

ORTHODONTIC TREATMENT NEEDS AMONG SCHOOL CHILDREN IN JAMMU CITY

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ABSTRACT

Aim: was to find out the orthodontic treatment needs using Index for Orthodontic Treatment Need (IOTN) in Jammu city. **Material and method:** The study was conducted from August 2017 to February 2019. Five schools were randomly selected among all the schools in Jammu city and a random sample of 1000 school children aged 10-15 years old were selected. The examinations were conducted at schools, by one set of orthodontists with the subject seated on a chair with adequate natural light and a total number of 15-20 children were examined per day. The DHC of the IOTN was graded in five categories for each patient. The most severe occlusal trait was identified by the examiner for any particular patient and the patient was then categorized according to this most severe trait, with a score ranging therefore from 1 to 5. AC of the IOTN was assessed by second orthodontist, individual and a layperson. The soft copy of the photograph taken in digital camera were shown to individual at the time of examination and told to grade it, comparing the standard chart. **Results:** Combining DHC and AC of IOTN, it was concluded that 67.9% of sample did not require orthodontic treatment and 32.1% of sample required orthodontic treatment **Conclusion:** Efforts should be made on a larger scale to obtain a base line data based upon which various public health strategies could be formulated.

KEYWORDS: Malocclusion, Angle, IOTN, DHC, AC.

INTRODUCTION

The oral-facial region is usually an area of significant concern for the individual because it draws the most attention from other people in interpersonal interactions and is the primary source of vocal, physical, and emotional communication. As a result, patients who seek orthodontic treatment are concerned with improving their appearance and social acceptance, often more than they are with improving their oral function or health. Enhancing these aspects of quality of life is an important motive for undergoing orthodontic treatment. Regardless of age, patients and their parents or caregivers expectations about improvements in oral function, esthetics, social acceptance, and body image are important for both general dentists and orthodontists to consider when advising patients about these procedures and during the treatment process.^[1]

A variety of social, economic, and cultural factors (esthetic judgment, income, and availability of providers) may influence personal perception of the need for orthodontic treatment². Although data on orthodontic awareness and treatment needs are very scanty, there are

few studies to estimate the proportion of the population that requires orthodontic treatment in India. This study was an effort to find out the orthodontic treatment needs using Index for Orthodontic Treatment Need (IOTN).

MATERIAL AND METHOD

The study was conducted from August 2017 to February 2019. Five schools were randomly selected among all the schools in Jammu city and a random sample of 1000 school children aged 10-15 years old were selected. Approval of ethical committee was obtained from the department of dental sciences. School authorities and parents of sampled children were notified about purposes of the study. Those children were included having age group of 10-15 years, no major local/systemic problems or trauma which affects the growth and development of facial structures or body and no orthodontic or interceptive treatment carried out. Any child not fulfilling the stated criteria was excluded from the study.

The examinations were conducted at schools, by one set of orthodontists with the subject seated on a chair with adequate natural light and a total number of 15-20

children were examined per day. No radiographs were taken. Basic infection control procedures in Hand Hygiene and personal protective equipment (PPE) were adopted. The instruments and supplies were used were PMT sets, Cheek retractors, Enamel bowls, Kidney trays, Disposable mouth masks, Disposable gloves and Towels. PMT sets were used maximum twice and then discarded. Alcohol based antiseptic solution (3 M Hand Rub) was used for hand hygiene after washing with soap and water. All survey forms was filled up after the examination of children by one orthodontist and need for orthodontic treatment is assessed using IOTN.^[3] Other details like Angles Molar Classification,^[4] soft tissue condition, oral habits were recorded.

The DHC of the IOTN was graded in five categories for each patient. Patients were examined for Missing teeth, Overjet, Crossbites, Displacement of contact points and Overbites. The most severe occlusal trait was identified by the examiner for any particular patient and the patient

was then categorized according to this most severe trait, with a score ranging therefore from 1 to 5. AC of the IOTN was assessed by second orthodontist, individual and a layperson. The soft copy of the photograph taken in digital camera were shown to individual at the time of examination and told to grade it, comparing the standard chart. A layperson, not associated with health profession was selected and told to compare the photographs with standard chart. To reduce the intra examiner bias, second orthodontist assessed the Esthetic Component of all the samples. The average of the three findings was taken as overall grade.

Statistical analysis: Data were tabulated and examined using the Statistical Package for Social Sciences Version 20.0 (IBM SPSS Statistics for Mac, Armonk, NY: IBM Corp, USA). Descriptive statistical analysis had been carried out in the present study. Prevalence of malocclusion was assessed by determining the percentage of children affected.

Table 1: Dental health component grades among the study population.

DHC grade	Need for treatment	Male	Female	Total	%
Grade 1 & 2	No treatment	383	277	660	66
Grade 3	Borderline	92	65	157	15.7
Grade 4 & 5	Definite treatment	127	56	183	18.3
Chi square		5.71			
p value		0.11			

Table 2: Esthetic component grades among the study population.

AC grade	Need for treatment	Male	Female	Total	%
Grade 1-4	No treatment	432	307	739	73.9
Grade 5-7	Borderline	101	67	168	16.8
Grade 8-10	Definite treatment	69	24	93	9.3
Chi square		0.78			
p value		0.62			

Table 3: Need for orthodontic treatment among the study population.

Treatment	N	%
Required	321	32.1
Not required	679	67.9

RESULTS

Out of 1000 subjects, 602 (60.2%) were males and 398 (39.8%) were females with mean age of 12.82 years. On analyzing DHC component of IOTN, it was found that 66% of the subjects did not require treatment, 15.7% were borderline cases and 18.3% required definite treatment (Table 1).

On analyzing AC component of IOTN, 73.9% were grade 1-4 (No treatment required), 16.8% were graded 5-7 (Borderline) and 9.3% were graded 8-10 (Definite treatment) (Table 2). Thus combining DHC and AC of IOTN, it was concluded that 67.9% of sample did not require orthodontic treatment and 32.1% of sample required orthodontic treatment (Table 3).

DISCUSSION

Over the years different occlusal indices have been employed to assess different facets of orthodontic service. However, not many of these indices have enjoyed international acceptance. In this study assessment of orthodontic treatment need was done using IOTN among school children. For any health setup which provides orthodontic care to dependents, data regarding the need for orthodontic treatment is required. IOTN developed by Brook & Shaw⁵ is widely used internationally as a method of objectively measuring the treatment need in public dental health setup.

Dental health component are marked according to the grades given after clinical examination. The DHC has five categories classifying progressively increasing severity of malocclusions and indicating the relative need of orthodontic treatment (Grade 1: no treatment required, Grade 2: little need, Grade 3: borderline need, Grade 4: treatment required, Grade 5: great need of treatment). AC is assessed by comparing photographs for each sample with intra oral charts given by esthetic

component in IOTN. Several studies have been published to describe the prevalence and types of malocclusions in different populations. Comparisons of these findings must be done cautiously, because different methods and indices were used in varying age and race of populations. On comparing distribution of rating for IOTN in school population to several studies like Brook & Shaw,^[5] Neslihan & Ertugay,^[6] and Hosseinzadeh *et al.*,^[7] showed higher prevalence and high percentage of samples required need for orthodontic treatment than this study. The results of this study can be compared with the studies of Souames *et al.*,^[8] N'agom *et al.*,^[9] Dhar *et al.*,^[10] and Burden and Holmes.^[11]

CONCLUSION

A systematic and well organized dental health care program in a community requires some basic information, such as epidemiological studies on the prevalence of orthodontic parameters. In developed countries with a well-developed orthodontic care system, such information is readily available. But in developing countries like India, this information is usually lacking and extensive studies need to be carried out in future.

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