

Evaluation of the Knowledge, Awareness and Attitude Towards Orthodontic Treatment amongst Adult Population in Navi Mumbai: A Cross Sectional Questionnaire based Survey

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Abstract

Original Research Article

Introduction: Knowledge about one's oral health and hygiene is considered to be an essential prerequisite for health-related behaviour. A dentist's understanding about patients' awareness and knowledge would be helpful in guiding and assisting potential patients. Thus, the objective of this study was to assess the knowledge, awareness and also the attitude of adult population in Navi Mumbai towards Orthodontic treatment. **Materials and Methods:** A cross-sectional questionnaire-based survey was conducted among adult population in Navi Mumbai in the month of April and May 2023. The questionnaire consisting of 17 questions was circulated amongst individuals, fitting the inclusion criteria, via social media and other online platforms. **Results:** This survey recorded a total of 490 responses. 53.2% of the respondents were females and 46.8% were males. Results showed that nearly 21.8% of the participants had undergone Orthodontic treatment, and all of these responses were eliminated from further consideration. Around >26% of the individuals were unaware about Orthodontics as a field of speciality, indicating a general lack of awareness of the difference between a general dentist and an Orthodontist. Majority of the individuals i.e. 84.4% responded that recognition of BDS/MDS degree holds place in choosing a dentist for their dental treatment. 87% of the participants would like to get their treatment done by a specialist in the field. >75% respondents were aware that certain habits cause malocclusion. When the participants were asked about which habits could cause malocclusion and were presented with certain options, about >54% times the participants chose tongue thrusting and bruxism as the correct option. Most of the respondents were also aware about a few demerits of malocclusion. When respondents were asked in which case would they prefer to approach an Orthodontist, they answered crowded teeth, open bite and proclined teeth most of the times. >80% of the times the respondents chose braces and aligners as the treatment modality performed by Orthodontists. Many participants also chose 15-18 years as the ideal age group to undergo Orthodontic treatment. About 55% of the participants were aware that a retainer is to be used post Orthodontic treatment. Participants were further asked about the factors they think would refrain them from considering Orthodontic treatment, to which >60% times they chose high treatment cost. According to this study, a majority of respondents would also like to be a part of awareness programmes in order to gain more information about the field of Orthodontics. **Conclusion:** There was adequate amount of awareness amongst adults in Navi Mumbai about Orthodontic treatment. However, the level of knowledge, perception and attitude of patients towards treatment could be improved. Hence, there is a need to create an awareness about the same, which shall help the dentists to provide a better quality of treatment, thereby inculcating healthy practices among the general population and also helping them overcome complications that may arise in the future.

Keywords: Attitude, Awareness, Knowledge, Orthodontics, Questionnaire, Survey.

INTRODUCTION

As India is a developing country, there still are certain regions countrywide that remain unaware of the developments in several fields; one of them would be a specialised branch of dentistry, Orthodontics. Malocclusion is one of the most common dental problems amongst people along with dental caries, gingival and periodontal diseases, and dental fluorosis [1]. Therefore, it becomes critical to improve individual awareness regarding oral health and hygiene.

Awareness is said to be the state or ability by which one perceives, feels, or remains conscious. It sets a foundation for planning oral health, which is a vital part of general health [2]. Knowledge of one's oral health is considered to be an vital prerequisite for health-related behaviour [2].

Orthodontics is a branch which aims at correcting malocclusions, improving esthetics, and restoring normal function. Normal alignment of teeth not only contributes to oral health but also helps to achieve overall well-being and better personality for an individual [2]. Planning Orthodontic treatment within a public health system requires information on the prevalence and distribution of malocclusions [3].

A malocclusion is defined as an irregularity of the teeth or a malrelationship of the dental arches beyond the range of what is accepted as normal [4]. Malocclusion may be caused due to various aspects like adverse oral habits, abnormalities in number of dentition, shape, and developmental position of teeth. Maloccluded teeth can cause certain psychological and social difficulties related to poor dentofacial appearance [5]. Maloccluded teeth can cause psychosocial problems related to impaired dentofacial aesthetics [6]. The benefits of Orthodontic treatment are prevention of tissue damage, improvement in aesthetics and physical function. Any individual's consideration to undergo Orthodontic treatment is influenced by their desire to look appealing, self-esteem and self-perception of dental appearance [7].

Awareness regarding benefits of proper alignment of teeth with the help of Orthodontic treatment will help inculcate healthy practices and also overcome further complications. The dentist's understanding about patients' awareness and knowledge would be helpful in guiding and assisting the potential patients.

MATERIALS AND METHODS

A cross-sectional questionnaire based study was conducted in and around Navi Mumbai. This study was targeted to include the adult population above the

age of 18 years from various parts in Navi Mumbai. A sample size of 505 subjects was estimated. Out of 505, there were 15 samples who did not agree to participate for the survey, thus bringing the final sample size to 490. Dental students, interns, post graduates and dental practitioners were not included for the study. Out of the 490 responses, 105 were excluded. Amongst them 94 individuals underwent Orthodontic therapy in the past and 11 were currently seeking Orthodontic therapy. The questionnaire was formed by reviewing published literature assessing knowledge and attitude of the population regarding Orthodontics. The questionnaire was structured so as to analyse the knowledge, awareness and attitude of adults towards Orthodontics. The questionnaire has been tabulated in Table 1. 17 multiple choice questions related to Orthodontic knowledge and awareness were designed online using Google Forms. This questionnaire was distributed through various channels, such as personal e-mails, communication through the phone and via various social media platforms. These Google form links shared with the participants were filled and submitted individually by the participants online. This prestructured validated questionnaire was made available to all the participants for a period of 2 months. The data received online was collected and analyzed and its content validity was assessed.

RESULTS

This survey recorded a total of 490 responses. 53.2% of the respondents were female and 46.8% were male (Fig. 1). Results showed that nearly 21.8% of the participants had undergone Orthodontic treatment, indicating that these individuals were somewhat aware about the field of Orthodontists. Hence, all of these responses were eliminated from further consideration (Fig. 2). Around 26.2% of the individuals were unaware about Orthodontics as a field of speciality, indicating a general lack of awareness of the difference between a general dentist and an Orthodontist (Fig. 3). Majority of the individuals i.e. 84.4% responded that recognition of BDS/MDS degree holds place in choosing a dentist for their dental treatment, whereas 15.6% respondents did not consider the recognition of degree of a dentist while choosing the dental treatment (Fig. 4). 87% of the participants would like to get their treatment done by a specialist in the field whereas 13% of the participants would prefer a general practising dentist (Fig. 5). 75.3% respondents were aware that certain habits cause malocclusion and a mere 24.7% were unaware about the same (Fig. 6). When the participants were asked about which habits could cause malocclusion and were presented with certain options, the option of mouth breathing was chosen 21% times, thumb sucking option was chosen 41.8% times, tongue thrusting habit was selected 54.3% times and bruxism was selected 50.4% times. A group of 20.8% participants responded as none

of the above for the same question (Fig. 7). When asked about the demerits of malocclusion, the respondents selected the option of bad breath 22.1% times, the option of cavities 51.9% times, the option of bad facial appearance 61.8% times, the option of calculus/plaque 34.8% times, whereas difficulty in chewing properly was the second highest chosen option 61.3% times (Fig. 8). The respondents would prefer to approach an Orthodontist in case of spaced out teeth 61.3% times, for crowded teeth for a maximum percentage i.e. 74% times, in case of proclined teeth 64.7% times, for open bite 66% times and for deep bite 37% times (Fig. 9). 19.2% of the participants did not think that an Orthodontist can correct a case wherein the upper jaw or lower jaw is not in normal position; whereas a larger percentage of individuals, 80.8% thought that Orthodontists could correct the case (Fig. 10). 49.4% times the individuals chose that extractions were performed by Orthodontists, 32.5% times they chose habit correction, 40.3% times they selected root canal treatment. A majority of times, 86.5% the respondents chose braces as the treatment performed by Orthodontists and 73% times they chose the option of aligners (Fig. 11). 4.4% of individuals thought that 5-10 years is the ideal age group for undergoing Orthodontic treatment, 31.2% individuals considered 10-15 years as the ideal age group, a majority of 36.6% individuals thought 15-18 years was the ideal age group and 27.8% participants thought 18 years and above as the ideal age group (Fig. 12). A large group of participants, 76.1% thought that radiographs are important as they determine the course of the treatment, 19% participants responded as somewhat important and a mere 4.9% responded as radiographs were not important (Fig. 13). When the participants were asked about the requirement of removal of teeth prior to Orthodontic treatment, majority of them, 66.5% responded that extraction was

not always necessary and 33.5% responded that extraction was necessary before the treatment (Fig. 14). 57.1% of the participants knew about retainers used post Orthodontic treatment, whereas 42.9% of them did not know about retainers (Fig. 15). When the participants were asked about the age upto which Orthodontic treatment can be done, a minority of 7.8% respondents said that treatment can be done upto 18 years of age, 17.7% responded that it can be done upto 30 years of age, 10.4% said that it could be done upto 50 years of age and most of the participants, 64.2% responded by saying that treatment can be done if the teeth and supporting tissues are in good condition irrespective of their age (Fig. 16). The participants were asked about the factors that would refrain them from considering Orthodontic treatment, to which 61.6% times they chose high treatment cost as the factor, 47.3% times prolonged treatment duration as the factor, 27.8% times poor aesthetics during treatment with metal braces as the factor, 57.1% times pain and discomfort during the treatment and 38.2% times requirement of tooth extraction as the factor (Fig. 17). 19% of the individuals use social media platforms to gain information about dental problems, 35% individuals don't use social media platforms and 46% of the respondents sometimes use social media platforms to gain information about dental problems (Fig. 18). 18.2% individuals remained influenced by social media advertising to choose their dental treatment plan, a majority of 48.6% were uninfluenced and 33.2% individuals chose the option of sometimes influenced (Fig. 19). Most of the participants, 71.4% of the individuals responded that they would be interested in an awareness programme for more information on different treatment options available for malalignment of teeth and malocclusion, whereas 28.6% individuals were not interested (Fig. 20).

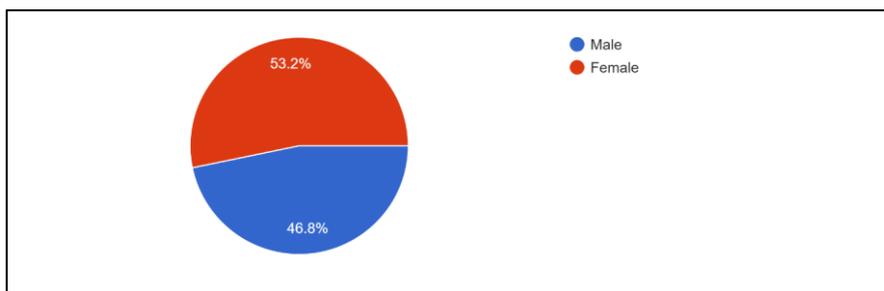


Fig. 1: Respondents' Gender

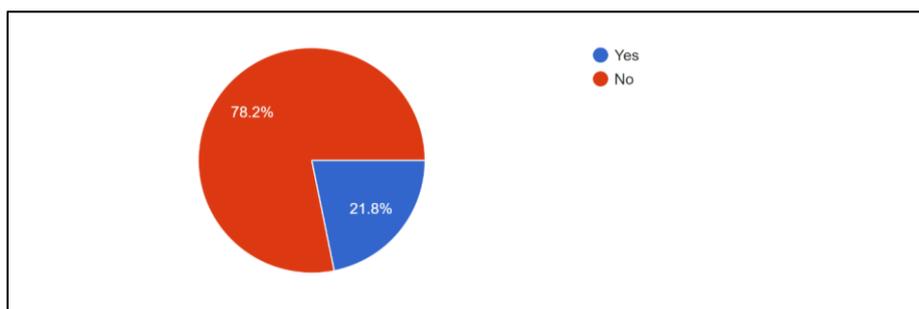


Fig. 2: Whether they have undergone Orthodontic treatment

Table 1: Questionnaire to evaluate the knowledge, awareness and attitude about Orthodontic treatment

<p>1. Do you know about orthodontics as a speciality of dentistry?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No <p>2. Does recognition of degree hold place in choosing a dentist (BDS/MDS)?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No <p>3. Whom would you like your treatment to be done by?</p> <ul style="list-style-type: none"> <input type="radio"/> General practicing dentist <input type="radio"/> Specialist in the field <p>4a. Are you aware that certain habits might cause crooked teeth or poorly aligned teeth?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No <p>4b. If yes, what could they be? If your response to the above question is No, then please select none of the above option.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Mouth breathing <input type="checkbox"/> Thumb sucking <input type="checkbox"/> Tongue thrusting (sticking out or pressing the tongue too forward) <input type="checkbox"/> Bruxism (Clenching or grinding of teeth) <input type="checkbox"/> None of the above <p>5. What do you think could be the demerits of crooked teeth?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bad breath <input type="checkbox"/> Cavities <input type="checkbox"/> Bad facial appearance <input type="checkbox"/> Calculus/ plaque <input type="checkbox"/> Difficulty in chewing properly <p>6. In which conditions would you like to approach an Orthodontist?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Spaced out teeth <input type="checkbox"/> Crowded teeth <input type="checkbox"/> Proclined teeth <input type="checkbox"/> Open bite <input type="checkbox"/> Deep bite <p>7. Do you think an Orthodontist can correct a case wherein the upper jaw or lower jaw is not in normal position?</p> <ul style="list-style-type: none"> <input type="radio"/> Yes <input type="radio"/> No <p>8. Which all treatment modalities, according to you, are done by an Orthodontist?</p> <ul style="list-style-type: none"> <input type="checkbox"/> Extractions (Removal of teeth) <input type="checkbox"/> Habit Correction <input type="checkbox"/> Root canal treatment <input type="checkbox"/> Braces <input type="checkbox"/> Aligners <p>9. According to you, what would be the ideal age group for undergoing Orthodontic treatment?</p> <ul style="list-style-type: none"> <input type="radio"/> 5- 10 years <input type="radio"/> 10-15 years <input type="radio"/> 15-18 years <input type="radio"/> 18 years and above
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10. How important do you think are X-rays (radiographs) when you consider Orthodontic therapy?
 - Not important
 - Somewhat important
 - Important as it determines the course of treatment

11. Are you aware that removal of teeth is not always required before undergoing Orthodontic treatment?
 - Yes
 - No

12. Do you know that an appliance called 'retainer' is given after the completion of Orthodontic treatment?
 - Yes
 - No

13. Until what age can Orthodontic treatment be done in an individual?
 - Upto 18 years
 - Upto 30 years
 - Upto 50 years
 - No limit; If teeth and supporting tissues are in good condition

14. What do you think could be the factors that might refrain you from considering Orthodontic treatment?
 - High cost of treatment
 - Prolonged duration of treatment
 - Poor aesthetics during treatment (in case of metallic braces)
 - Pain and discomfort that may be experienced during treatment
 - Requirement of teeth removal in some cases

15. Do you use social media platforms for gaining information about dental problems?
 - Yes
 - No
 - Sometimes

16. Does social media advertising influence your choice of treatment plan?
 - Yes
 - No
 - Sometimes

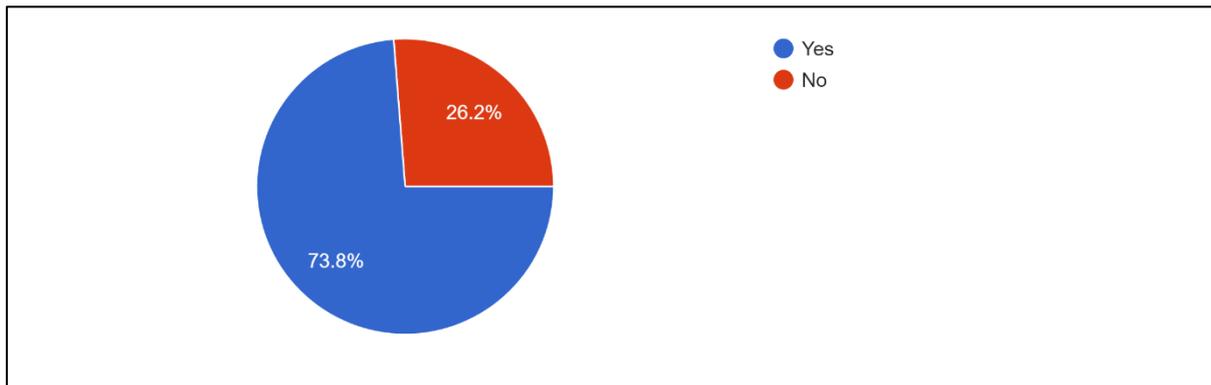


Fig. 3: Whether they know Orthodontics as a specialty of dentistry

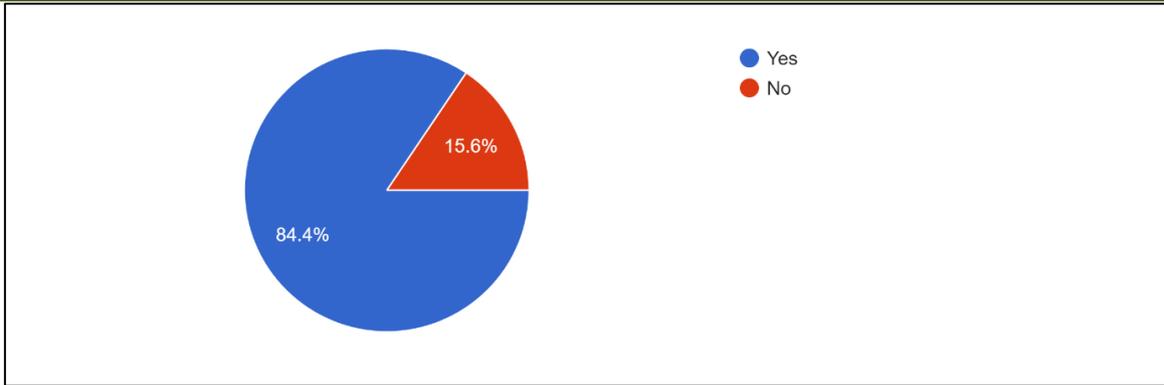


Fig. 4: Whether recognition of degree hold place in choosing a dentist (BDS/MDS)

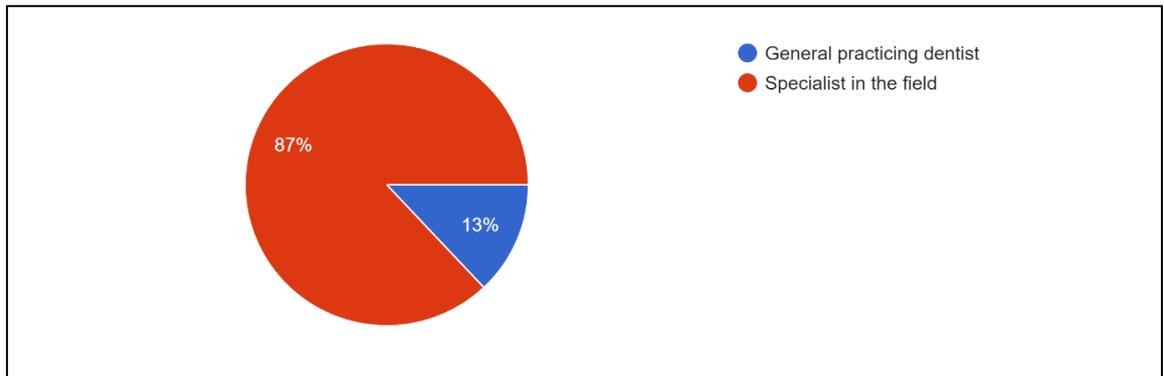


Fig. 5: By whom would they like their treatment to be done

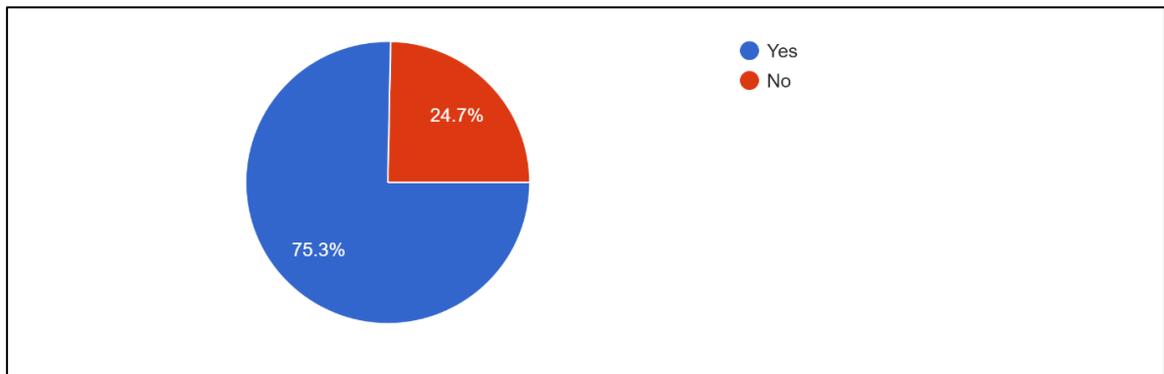


Fig. 6: Whether they were aware that certain habits might cause crooked teeth or poorly aligned teeth

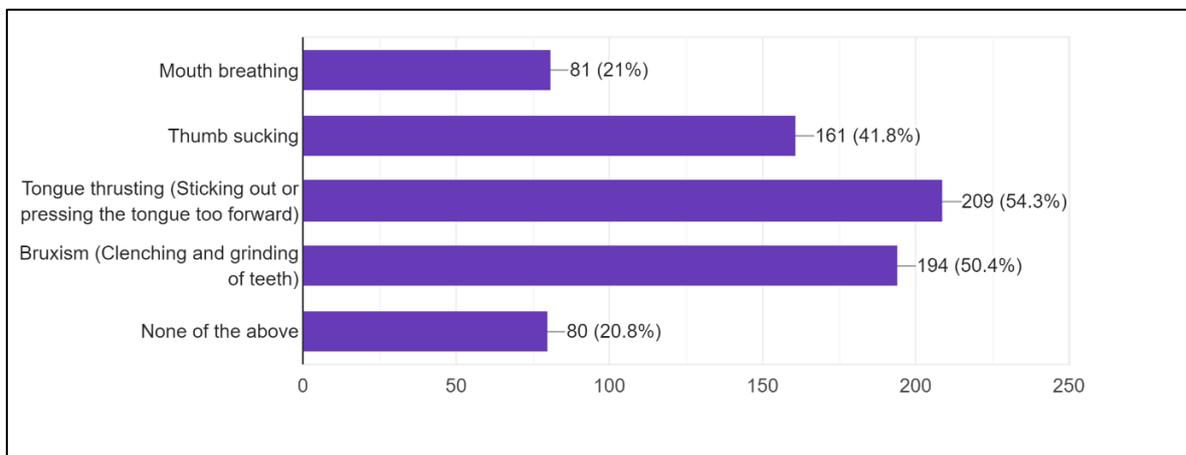


Fig. 7: What could be the habits that cause crooked teeth or poorly aligned teeth

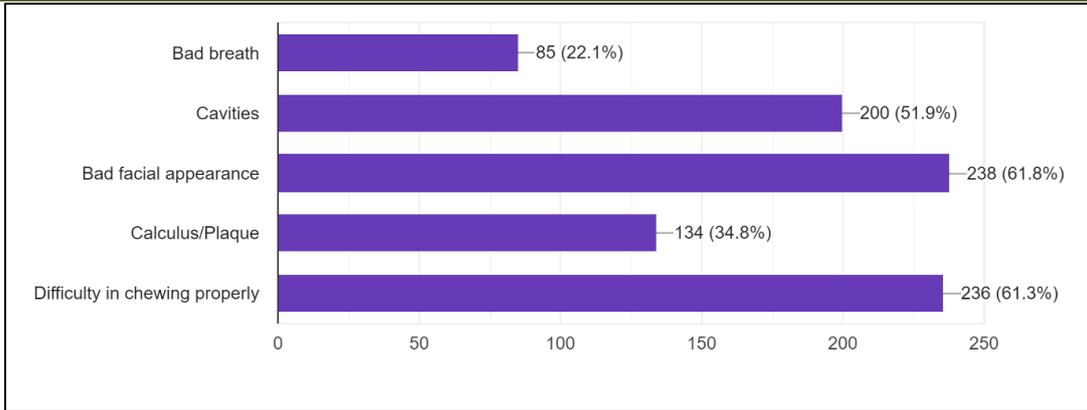


Fig. 8: What did they think could be the demerits of crooked teeth

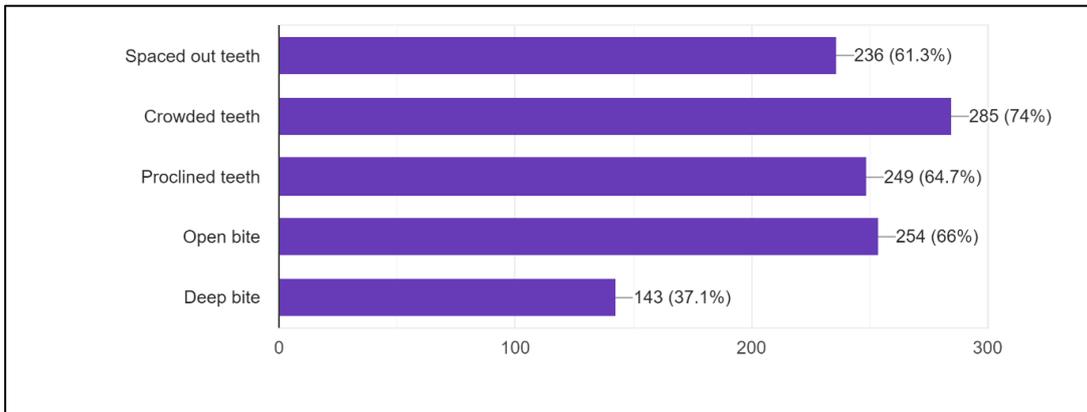


Fig. 9: In which conditions would they like to approach an Orthodontist

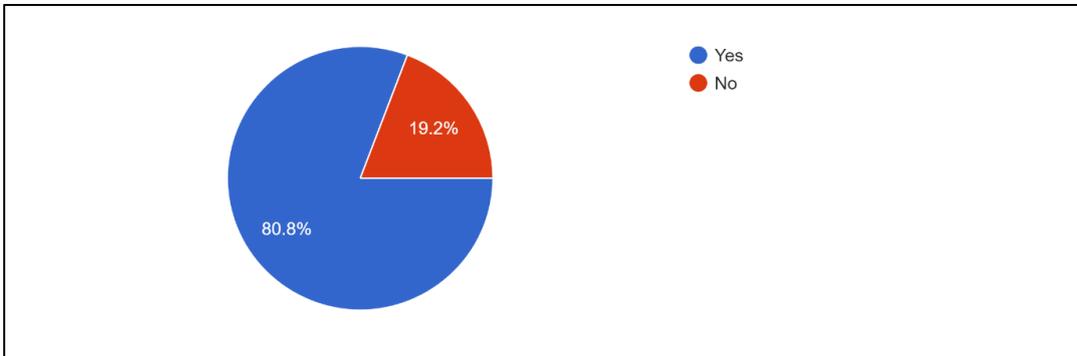


Fig. 10: Whether they thought an Orthodontist can correct a case wherein the upper jaw or lower jaw is not in normal position

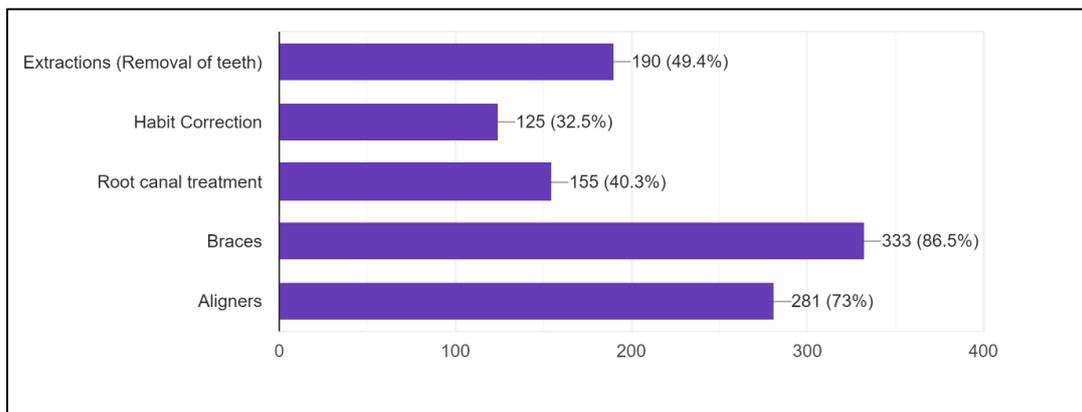


Fig. 11: According to them which treatment modalities were done by an Orthodontist

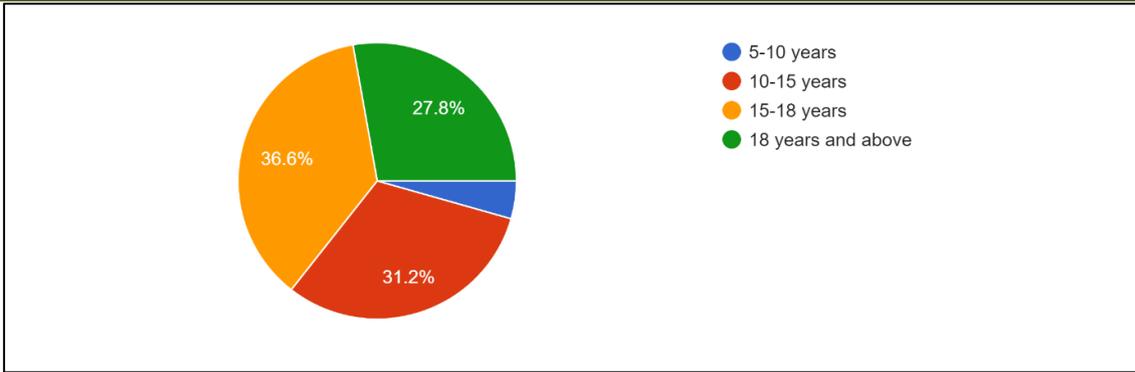


Fig. 12: What according to them would be the ideal age group for undergoing Orthodontic treatment

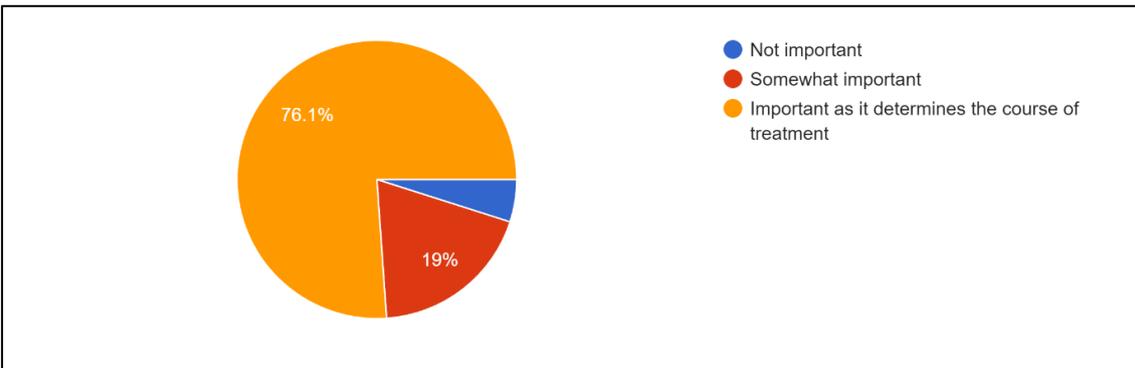


Fig. 13: How important did they think were X-rays (radiographs) when they considered Orthodontic therapy

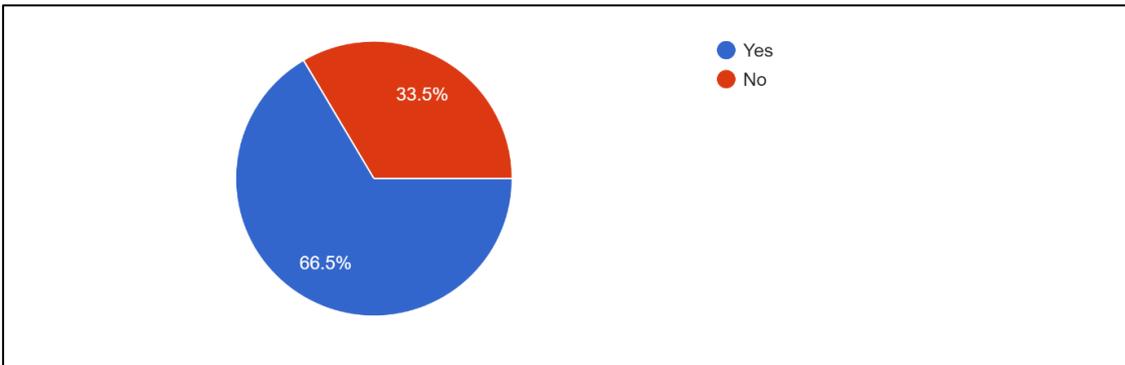


Fig. 14: Whether they were aware that removal of teeth is not always required before undergoing Orthodontic treatment

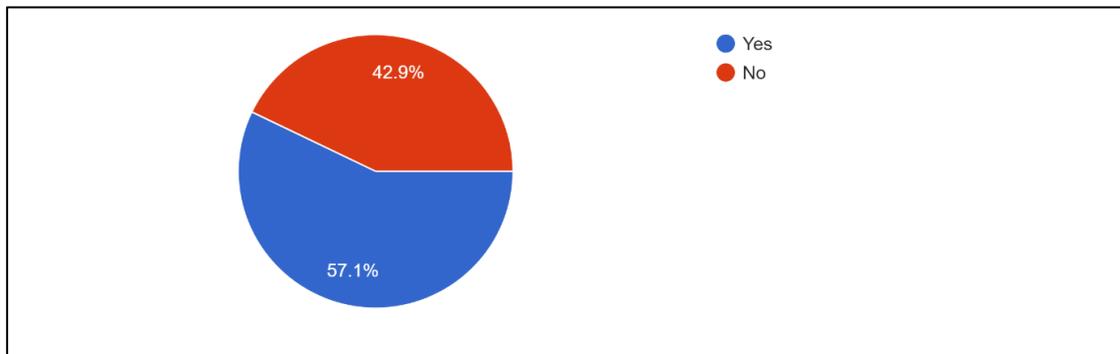


Fig. 15: Whether they knew that an appliance called 'retainer' is given after the completion of Orthodontic treatment

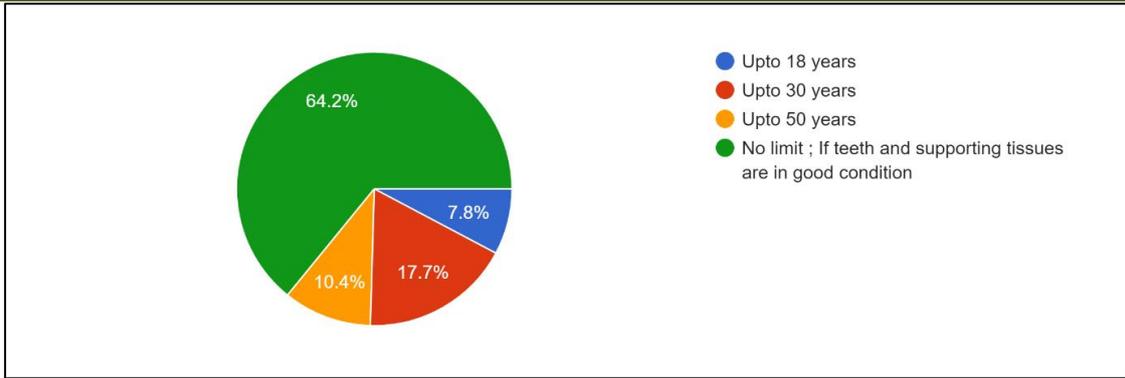


Fig. 16: What according to them could be the age until Orthodontic treatment be done in an individual

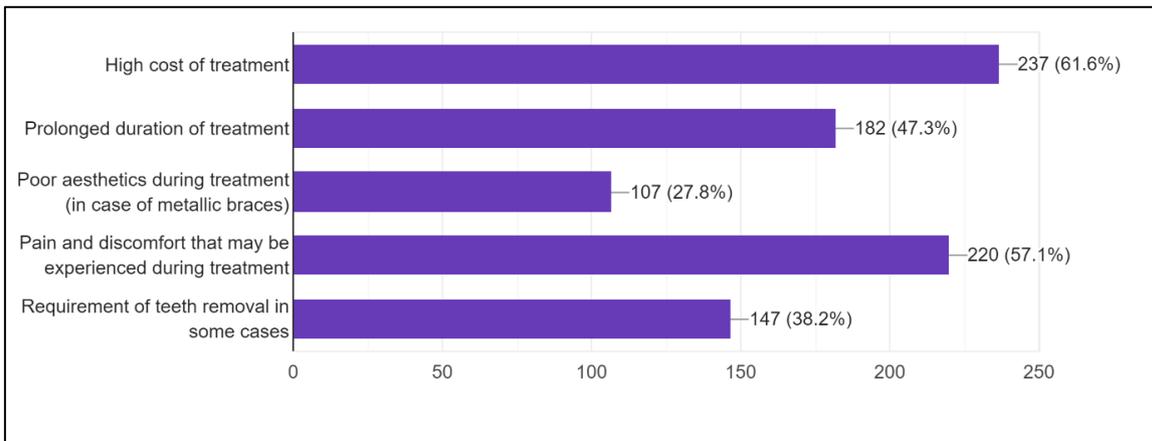


Fig. 17: What did they think could be the factors that might refrain them from considering Orthodontic treatment

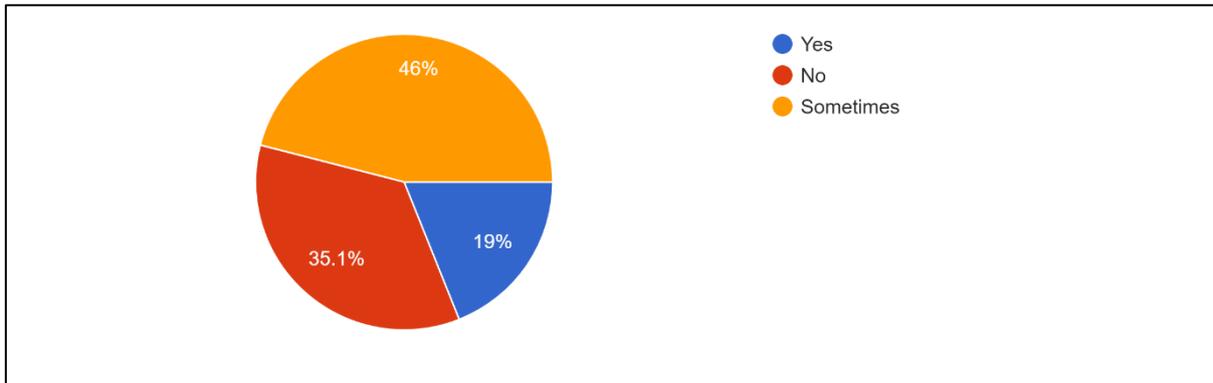


Fig. 18: Whether they used social media platforms for gaining information about dental problems

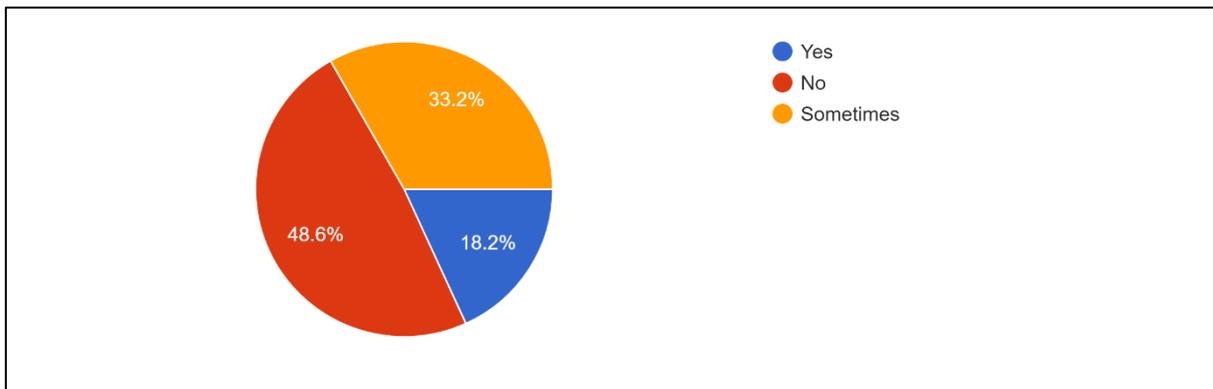


Fig. 19: Whether social media advertising influenced their choice of treatment plan

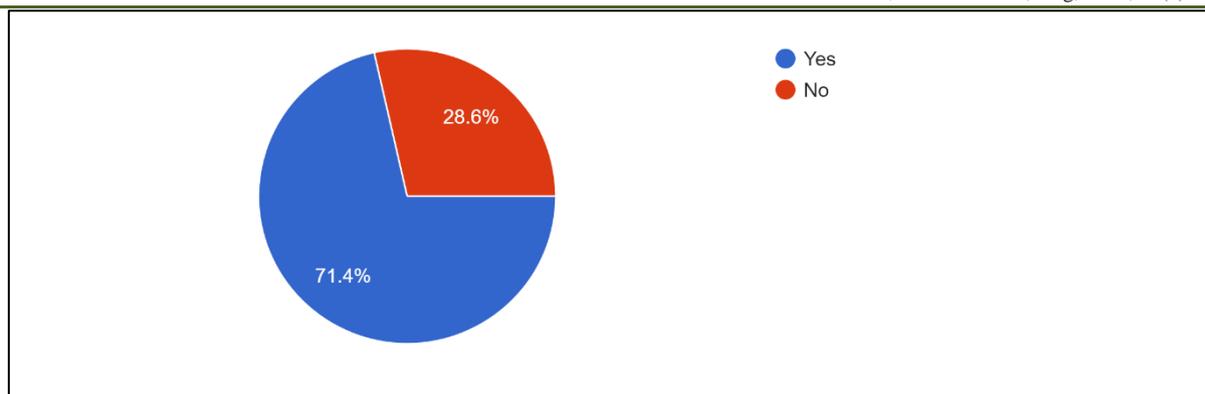


Fig. 20: Whether they would be interested in awareness programmes for more information on different treatment options

DISCUSSION

Health-related behaviour (also known as health behaviour) directly and indirectly affects an individual's health either in a positive or negative way. Knowledge, attitude and practice (KAP) are considered to be essential components of an individual's health behaviour. Having information about the knowledge, attitude and practice (KAP) of patients can be very valuable in helping the Orthodontist in assessing a patient's level of compliance and in formulating approaches to improve patient compliance, thereby improving clinical outcomes [13]. Malocclusion is one of the most common diseases in dentistry (3rd most common), after dental caries and periodontal diseases. It becomes a serious worldwide public health problem, as it creates negative physical, social, and psychological impacts on patients. Thus, a timely and suitable treatment is essential for several reasons. It prevents the incidence of severe disorders, creates preconditions for the normal development of the orofacial system, and hence, minimizes the negative effects of malocclusion [12]. It is advisable to initiate Orthodontic therapy at the earliest to avoid various adverse effects of malocclusion, but the patient's lack of awareness becomes one of the limitations for starting or even planning an Orthodontic treatment [2]. The success of Orthodontic treatment depends on a variety of factors related to patient compliance, such as regularity in attending appointments, maintaining good oral hygiene and limiting appliance breakage. Patients who have undergone Orthodontic treatment previously and parents who themselves have had Orthodontic treatment done are likely to have better attitude towards Orthodontic treatment [13]. Studies taken into consideration showed that individuals with better knowledge of Orthodontics tend to have better attitude towards Orthodontic treatment, this increases the likelihood of improved clinical outcome.

In our study when the participants, were asked which treatment modalities were done by an Orthodontist, 49.4% times the individuals chose extractions as the treatment modality, 32.5% times they chose habit correction, 40.3% times they selected root

canal treatment, 86.5% times the respondents chose braces as the treatment modality and 73% times they chose the option of aligners. Similar results were seen in the study done by Vajifaker PJ *et al.*, [2] where 59.8% respondents had chosen placement of braces, 17.8% had chosen root canal treatment, 13.2% had chosen crown placement and dentures, 5.3% had chosen placement of implants and 3.9% had chosen extractions.

CONCLUSION

Orthodontics is a dental specialty that focuses on the diagnosis, prevention and treatment of dental and facial irregularities. In general, the level of knowledge about Orthodontics among the general population can vary. Some people may have a good understanding of Orthodontics and its benefits, while others may have limited knowledge or misconceptions.

Awareness of Orthodontics is generally higher among individuals who have a personal need for Orthodontic treatment or those who have family members or friends who have undergone Orthodontic treatment. Orthodontic awareness is also influenced by factors such as access to dental care, education level, socioeconomic status, and cultural norms.

Some people may have a positive attitude towards Orthodontic treatment, seeing it as a way to improve their dental health, enhance their appearance, and boost their self-confidence. Others may have concerns or fears about Orthodontic treatment, such as the duration of treatment, potential discomfort, or financial considerations.

As per the results of this study, it was noted that the level of awareness among the adult population in Navi Mumbai is sufficient. However, the level of knowledge, perception and attitude of patients towards treatment could be improved.

In recent years, there has been an increasing awareness of Orthodontic treatment.

Additionally, social media and online platforms have played a significant role in increasing awareness about Orthodontics.

It's important to note that these observations are general and may not reflect the specific knowledge, attitude, and awareness levels of every individual within the general population.

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