KNOWLEDGE AND AWARENESS ON ORTHODONTIC TREATMENT AMONG RURAL POPULATION-A SURVEY

- S.Ragul Prasath
  Saveetha Dental College and Hospitals, Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai-600077, India. Email ID: 151901074.sdc@saveetha.com.

- Dhanraj Ganapathy
  Professor and Head, Department of Prosthodontics, Saveetha dental college and hospitals, Saveetha institute of medical and technical science, Saveetha university, 162, poonamallee high road, velappanchavadi, Chennai-600077. Email: dhanrajmganapathy@yahoo.co.in

- L. Keerthi sasanka*
  Senior lecturer, Department of prosthodontics Saveetha Dental College and Hospital Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai - 600077. Email ID: keerthis.sdc@saveetha.com

- Vinay sivaswamy
  Associate professor, Department of prosthodontics Saveetha Dental College and Hospital Saveetha Institute of Medical and Technical Sciences, Saveetha University, Chennai - 600077. Email id: vinay.sdc@savetha.com.

ABSTRACT:

Introduction: A malocclusion is defined as an irregularity of the teeth or a mal relationship of the dental arches beyond the range of what is accepted as normal. Maloccluded teeth can cause psychosocial problems related to impaired dentofacial esthetics. Oral health can affect the general health, well-being, education and development of children. Malocclusion has been a problem since old age. But people’s awareness and perception about the problem varies with their geographical location and cultural background and their knowledge. The problem seems to be more acute in developing countries like India and especially in rural area.

AIM: To survey among the south Indian rural population to know their knowledge and awareness on orthodontic treatment.

MATERIALS AND METHODS: A set of self-designed questionnaire of 14 questions were framed and was circulated among rural population of India through google forms link. The sample size that was chosen for the study was 100. The result output variables were collected and was represented in pie charts. The statistics used to analyse the results was descriptive statistics and Chi square test using SPSS software.

RESULTS AND DISCUSSION: The data was collected and statistically analysed. On Analysis we can find that there is an average awareness and less knowledge of orthodontic treatment among rural population of south India and hence there is a decreased rate of orthodontic treatment.

CONCLUSION: According to the above survey we conclude that knowledge and Awareness of orthodontic treatment among south Indian rural population is average. Hence, awareness among rural population must be created in the right way of benefits of properly aligned teeth. Overall undergraduates and graduates of south Indian population had a higher rate of acceptance towards orthodontic treatment and procedure involved to treat malocclusion.

Key Words: Orthodontic treatment, Malocclusion, Teeth Alignment, Awareness, Knowledge, Rural Population, Alloys, Ecofriendly, Orthodontic wires.

INTRODUCTION:

India being a developing country, there are still remote villages unaware of the advances in various fields; one such being orthodontics. One of the most common dental problems in humanity along with dental caries, gingival disease, and dental fluorosis is malocclusion (1,2). However, malocclusion is still not considered to be a dental problem because more priority is given to the treatment of dental caries and periodontal diseases due to pain experienced by them (3). A malocclusion is defined as an irregularity of the teeth or a mal relationship of the dental arches beyond the range of what is accepted as normal. Maloccluded teeth can cause psychosocial problems related to impaired dentofacial esthetics (4). Oral health can affect the general health, well-being, education and development of children. In many of the countries, a large number of parents and children are unaware of the knowledge about the causes, occurrence and prevention of most of the common oral diseases (5). The etiology of malocclusion can be genetic or environmental and or a combination of both along with various local factors such as oral habits, tooth anomalies (6) etc. The malocclusion has been shown to affect oral health, increased prevalence of caries and can cause temporo-mandibular disorders. The benefits of orthodontic treatment are prevention of tissue damage, improvement in aesthetics and physical function (7). Both perceived need and demand vary with social and economic factors.
Cultural conditions, but the most important motivation for orthodontic treatment is usually an improvement in appearance. The uptake of orthodontic treatment is influenced by the desire to look attractive, self-esteem and self-perception of dental appearance (8).

Awareness is the state or quality of being aware of something. Orthodontic therapy can include the use of fixed or removable appliances. The majority of orthodontic therapy is delivered using appliances that are fixed in place, for example with braces that are bonded to the teeth with adhesives (9). Fixed appliances can have a greater mechanical control of the teeth and the treatment outcome is greater with the use of fixed appliances (10), (11). Children and adolescents comprise the bulk of orthodontic patients. Their parents play an important role in initiating orthodontic care and are the single most important factor in the motivation for treatment (12).

There are no reported studies to assess the awareness on orthodontic treatment among rural population. Challenges faced by previous researchers was limited sample was taken into consideration and biased responses were analysed. The present research is done to increase the knowledge and awareness on orthodontic treatment among rural populations as awareness about orthodontic treatment is very less among rural population. Our team has extensive knowledge and research experience that has translated into high quality publications (13–21), (22–27), (28–34). Aim of the study is to assess the knowledge and increase awareness of orthodontic treatment among the rural population.

MATERIALS AND METHOD:
The data of this original research (survey) consisted of 100 college students from Saveetha Dental College. A simple and randomised online survey was carried out to investigate the awareness of orthodontic treatment among rural population. Ethical approval for conducting the survey was given by the esteemed institutional research department via SRB form. 12 Self-administrated questionnaire (including demographic details like age, gender) were framed and distributed to the participants through online google forms link. The dependent variables include gender, rural individual’s knowledge and the independent variables are weight, course of study and educational qualifications. The participants were advised to read the questions thoroughly and then begin to answer the questions carefully. The data was collected in google sheets and then transferred to SPSS software. The data were validated and verified by the primary investigator and guide. The advantages are it is economic, easy to create, and can have a wide reach. The disadvantages are that it has survey fatigue and response bias. The purpose of the study and the questionnaire was explained before these questions are given to students. The questionnaire required approximately ten minutes to complete.

INCLUSION CRITERIA:
1. South Indian Population
2. Population may or may not be aware about orthodontic treatment.

EXCLUSION CRITERIA:
The South Indian population had already undergone orthodontic treatment.

STATISTICAL ANALYSIS:
Questionnaire forms were collected, and data was subjected to statistical analyses. Unpaired t test was performed to compare between mean scores of males and females for informative, knowledge, and awareness questions. A Chi-square test of independence was performed to check independence between answers and gender for each question. The level of statistical significance was set at \( P < 0.05 \).

RESULTS AND DISCUSSION:
The data was collected and statistically analysed. On Analysis we can find that there is an average awareness and less knowledge of orthodontic treatment among the rural population of South India and hence there is a decreased rate of orthodontic treatment.

In a survey conducted among 100 rural population, 72.58% of the respondents belong to age group 18-60 years, 22.58% of the respondents belong to age group less than 18 years and 4.84% belong to age group greater than 60 years (Figure 1). In our study, 58.06% of the participants were Male and 41.94% were Female (Figure 2). 41.94% of the participants education level were undergraduate, 33.87% were graduate, 4.84% were postgraduate and 19.35% were undergoing schooling (Figure 3). 69.35% of the respondents answered that they have heard about orthodontist and 30.65% said that they are not aware of orthodontist (figure 4). 56.45% of the population are aware of teeth alignment treatment and 43.55% were not aware of teeth alignment treatment (Figure 5). 54.84% of the participants answered that they have noticed people with irregular teeth and 45.16% answered they have not encountered people with irregular teeth (Figure 6). 24.19% of the participants responded that
a proper teeth alignment is necessary for a better facial appearances, 70.97% responded that they do not believe in teeth alignment for a better facial appearances and 4.84% responded may be (Figure 7). 59.68% of participants have seen people wearing braces and 40.32% of population didn’t encounter any people who were wearing braces (figure 8). 58.84% responded that few teeth may have to be removed for aligning irregular teeth and 45.16% are not aware of the removal of teeth in orthodontic treatment (figure 9). 48.39% of respondents said that taking orthodontic treatment at an earlier age would improve facial appearance and 51.61% are not aware of this fact (figure 10). 79.03% of respondents do not believe that irregular teeth can affect chewing ability, 14.52% of respondents are aware on effect of irregular teeth in chewing ability and 6.45% of responded may be (figure 11). 50.00% of respondents do not believe that irregular teeth can affect the quality of speech, 40.32% of respondents are aware on effect of irregular teeth in quality of speech and 9.68% of responded may be (figure 12). 33.87% of respondents are aware that duration of orthodontic treatment is longer than other dental procedures, 61.29% are not aware of duration length of orthodontic treatment, 4.84% responded don’t know (figure 13). 30.65% of respondents readily agreed to orthodontic treatment if a dentist or parents suggested it, 59.68% of respondents are not willing to undergo orthodontic treatment and 9.68% responded may be (figure 14).

From the current study on chocolate consumption, we found that the younger population 18-60 years of age with undergraduate and postgraduate education levels have a higher knowledge on orthodontic treatment. A similar study (35) carried out among the school teachers in karnataka between the age of 25–50 years showed that the knowledge and awareness on orthodontic treatment to be 68.5% which was a little high than our study. A Generalised report was drawn from the responses received from the south indian population is that most of them are not aware of long term complications of orthodontic treatment, its effects on facial appearances & aesthetics and procedures involved in it. These reports are similar to the studies done by (36), (37), (38) on Knowledge and awareness of malocclusion among rural population in India. Similar results were obtained in an original study (39) with an overall awareness of several orthodontic treatment among males (46.75%) and among females it was 45.26%. Few aspects should be taken into consideration to get better insights into awareness on orthodontic treatment and knowledge on the procedure done in the course of teeth alignment treatment as percentage would differ based on gender, age of the student and the general economic conditions will have an impact on the acceptance of orthodontic treatment among rural population. We can also observe significant differences in opinion on orthodontic treatments among male and female groups. Acceptance rate of orthodontic treatment was greater among Female rural population of south india.

Figure 1: Pie chart showing the percentage distribution of responses about the age of the participants. 72.58% of participants were in the age group between 18-60 years (green), 22.58% were in the age group less than 18 years (blue) and 4.84% were in the age group greater than 60 years (yellow). Majority of the participants were in age between 13 and 18 years (68%).

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Figure 2: Pie chart showing the percentage distribution of responses about the Gender of the population. 58.06% of participants were Male (Blue) and 26% were Female (Red). Majority of participants were Male (74%).

Figure 3: Pie chart showing the percentage distribution of responses about the participants education level. 41.94% of participants were undergraduate (green), 33.87% were graduate (yellow) and 4.84% were postgraduate (Purple) and 19.35% were schooling (purple). Majority of participants were undergraduate (41.94%).
Figure 4: Pie chart showing the percentage distribution of responses about the awareness of orthodontist. 69.35% of participants were aware of orthodontist (Blue) and 30.65% were not aware of orthodontist (green). Majority of participants were aware of orthodontist (69.35%).

Figure 5: Pie chart showing the percentage distribution of responses about the awareness of teeth alignment treatment. 43.55% of participants were aware of orthodontic treatment (Blue) and 56.45% were not aware of orthodontic treatment (green). Majority of participants were not aware of orthodontic treatment (56.45%).
Figure 6: Pie chart showing the percentage distribution of responses about the awareness of the people having irregular teeth. 54.84% of participants responded no (green) and 45.16% responded yes (blue). Majority of participants responded No (54.84%).

Figure 7: Pie chart showing the percentage distribution of responses about the awareness on properly aligned for a better facial appearance. 70.97% of participants responded no (green) and 24.19% responded yes (blue) and 4.84% responded maybe (yellow). Majority of participants responded No (70.97%).
Figure 8: Pie chart showing the percentage distribution of responses about the awareness of the people having braces. 40.32% of participants responded no (green) and 59.68% responded yes (blue). Majority of participants responded Yes (59.68%).

Figure 9: Pie chart showing the percentage distribution of responses about the awareness of the removal of teeth removal during orthodontic treatment. 45.16% of participants responded no (green) and 54.84% responded yes (blue). Majority of participants responded yes (54.84%).
Figure 10: Pie chart showing the percentage distribution of responses about the awareness of the advantage of undergoing orthodontic treatment at an earlier age. 51.6% responded no (green) and 48.39% responded yes (blue). Majority of participants responded No (51.6%).

Figure 11: Pie chart showing the percentage distribution of responses about the awareness of the effects of irregular teeth on chewing ability. 79.03% responded no (green), 14.52% responded yes (blue) and 6.45% responded maybe. Majority of participants responded No (79.03%).
Figure 12: Pie chart showing the percentage distribution of responses about the awareness of the effects of irregular teeth on quality of speech. 50.00% responded no (green), 40.32% responded yes (blue) and 9.68% responded maybe (yellow). Majority of participants responded No (50.0%).

Figure 13: Pie chart showing the percentage distribution of responses about the awareness of the duration of orthodontic treatment. 61.29% responded no (green), 33.87% responded yes (blue) and 4.84% responded don't know (yellow). Majority of participants responded No (61.29%).
Figure 14: Pie chart showing the percentage distribution of responses about the acceptance rate of the population to undertake orthodontic treatment if suggested. 59.68% responded no (green), 30.65% responded yes (blue) and 9.68% responded maybe (yellow). Majority of participants responded No (59.68%).

Figure 15: Bar graph showing an association between the gender (X-axis) and responses to facial appearance (Y-axis). 14% of the male participants said yes and 37.0% of the female participants said No. Yes is denoted by blue color, No is denoted by green color and maybe is denoted by brown color. Chi-square test (Pearson Chi-square value = 5.285) p = 0.525 (p > 0.005 statistically not significant).
Figure 16: Bar graph showing an association between the gender (X-axis) and response of orthodontics treatment (Y-axis). 38% of the male participants said yes and 15.0% of the female participants said No. Yes is denoted by blue color and No is denoted by green color. Chi-square test (Pearson Chi-square value = 5.789) $p = 0.347$ ($p > 0.005$ statistically not significant).
LIMITATIONS:
The limitations of this study are less sample sizes, homogenous population and different region/general population needed.

FUTURE SCOPE:
The future scope of this study is that knowledge about the effects of orthodontic treatment and its influence on overall oral health of the body is imposed among the south Indian rural population.

CONCLUSION:
According to the above survey we conclude that knowledge and awareness of orthodontic treatment among south Indian rural population is average. Hence, awareness among the rural population must be created in the right way to benefit from properly aligned teeth. Overall undergraduates and graduates of south Indian population had a higher rate of acceptance towards orthodontic treatment and procedure involved to treat malocclusion.

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CONFLICT OF INTEREST:
No conflict of interest indeed.

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