

The Prevalence of Malocclusion in the Patient Reported to the Dental OPD of Tertiary Care Centre, Bihar: A Retrospective Cross-Sectional Study

Dr. Sanjay Kumar¹, Dr. A.K Sharma², Dr. Ashish Pranab³, Dr Jawed Iqbal⁴

¹Additional Professor, Department of Dentistry (Orthodontics), IGIMS, Patna, Bihar, India

²Professor, Department of Dentistry, IGIMS, Patna, Bihar, India

^{3,4}Dental Officer, Department of Dentistry, IGIMS, Patna, Bihar, India

Note: Article is cleared by Institutional ethics committee, IGIMS, Patna, Bihar

Abstract: ***Introduction:** The malocclusions are treated usually in dental colleges and or in private orthodontic center as specialty practice. This is first in Bihar where in medical college in Dentistry department Orthodontics treatment facilities are available and or practicing. **Aim and objective:** To know the prevalence of malocclusion in the dental opd and also to know the gender variations of malocclusion distribution if at all present. **Material and method:** The data's are collected from the Dept. of Dentistry (Orthodontics) from May 2016 to August 2019. **Results:** The prevalence of Orthodontics patients are varies from 1.5 to 3.67% in comparison to general dental patients. The female incidence is of orthodontics patients are more than male patients. **Conclusions:** This kind of dental specialty treatment should start at every dental wing of medical tertiary care center of Bihar and as well to the other part of country. The increase in orthodontic patient's treatment demands increased hence further newer technologies and manpower are required for more treatment facility.*

Keywords: Malocclusion, Prevalence of malocclusion, Orthodontics treatment at tertiary medical center of Bihar.

1. Introduction

The malocclusion means mal-alignment of the teeth. This may be in the form of protrusion of the teeth, spacing between the teeth, crowding in the teeth, abnormality in the shape and size of the teeth etc results in the malocclusion. At present both dental and skeletal deviations from the normal occlusion are included under mal-occlusion.

2. Review of Literatures

^{1, 2}The prevalence of malocclusion varies from country to country and among different ages and sex group a wide variation in the prevalence of malocclusion has been reported in different parts of the country, varying from as low as 19.6% in Madras to 90% in Delhi. The prevalence of malocclusion varies from country to country and among different ages and sex group^{3, 4}. The high prevalence of malocclusion implies that public health efforts are required as such conditions affect negatively the individual's quality of life, particularly in case of children and adolescents, who are sensitive about their appearance. Caries and premature loss of primary teeth are considered predisposing factors for occlusal and space discrepancies in the mixed and permanent dentitions. The prevalence of malocclusion also varies in the rural and urban areas and this difference in the severity of malocclusion can be attributed to the difference in population homogeneity and the consistency of food. There are large variations in the prevalence of orthodontic treatment need in different countries exists, ranging from 11% in Sweden to 75.5% in Saudi Arabia. The demand for

orthodontic treatment is increasing in most of the countries including India. Therefore, rational planning of orthodontic preventive measures on population basis is essential. This stresses the importance of epidemiological studies to obtain knowledge about the prevalence of different types of malocclusion and the need for the orthodontic treatment and in accessing the resources required for such treatment. Malocclusion is one of the most common dental diseases in children and young adults⁵. As per literature available and internet search probably there is no data available in the Bihar about the malocclusion prevalence in the population.^{5,6} The Angles classification of malocclusions is classified as follows: 1. Angles class I: crowding, spacing, rotations of the teeth etc. 2. Angles class II: divided into two types, class 11 div. 1 and class 11 div. 11, 3. Angles class III.^{7,9,10} At present skeletal problems of jaws are also included in the malocclusion and classified as Class 1 malocclusion (where jaws are propionate and normal), class 11 skeletal malocclusion is due to short mandible and class 111 skeletal malocclusion means mandible is large. This skeletal malocclusion may be present in various combinations. Need for Orthodontic treatment and Sequale of malocclusion:- Protruding, irregular or maloccluded teeth can cause number of problem for patients: Discrimination because of facial appearance, Problem with oral function including difficulties in jaw movement, TMJ dysfunction and teeth problems with mastication, swallowing or speech, greater susceptibility to trauma, periodontal disease or tooth decay. Psycho-social problem: A number of studies in recent years confirmed what is intuitively obvious, that severe malocclusion is likely to be social handicap. Well aligned teeth and a pleasing smile carry positive status at all social levels

Volume 9 Issue 3, March 2020

www.ijsr.net

Licensed Under Creative Commons Attribution CC BY

whereas regular or protruding teeth carry negative status. It seems clear that the major reason for seeking orthodontic treatment is to minimize psychosocial problems related to their dental and facial appearance. A severe malocclusion mal-occlusion may affect or compromises all aspects of oral functions. TMJ pain and dysfunction and clenching disorders. ¹¹Scope and services offered by the orthodontists: Preventive orthodontics this includes procedure undertaken prior to the onset of a malocclusion. This includes: Restoration of proximal caries or cavities, early recognition and elimination of oral habits, space maintenance and space management programs, patient education, tooth shedding time table, prevention of Milwaukee braces damage, myo-therapy and community water fluoridation. Interceptive Orthodontics: This includes procedures that are taken at an early stage of malocclusion to eliminate or reduce the severity of the same examples are serial extraction, Growth modulation at initial stage of growth disturbances and anterior and posterior cross bite. A. Corrective Orthodontics: Procedures undertaken to correct fully established malocclusion. They are of two types: they are of two types 1. Limited corrective procedures: examples are: Correction of mild to moderate protruded teeth, Correction of mild to moderate crowding, Space closure less than 3-4 mm, correction of midline diastema etc. 2. Extensive corrective procedures: It is carried out by trained or specialist doctor example: camouflage treatment. It is mainly treated by fixed mechano-therapy. Surgical Orthodontics: There are surgical procedures that are undertaken in conjunction with or as an adjunct to combined orthodontic and surgical treatments (C.O.S.T). Most of the surgery is done to correct the jaw discrepancy so; it is called as orthognathic surgery. Surgical orthodontics is broadly classified into two types: first one is minor surgical procedures are extractions, surgical uncovering of teeth, Frenectomy or precision or circumferential supracrestal fibrotomy, transplantation of teeth and corticotomy. Second one are major surgical procedures are mainly orthognathic surgery of the jaw. Classified on the basis of spatial relationship of the jaws: the Sagittal procedures are maxillary prognathism – Subapical osteotomy and Lefort 1 osteotomy, maxillary retrognathism- Lefort1, Lefort 2 and Lefort 3 osteotomy, mandibular prognathism – Sagittal -split osteotomy, mandibular retrognathism- Sagittal split osteotomy, trans-oral vertical oblique ramus osteotomy and intra oral osteotomy. The transverse procedures are: mid palatal osteotomy and the vertical procedures are sagittal split osteotomy, Lefort1 with sub-apical osteotomy and combination of above. The cosmetic surgery includes chin surgery or genioplasty: Chin can be moved into all spatial planes. They are of two types: chin osteotomy: Surgery, symphyseal segment can be moved in all planes and the chin augmentation is done by adding all plastic material like silicon, porous hydroxyapatite in block etc ^{12,13}As the 21st century begins; orthodontics differs from what was done previously in following important ways: There is more emphasis now on ortho-dental and facial aesthetics and as well on occlusion. This has resulted from advent of orthognathic surgery which makes it possible to correct facial disproportions that previously were not treated and the development of computer imaging methods which allows patients a greater degree of involvement in planning treatment. Micro implants to control anchorage. The goal of modern orthodontics can be summed as the best balance

among occlusal relationships, dental and facial aesthetics, stability of the results and long term maintenance and restoration of the dentition.

Aim and objectives

To know the prevalence of malocclusion in the dental opd and also to know the gender variations of mal-occlusion distribution if at all present.

3. Material and method

The data collected from the dental opd from last four years. The record available was to analyze the malocclusion prevalence in the dental patients reported to the dental opd of IGIMS, Patna, Bihar. The malocclusion were recorded as classified by Angles classifications of the malocclusion. Inclusion criteria: patients reported to the dental opd for mal-occlusion corrections. Exclusion criteria are patients have not reported with complains of malocclusion corrections, patients with cleft and lip problems, patients with facial syndromes resulted in malocclusion and patients refuse for malocclusion corrections etc.

4. Results

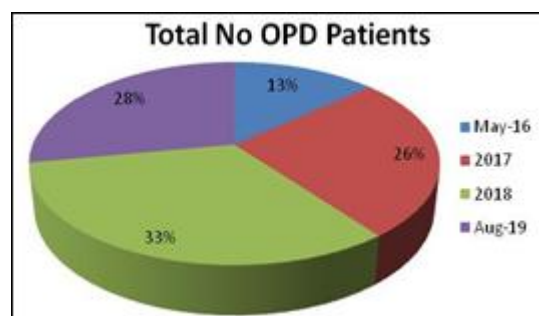
The results are collected from the from the departmental patient records book. The data’s are analyzed and tabulated. (Table no.1 and table no.02) are given as follows. The results are further complied in the format forms of pie charts and bar charts as (Chart.01, 02 and 03) for easy explanation.

Table 1: The number of new dental patient reported during each year

Year	Total no. of Patients
From May, 2016	2478
2017	4765
2018	5960
Up to August, 2019	5098

Table 2: Orthodontic new patient reported to the dental opd yearly

Sex	2016	2017	2018	2019
Male	35	76	71	30
Female	56	88	77	45
Total	91	164	148	75
Prevalence of Orthodontic cases	3.67%	3.44%	2.5%	1.5%



Pie chart 1: Total Orthodontic patients distribution year wise

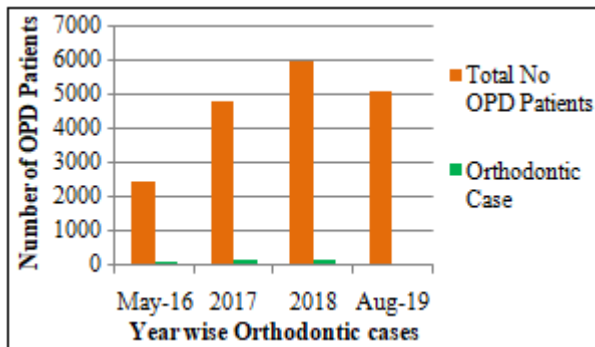


Chart 2: Total number of general patients versus Orthodontic patients year wise

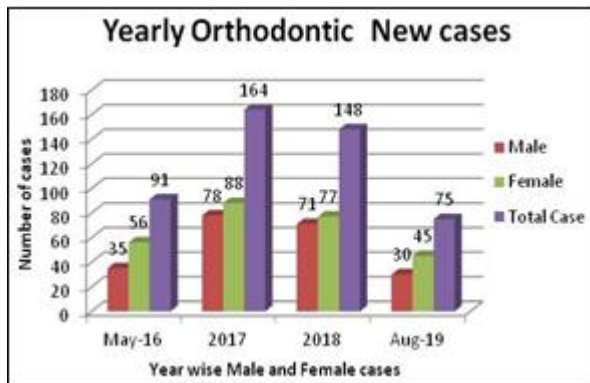


Chart 3: Showing female versus male Orthodontics patients year wise

5. Discussion

At this center orthodontic facility is started from 2016. The malocclusion prevalence is quite good at this center. Chart no.03 denotes that the female orthodontic patients are more than male.^{1, 2}The prevalence of malocclusion varies from country to country and among different ages and sex group a wide variation in the prevalence of malocclusion has been reported in different parts of the country, varying from as low as 19.6% in Madras to 90% in Delhi. The prevalence of malocclusion varies from country to country and among different ages and sex group^{3, 4}. Table no.01 and chart no.02 denotes the numbers of general dental patients in increasing trends due to overall increase in the armamentarium and man powers. The table no.02 denotes few increases in orthodontics' patients yearly. The prevalence of malocclusions at this center is between 1.57 % to 3.67% is of new patients.^{3, 4, 5, 7}Though it is less in comparisons to other study due to because of, this is single centric study. But the trend is encouraging in way that in medical college of dentistry wing could start specialty treatment facility. The facility started at this center recently with optimum armamentarium and manpower, in this way it should be considered reasonably well prevalence of orthodontics patients. Pie Chart no no.01denotes on average of 25% of orthodontic patients reported to the center in contrast to highest in the year 2018-19 this due to increase in the infra structure such as establishment of OPG X-ray machine etc.

6. Conclusion

The Orthodontic treatment specialty is gradually growing at this center. It requires increase in specialized manpower's and instruments etc. for advance setup. It is new development in Bihar for specialty practice of dental treatment available in medical college.

References

- [1] O.P. Kharbanda, S.S Sidhu. Prevalence studies on malocclusion in India-retrospect and prospect; Jios, Vol.no.04; 115-118.1993.
- [2] Agrawal SS, Jayan B, Chopra SS (2015) an overview of mal occlusion in India. J Dent. Health oral disord. Therp. 3 (3).
- [3] Singh S, Sharma A, Sandhu N, Mehta K. The prevalence of malocclusion and orthodontic treatment needs in school going children of Nalagarh, Himachal Pradesh, India. Indian J Dent Res 2016; 27:317-
- [4] Kharbanda OP, Sidhu SS, Shukla DK, Sunderan KR. A Study of etiologic factors associated with the development of malocclusion. J.Clin.Pediatr. Dent. 1994 winter; 18(2):95-98. Winter; 18(2):95-98.
- [5] Das UM, Venkatsubramanian RD. Prevalence of malocclusion among school children in Bangalore, India. Int. J clin. Pediatr. Dent. 2008; 1(1):10-12.
- [6] Sidhu SS, Sunderan KR. Project report Indian Council of Medical Research. New Delhi: 1990. Mal-occlusion and associated factors among Delhi children.
- [7] Sidhu SS. Incidence of varieties of malocclusion. J. Ind. Orthod Soc. 1968; 1:17-20.
- [8] Singh SP, Utreja A, Chawla HS. A study of distribution of malocclusion among North Indians seeking orthodontic treatment. J Ind. Orthod Soc. 1993; 24(2):47-53.
- [9] Siddegowda R, Satish RM. The prevalence of malocclusion and its gender distribution among Indian school children: An epidemiological survey. SRM J Res Dent Sci. 2014; 5:224-229.
- [10] Shaw WC, Rees G, Dawe M, Charles CR. The influence of dentofacial appearance on the social attractiveness of young adults. Am J Orthod 1985; 87:21-26.
- [11] Bravo LA. Soft tissue facial profile changes after orthodontic treatment with four premolars extracted. Angle Orthod 1994; 64: 31-42.
- [12] Sanjay Kumar, Sleeve Raju et al Short notes and Mcqs in Orthodontics, PeePee pub., 2007.
- [13] Text book of Contemporary Orthodontics, William R Proffit, Henry Fields, Brent Larson, David Sarver, 6TH edition, Mosby, oct. 2018.