residence [Table 4].

DISCUSSION

Malocclusion is the second most common of the dental diseases in children and young adults, next to dental caries.^[7] The prevalence of malocclusion in India varies from 20% to 43%, respectively.^[8] The aim of orthodontic procedure is to improve dental occlusion, which results in better smile and good functioning in harmony with the face.^[9]

Overall, it has been seen as an increase in awareness of orthodontic treatments as a dental specialty among children as well as adults.^[10] A similar fashion has been

observed among Nigeria population with an associated increase in orthodontic treatment care.^[11]

Many individuals are aware that orthodontic treatment of malocclusion and craniofacial abnormalities, by ensuring proper relationship of temporomandibular joint, may improve phonation, facial esthetics, with beneficial effects on the general and oral health, results in improvement in the quality-of-life.^[12]

Information about the oral health knowledge among Indian population is still very limited, especially for rural people, who constitute more than 70% of the population.^[13]

This type of study can give an indication of changing attitudes toward malocclusion among preadolescents. Around less than half of the participants were aware of an orthodontist and the procedures done by them. In the study done by Kaur^[6] found the level of dental awareness in parents of preschool children in the Indian context which revealed a poor level of dental awareness in those parents.

Data showed that girls were better aware of treatment of malocclusion than males, which were in agreement with other studies.^[14] It might be explained on the basis that girls care more about their appearance and would tend to be more educated about their oral health and irregularity in dentition. However, some studies had shown that boys significantly higher knowledge scores as compared to females.^[15]

It was found that urban children were having more knowledge than rural counterparts. Similarly, urban children had shown more positive attitude like visiting a dentist in a study done by Singh *et al.* in 2012.^[13]

Considering the influence of age on awareness of orthodontics, it was found that it increased significantly. Similar findings were seen in a study conducted by Friedman *et al.*, in 1976.^[16]

In our survey, we found a moderate awareness in children toward orthodontic awareness. The improvement in self-confidence and physical attractiveness as a result of enhanced “dental” or facial appearance was the most important motivating factor for treatment.

CONCLUSION

This group of preadolescents showed moderate level of awareness regarding orthodontic procedures. As they

Table 2: Awareness of children toward orthodontic procedures using Student's t test

Gender	No.	Mean	Standard deviation	P value
Boys	556	4.00	1.489	0.000*
Girls	454	4.46	1.671	

*Highly significant

Table 3: Awareness of children toward orthodontic procedures according to location using student's t test

Residence	No.	Mean	Standard deviation	P value
Urban	606	4.43	1.606	0.000*
Rural	404	4.00	1.578	

*Highly significant

Table 4: Stepwise multiple linear regression showing best predictors in descending order

Model	R	R ²	F value	P value
1	0.242 ^a	0.059	62.877	0.000*
2	0.259 ^b	0.067	36.253	0.000*
3	0.268 ^c	0.072	25.957	0.000*

^aPredictors: (constant) age. ^bPredictors: (constant) age, gender. ^cPredictors: (constant) age, gender, area of residence. *Highly significant

believe that it helps in esthetics, better oral hygiene, mastication, and healthy lifestyle. The knowledge was more among girls and children residing in the remote areas.

REFERENCES

1. McLain JB, Proffitt WR. Oral health status in the United States: Prevalence of malocclusion. *J Dent Educ* 1985;49:386-97.
2. Klages U, Bruckner A, Zentner A. Dental aesthetics, self-awareness, and oral health-related quality of life in young adults. *Eur J Orthod* 2004;26:507-14.
3. Abu Alhaija ES, Al-Nimri KS, Al-Khateeb SN. Self-perception of malocclusion among north Jordanian school children. *Eur J Orthod* 2005;27:292-5.
4. Siddegowda R, Rani MS. An epidemiological survey on awareness towards orthodontic treatment in South Indian school children. *Open J Dent Oral Med* 2013;1:5-8.
5. Feldmann I, List T, John MT, Bondemark L. Reliability of a questionnaire assessing experiences of adolescents in orthodontic treatment. *Angle Orthod* 2007;77:311-7.
6. Kaur B. Evaluation of oral health awareness in parents of preschool children. *Indian J Dent Res* 2009;20:463-5.
7. Parmesh H, Mathur VP. National Oral Health Care Program. *Indian Pediatr* 2002;39:1001-5.
8. Babu AM, Chandu GN, Shafulla MD. Prevalence of malocclusion and orthodontic treatment needs among 13-15 year old school going children of Davangere city, Karnataka, India. *J Indian Assoc Public Health Dent* 2005;6:32-5.
9. Al Fawzan A. Reasons for seeking orthodontic treatment in Qassim region: a pilot study. *Int Dent J Stud Res* 2013;1:58-62.
10. Anitha G, Asiya B. Adult orthodontics. *Int J Dent Adv* 2010;2:96-9.
11. Dacosta OO. The prevalence of malocclusion among a population of northern Nigeria school children. *West Afr J Med* 1999;18:91-6.
12. Ackerman M. Evidence-based orthodontics for the 21st century. *J Am Dent Assoc* 2004;135:162-7.
13. Singh K, Kochhar S, Mittal V, Agrawal A, Chaudhary H, Anandani C. Oral health: knowledge, attitude and behaviour among Indian population. *Educ Res* 2012;3:066-71.
14. Polychronopoulou A, Kawamura M. Oral self-care behaviours: Comparing Greek and Japanese dental students. *Eur J Dent Educ* 2005;9:164-70.
15. Leili S, Elham S, Farkhonde S. A population-based survey of HIV/AIDS knowledge and attitudes in general public, Bandar-Abbas, Iran. *Pak J Med Sci* 2008;24:838-44.
16. Friedman LA, Mackler IG, Hoggard GJ, French CI. A comparison of perceived and actual dental needs of a select group of children in Texas. *Community Dent Oral Epidemiol* 1976;4:89-93.

How to cite this article: Pandey M, Singh J, Mangal G, Yadav P. Evaluation of awareness regarding orthodontic procedures among a group of preadolescents in a cross-sectional study. *J Int Soc Prevent Communit Dent* 2014;4:44-7.

Source of Support: Nil, **Conflict of Interest:** None declared.