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AWARENESS ABOUT MALOCCLUSION AMONG INDIAN POPULATION – A REVIEW

KEY WORDS: Malocclusion, Awareness, Oral Health

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ABSTRACT

Malocclusion can be defined as any variation from the normal occlusion. India has a prevalence of 20- 43% malocclusion. It is the third common dental problem requiring treatment, next to dental caries and periodontal diseases. Yet, Indian population have limited understanding of the impact of habits on their dental health and may not be aware of the signs and symptoms of malocclusion. This lack of awareness can lead to delayed treatment which can result in more extensive and costly intervention. Early detection and intervention in preventing or correcting malocclusion can halt further progression. Awareness about malocclusion is necessary to promote early detection and intervention and improve dental health and aesthetic appearance of the patient. Hence, this article is aimed to review the prevalence and awareness about malocclusion among Indian population.

INTRODUCTION:

Malocclusion can be defined as any variation from the normal occlusion. The etiology of malocclusion can be genetic, environmental or due to local factors.[1] It is considered to be the third most sought after dental treatment among the world wide population, next to dental caries and periodontal problems. India has a prevalence of 20- 43% malocclusion.[2] An increased concern over appearance has been observed during adolescence to early adulthood. In addition to this, a person with malocclusion can also suffer from psychosocial problems due to peer pressure, temporomandibular joint disturbances, difficulty in mastication, speech and swallowing & periodontal disease. The funding for orthodontic treatment, socioeconomic status, ethnic origin, literacy rate, availability of resources and awareness on malocclusion plays a major role in determining the perception and attitude to seek orthodontic care.[3] Since there are only a few studies, there is an increased demand for additional scientific data on malocclusion and orthodontic treatment needs which can be useful for proper treatment planning.[4]

Malocclusion was listed by the World Health Organization (WHO) under Handicapping Dentofacial Anomaly, which is described as an anomaly that causes disfigurement, interferes with function, and needs therapy Malocclusions were identified as the third most common oral health issue and were likely a barrier to the patient's bodily or emotional well-being.[5] Orthodontists describe malocclusion as a multifactorial issue without a particular cause. Occlusion assessment is crucial because malocclusion, or improper jaw and tooth alignment, can create problems. In addition, malocclusion shows negative impact on oral function like mastication, swallowing and speech.[6] The implementation of preventive oral healthcare initiatives is insufficient, despite reports suggesting that malocclusion is the second most prevalent dental disorder affecting schoolchildren.[6] The negative effects of malocclusion on one's quality of life, social interactions, and psychological growth highlight the importance of early diagnosis and prompt therapy.

With the standard requirement established by orthodontists, individual perception of their dental appearance were also assessed with various Malocclusion assessment indexes. Each evaluation does, however, have its constraints. The self-perception and attitude of a layperson are influenced by factors like self-perception of dental appearance, gender, age, wish to look attractive, and self-esteem.[5] Both adults and children are becoming more conscious of orthodontics as a dental specialty on a global scale. However, in a developing nation like India, the level of dental health information, a healthy attitude towards dental health, and dental health behaviour are interconnected and linked to income and education level. As a result, different populations and individuals have different views and perceptions about dental appearance.[6] Hence, this article aims at providing a review on the awareness and knowledge about their dental malocclusion in Indian population and prevalence of malocclusion among Indian children.

MATERIALS AND METHODS:

Search Strategy

The search strategy was carried out to include the following categories of headings "awareness towards orthodontic treatment in Indian school children","perception and attitude on malocclusion", "prevalence of malocclusion". All publications written in English language were included. Databases of Google scholar, PubMed, Scopus were searched for articles that met the criteria for review.

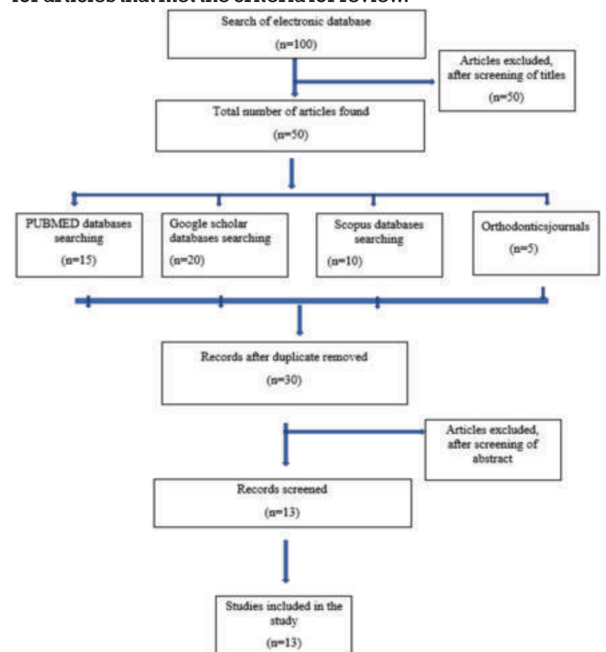


Figure 1: Flow diagram of the selection process

Inclusion And Exclusion Criteria

Articles that investigated awareness on malocclusion in Indian population were included. Perception of dental professionals and layman who have undergone orthodontic treatment and those with medically compromised subjects were excluded.

Data Extraction

The following data were extracted:

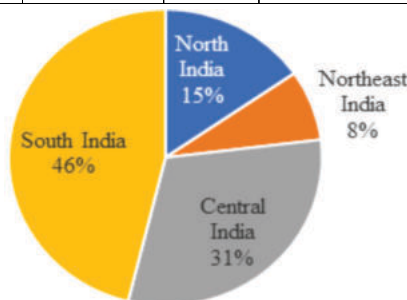
- Sample size
- Age group of subjects
- Study design

RESULTS AND DISCUSSION:

Initially searching electronic databases resulted in 100 articles, after reading the titles of the studies, literature review resulted in 50 articles. After removal of duplicates, 30 suitable studies were retrieved and reviewed. After excluding the inappropriate details of abstract, 13 articles were eligible for full text evaluation. Figure 1 depicts the selection process of the included articles. The included studies were analysed for awareness about malocclusion among Indian population. Table 1 summarizes the awareness about orthodontic treatment obtained through questionnaire studies carried out all over India. The 13 descriptive studies in table 1 have shown significant association between awareness and prevalence of malocclusion. Graph 1 shows the geographic distribution of the studies included in this review.

Table 1: Awareness about orthodontic treatment among Indian population

Author, year	Sample size (age in years)	Study location	Awareness about orthodontic treatment
Pratap N et al 20196	500 (18-25)	Karad	51.2%
Mishra J et al 20217	100 (20-30)	Lucknow	49.5%
Mathur AK et al 20188	808 (18-25)	Hyderabad	46%
Pandey et al 2014 9	1010 (12-15)	Bilaspur	45.1%
Agarwal et al 2018 10	300 (17-23)	Bhopal	30%
Sekhar et al 201711	430 (18-21)	Mysore	40.5%
Harish et al 201712	600 (13-40)	Nagpur	57%
Thirunavukarasu et al3	1951 (5-17)	Kanchipuram	76.5%
Siddegowda et al 20131	9505 (10-16)	Karnataka	51%
Singh JR et al 201114	1000(12-15,21-60)	Chhattisgarh	49%,45.95%
Sri TS et al 202215	100 (20-40)	Chennai	79.6%
Jebaraj S et al 201916	200 (18-21)	Chennai	85%
Vajifaker PJ et al 201917	285 (19-30)	Navi Mumbai	50%



Graph 1: Geographic distribution of the included studies

The factors which influence the prevalence and awareness about malocclusion are gender, age, socioeconomic factors and living environment.[5] The most influential element is age since malocclusion becomes severe if not treated at the earlier age. The American Academy of Orthodontics (AAO) recommend that early diagnosis and treatment plan can be initiated at age of 7 years.[8] In developing country like India, malocclusion is still not considered to be a dental problem because more priority is given to the treatment of dental caries and periodontal disease due to pain experienced by them.[3]

Based on gender, the knowledge and perception of malocclusion was higher in women than men. This could be due to the frequently noted greater concern about health in women, which is reflected in higher attention to health care and greater knowledge of the effects on oral health, attractiveness of facial appearance, and quality-of-life concerns.[8,9] in the previous studies by Sekhar S et al,[11] Rafighi et al,[18] Wedrychowska-Szulc et al[19] mostly females receive orthodontic treatment because they are more sensitive to dentofacial attractiveness.[11] Yet, in another study by Shekar et al,[11] self-perception of dental aesthetics in adolescents was affected by occlusal conditions, oral health-related quality of life, self-image and gender was not a significant factor.[15] In addition, adult people may have positive attitude towards the orthodontic treatment than school children due to their concern for attractiveness, dentofacial deformity and dental esthetics. Some studies reported that though school children were not aware of malocclusion, they have heard about the irregular arrangement of tooth.[9]

Socioeconomic status can affect the people on awareness and knowledge about malocclusion. Socioeconomic variables have always been crucial to the provision of orthodontic care. Self-perception of dental appearance has been linked to socioeconomic status; high social class individuals place more importance on dental appearance than individuals from lower social classes.[5] Due to the high expenses, the lower social class were unable to receive orthodontic treatment. However, as per study by Marques et al,[20] social deprivation, did not affect a child's or adult's orthodontic self-perception. The level of knowledge also helps people to create a positive attitude, which encourages them to adopt the orthodontic treatment. People tend to make a reasonably accurate appraisal of their own malocclusions in terms of their level of satisfaction with their Crooked Teeth.[10] In Indian population, as the education level of the patient improved, there was an increase in positive attitude towards orthodontic treatment and they were ready to accept the treatment.[11] In the study by Das UM et al,[21] the investigators have developed their own questionnaire for assessing malocclusion and had related it with the Oral Health related – Quality of Life (OHRQoL). They found that as the severity of malocclusion and lack of knowledge led to poor quality of life. Psychosocial effect of malocclusion was included in the study by Jha K et,al[22] with the mean dental self-confidence score differed significantly among both male and female children. In the study by Mathur AK et al,[8] rural area population in Mysore had less awareness about orthodontic treatment than the urban population. The rural people were also unaware of the abnormal habits because of lack of education, low socioeconomic status of the people. The urban population had increased awareness which easily led to favourable orthodontic treatment.

Parents also play an important role in their child's awareness and treatment of malocclusion. Indian parents tend to get orthodontic treatment for their children if they observe any of the following conditions like proclined teeth, gaps between teeth, misaligned jaws, irregularly arranged teeth, etc.[1] In the study by Thirunavukarau et al[3] around 73.1% of parents who are more concerned with their children's self-esteem felt that their kids need orthodontic treatment to prevent bullying

from other kids. Half of them thought that oral behaviours like thumb sucking in their offspring would lead to malocclusion. Lack of understanding about orthodontics among majority of the parents could be due to infrequent dental visits, media's lack of coverage of the subject or any other type of it.

Most of the Indian studies assessed prevalence, severity of malocclusion and treatment needs among the school children through Dental Aesthetic Index (DAI) index. Studies that used DAI may have underestimated malocclusion because they did not assess buccal cross-bite, posterior wide bite, or deep overbite. Hence, various tools should be used to assess prevalence and awareness of malocclusion in different sections of population. Oral health education through advertisement, pamphlets or other AV aids about orthodontic treatment would provide adequate knowledge about malocclusion, its sequelae, prevention and treatment. In addition, dentists could educate the parents about malocclusion.

CONCLUSION:

Malocclusion is a significant public health problem with various psychosocial and functional implications for the patient. The orthodontic awareness level was insufficient among Indian population. Lack of awareness about the importance of orthodontic treatment prevails among the public and healthcare professionals. Though many people had malocclusion, only few were aware of it. In recent years, there has been an increase in demand for orthodontic treatment in India which is a promising sign. Accessibility and affordability of orthodontic care still remains an issue. There is a need for further research on the prevalence and treatment needs of malocclusion in India. Therefore, public health initiatives are necessary to increase awareness and accessibility of orthodontic care in the country.

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