

## An Epidemiological Survey on the Awareness towards Orthodontic Treatment among Middle School and High School Children of Karnataka State

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### Abstract

**Context:** Malocclusion can conciliate the oral health tissues and can lead to social and psychological problem. Hence an investigation of the malocclusion status in growing children to intercept the same is required

**Aims:** To assess the awareness towards Orthodontic treatment among middle school and high school children of Karnataka state.

**Settings and design:** School settings and Descriptive cross-sectional survey

**Methods and Material:** A cross-sectional epidemiological survey was conducted in all the 30 districts of Karnataka. School children in the age group of 10-16 years were the target population. Population proportionate technique was employed for the sample size estimation. A total sample of 9505 was randomly selected from 102 schools all over Karnataka. A pre-structured questionnaire was used to assess the awareness of children towards orthodontic treatment.

**Statistical analysis used:** Simple descriptive statistics, t-test.

**Results:** High school children exhibited high awareness with respect to the statement 5, 6, 8 and 14 when compared with the middle school children. Similarly middle school children had high awareness with respect to the statement 9, 10 and 12.

**Conclusions:** High school children showed a higher level of awareness about orthodontic treatment when compared to middle school children.

**Keywords:** Awareness; Middle school; High school; Orthodontic treatment; Karnataka

**Key messages:** Pre-adolescents and adolescents would be benefitted with the knowledge about orthodontic treatment since early orthodontic treatment could be advantageous in preventing further malocclusion complications. Furthermore, knowledge about age related patient concerns may guide and assist the orthodontist in educating potential patients and their parents and in providing advice.

### Introduction

Facial appearance plays a major role in all stages of human life which has got a great impact during pre-adolescent and adolescent phases. This is because they develop increased self-consciousness to their appearance. They harbour the belief that others are concerned with their looks as they themselves are. This increased self-awareness leads them to be more concerned about their health. Health is multi-factorial and is an inseparable part of general health [1,2]. Oral health knowledge and awareness are considered to be an essential pre-requisite for health-related behaviour [3]. Awareness is the state or ability to perceive, to feel or to be conscious. Awareness forms the basis for planning oral health which is an inseparable part of general health. On an extensive literature review by the researcher, there are no reported studies to assess the awareness of Orthodontic treatment in school children. School children are considered important target group for various health education activities with the underlying objective of inculcating healthy lifestyle practices to last a lifetime. Proper education of growing children is the need of the hour. These educated children in turn take home the message about oral health, mal-alignment of teeth, consequences of the malocclusion and their treatment.

There is a paucity of data about the awareness of orthodontic treatment among school children in the Indian context. Therefore the

rationale for this study was to assess the awareness of children towards orthodontic treatment. In this context, the objective of the present epidemiological survey was to assess the awareness of orthodontic treatment in middle school and high school children of Karnataka.

### Subjects and Methods

A cross-sectional epidemiological survey was planned in the schools of Karnataka State with a prior permission from the Ministry of Higher Primary and Secondary Education Board of Karnataka. The survey was carried out in selected schools in all the district head quarters. Children in the age group of 10-16 years were included in the study and constituted the study population. Population proportionate technique was employed for sample size estimation. According to the population census 2011, the total population in Karnataka was 61130704 out of which 10-16 years old children constitute 29% (According to National Family Health Survey-2, India [1998-99], child population in the age group of 10-16 years was taken as a reference). With 95% confidence level, the estimated sample size was 9505. In each district, schools were selected from a list of schools provided by the Karnataka Higher

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Primary and Secondary Education Board by simple randomization method. A total of 102 schools all over Karnataka were surveyed during the year 2012-2013. A total sample of 9505 children in the age group of 10-16 years was selected from the randomized schools in each district all over Karnataka. Children who obtained written informed consent from parents to participate in the study were included. Exclusion criteria used were- history of previous orthodontic treatment, rampant caries, multiple missing teeth, mutilated malocclusion and other craniofacial anomalies like cleft lip and palate, facial hemiatropy, cleidocranial dysplasia etc.

Ethical clearance to conduct the survey was obtained from the Vokkaligara Sangha Dental College and Hospital Review and Ethical Committee. Prior permission to conduct the survey was taken from the concerned school authorities.

A pre-structured self-administered questionnaire consisting of 15 questions with multiple answers were given to the children after the clinical examination to assess their knowledge and attitude [awareness] towards Orthodontic treatment. The responses of the children to the questions were recorded on a 3 point Likert scale [a. yes, b. no, c. don't know]. An oral health lecture was given to all the children in the school to create awareness about Dental health and Orthodontic treatment.

### Statistical analysis

Data was coded and entered into excel sheet. To maintain the data quality (validity) rechecking and cross checking was done during data entry phase. Later, data was transferred into SPSS windows version 16, where cleaning, coding, recording, crosschecking, processing and analysis of the data were done. Simple Descriptive statistics was applied to describe the study variables. The t- test procedure was used to compare means for two groups.

### Results

Age and Gender distribution of the sample is represented in Tables 1 and 2 show the awareness scores between middle school and high school children. High school children exhibited high awareness with respect to the statement 5, 6, 8 and 14 when compared with the middle school children. Similarly middle school children had high awareness with respect to the statement 9, 10 and 12.

High school children showed low awareness with respect to the statement 2, 3, 9, 10 and 12 when compared with middle school children. Similarly middle school children had low awareness with respect to the statement 4, 5, 6, 8, 11, 13, 14 and 15.

### Discussion

Self-awareness is a dynamic process, not a static phenomenon [4]. Although; imparting oral health education begins from the footstep of awareness, evaluation of its implementation is an important indicator of the success of the education imparted [5]. Attitudes and perceptions towards dental appearance differ among populations and among individuals [6]. Age-related changes in malocclusion concerns ideally should be studied longitudinally because with the progress in age, the awareness to malocclusion increases. The level of dental

Age/Gender	10 yrs	11 yrs	12 yrs	13 yrs	14yrs	15 yrs	16 yrs	Total children
Male	47%	50%	52%	54%	51%	52%	64%	4966
Female	53%	50%	48%	46%	49%	48%	36%	4539
Total								9505

Table 1: Gender and age distribution of the sample.

Sl no	Statement		School level			Test statistics	
			Middle school	High school	Total	CC	P Value
1	Are you aware of a dentist?	F	4932	4116	9048	0.008	.458
		%	95.3%	95.0%	95.2%		
2	Have you visited a dentist before?	F	2332	1862	4194	0.021	0.040
		%	45.1%	43.0%	44.1%		
3	Have you heard of an Orthodontist?	F	2070	1697	3767	0.009	0.403
		%	40.0%	39.2%	39.6%		
4	Are you aware that they align your teeth?	F	2353	2040	4393	0.016	0.118
		%	45.5%	47.1%	46.2%		
5	Have you noticed people having irregular teeth?	F	3728	3271	6999	0.039	0.000
		%	72.1%	75.5%	73.6%		
6	Do you believe teeth should be properly aligned for a better facial appearance?	F	3612	3351	6963	0.084	0.000
		%	69.8%	77.4%	73.3%		
7	Do you know crooked teeth have ill effects?	F	3029	2545	5574	0.002	0.848
		%	58.6%	58.7%	58.6%		
8	Have you seen people wearing braces?	F	3828	3430	7258	0.061	0.000
		%	74.0%	79.2%	76.4%		
9	Have you ever felt the need to wear braces?	F	2338	1839	4177	0.028	0.007
		%	45.2%	42.5%	43.9%		
10	Has anyone advised you to get your teeth aligned?	F	2372	1745	4117	0.056	0.000
		%	45.9%	40.3%	43.3%		
11	Are you aware that few teeth may have to be removed for aligning irregular teeth?	F	2717	2336	5053	0.014	.173
		%	52.5%	53.9%	53.2%		
12	Does thumb-sucking has an effect on the front teeth alignment?	F	2825	2225	5050	0.032	0.002
		%	54.6%	51.4%	53.1%		
13	Did you know taking braces treatment at the earlier age would improve facial appearance?	F	2059	1793	3852	0.016	.117
		%	39.8%	41.4%	40.5%		
14	Do you know the duration for braces treatment is longer than other dental procedures?	F	1942	1754	3696	0.030	0.003
		%	37.5%	40.5%	38.9%		
15	Do you know the orthodontic treatment is costly?	F	2117	1879	3996	0.025	0.016
		%	40.9%	43.4%	42.0%		

Table 2: Awareness scores between middle school and high school children.

health knowledge, positive dental health attitude, and dental health behavior are interlinked and associated with the level of education and income as demonstrated by studies in the past [7-12]. Although age-related changes in malocclusion concerns ideally should be studied longitudinally, the present study allowed comparison between different age groups by means of a cross-sectional study. Such a study can give an indication of changing attitudes toward malocclusion with age.

The present study has allowed for comparison between middle school and high school children by means of a cross-sectional study. Such a study can give an indication of changing attitudes toward malocclusion with age. According to our study, high school children had attained more awareness towards orthodontic treatment when in comparison with the middle school children. Our results could not be directly related to any of the reported studies in literature as we have compared the awareness levels between middle school and high school children.

## Conclusion

According to the results of our survey

1. High school children exhibited more awareness towards orthodontic treatment.
2. Middle school children exhibited low awareness towards orthodontic treatment.

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