

Awareness and Behaviour Related to Orthodontic Treatment among School Children in Aseer Region, Kingdom of Saudi Arabia

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How to cite this paper: Zakirulla, M., Almubarak, H., Fageeh, S.N., Alghothimi, A.A., Alqahtani, S.K., Alqahtani, F.M. and Alshahrani, F.T. (2019) Awareness and Behaviour Related to Orthodontic Treatment among School Children in Aseer Region, Kingdom of Saudi Arabia. *Open Journal of Stomatology*, 9, 87-94.

<https://doi.org/10.4236/ojst.2019.94009>

Received: March 3, 2019

Accepted: April 23, 2019

Published: April 26, 2019

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Abstract

Background: Awareness of malocclusion and the need to make corrections have increasingly become prevalent among the young population. In the period of adolescence, physical appearance is crucial in the construction of personal identity, including one's relationship with one's own body. Orthodontic treatment includes improved oral health and enhanced psychological wellbeing. Early orthodontic treatment for children will be crucial to improving oral health. The present study aims to assess the awareness towards orthodontic treatment among school children's of Aseer region, Saudi Arabia. **Materials and Methods:** A total of 835 (450 boys and 385 girls) school children's, of age group between 10 - 15 years were included in the study. A total of 16 schools in the all Aseer region were surveyed during January to May 2018. A pre-structured self-administered questionnaire consisting of 12 questions with multiple answers were given to the children after the clinical examination to assess their knowledge and attitude towards Orthodontic treatment. **Statistical Analysis:** The survey data was collected and organized into Microsoft Excel spreadsheets (Microsoft Inc., USA), and was statistically analyzed utilizing the Statistical Package for the Social Sciences version 20.0 software (IBM Inc., USA). The statistical test used here was the chi-square test and P values less than 0.05 were considered to be statistically significant ($P < 0.05$). **Result:** A total of 292 (65%) of males and 285 (74%) of females have heard of an orthodontist. 234 (52%) of males said that orthodontist would align their teeth. 203 (45%) and 250 (65%) of males and females respectively are aware that few teeth needed to be removed for aligning irregular teeth. Majority of the children are aware of taking braces treatment at an earlier age would improve facial appearance. 320 (83%) and 227 (59%) of fe-

male children aware of that irregular teeth can affect chewing ability and speech respectively. 261 (58%) of males knew that orthodontic treatment is longer than other dental procedures. **Conclusion:** Findings confirmed that there is a positive awareness towards orthodontic treatment among school children's, but specific misconceptions and barrier exist. There is no statistical difference between males and females in knowledge and behaviour related to orthodontic treatment and malocclusion in school going, children.

Keywords

Orthodontic Treatment, Malocclusion, Children, Oral Health, Behaviour

1. 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 [1]. Malocclusion teeth can cause esthetic and psychosocial problems [2]. Malocclusion may also lead to problems of the oral cavity (traumatic bite and cheek bite), and it may also be one of the factors for rejection during marriage proposals. The uptake of orthodontic treatment is influenced by the desire to look attractive, self-esteem, and self-perception of dental appearance [3]. Health is multifactorial and multidimensional and influenced by factors such as genetics, lifestyle, environment, socioeconomic status, and others [4]. Oral health is a comfortable and functional dentition that allows individuals to continue their social role [5]. Oral health knowledge is considered to be an essential prerequisite for health-related behaviour [6]. Malocclusion is now just next to the other oral health problems, such as dental caries and periodontal diseases [7]. It has been established to be the third most common oral health problem, which is caused due to various environmental and genetic factors. The lifestyle of a person is adversely impacted by malocclusion due to its psychological as well as other disturbances in eating, talking, and aesthetics [8].

Prevalence of malocclusion was 62.3%, 28.4%, and 9.3% respectively seen among 15- to 17-year-old children, which was reported in earlier research done in Aseer region [9]. Malocclusion affects esthetics, the physical, psychological, and social life of a person. It is very important to take the orthodontic treatment, which mainly depends on knowledge and awareness of the person towards orthodontic treatment. Awareness is the state or ability to perceive, to feel or to be conscious. Planning for oral health is important to have a basis for awareness of regarding general health as an inseparable part. Indices and information related to malocclusion and treatment needs are available from all around the world [10].

Awareness is the state or quality of being aware of something. Esthetic components, physical function and prevention of tissue damage are the major benefits from correction of malocclusion and orthodontic treatment [11]. Until date,

there are very few studies, which evaluate the level of awareness among school children regarding orthodontic treatment in Saudi Arabia. Thus, the study was conducted to find out the awareness towards orthodontic treatment among school children's of Aseer region, Saudi Arabia.

2. Material and Methods

The current study was a cross-sectional survey. A total of 835 (450 boys and 385 girls) schoolchildren's, of age group between 10 - 15 years were included in the study. A total of 16 schools in the all Aseer region were surveyed during January to May 2018. Voluntary written informed consent was obtained from the parents before conducting the survey. Inclusive criteria include all children aged between 10 to 15 years, residing in the geographical region of Aseer region. Exclusion criteria: multiple dental caries, previous orthodontic treatment, congenitally missing teeth, congenital anomalies of teeth, various genetic disorders of teeth etc. A pre-structured self-administered questionnaire consisting of 12 questions were given to the children after the clinical examination to assess their knowledge and attitude towards orthodontic treatment. The questionnaire was formulated which comprised of two parts: the First portion included the questions related to the demographic information of participants, such as age and gender. The other part of the questionnaire comprised 12 questions was prepared based on other studies [12]. Some were related to the attitude, while others were related to knowledge towards orthodontic treatment.

2.1. Sample Size Calculation

For this cross-sectional study, z value at a confidence level of 95% (z) was 3.4, with the prevalence of knowledge about Orthodontic treatment was 0.3 (p), and error (ϵ) of 3.2% was used to calculate the sample size. Estimated minimum sample size required was 824.

$$n = \frac{z^2 \times \hat{p}(1 - \hat{p})}{\epsilon^2}$$

n —sample size;

z — z score;

\hat{p} —population proportion (probability);

ϵ —margin of error.

A stratified cluster random sampling procedure was followed to get a representative sample of school children in Aseer region. A detailed list of all schools in the region was obtained through the concerned authority. 16 schools were randomly selected, and the required official permission for the study was obtained from respective school authorities.

2.2. Validity and Reliability of the Questionnaire

A self-administered structured questionnaire was developed and tested among a convenience sample of 12 volunteer children from regular schools whose res-

ponses were excluded from the results of the study. Later, were interviewed to gain feedback on the overall acceptability of the questionnaire in terms of length and language clarity, according to their feedback the questions were corrected. The face validity of the questionnaire was evaluated the ease of understanding questions. Cronbach's alpha was used to measure reliability and gave a score of 0.845, which indicated good reliability.

Both descriptive and analytical statistical measurements were used to describe the main variables by SPSS 18 (IBM Corporation, Armonk, New York, USA) software. Chi-square, ANOVA was used to compare the qualitative and quantitative variables. The statistical significance of the coefficients in the statistical analyses will be tested at 0.05 (≤ 0.05) levels.

3. Results

A total of 835 (450 boys and 385 girls) school children's, of age group between 10 - 15 years were included in the study (**Table 1** and **Table 2**). A total of 292 (65%) of males and 285 (74%) of females have heard of an orthodontist. 234 (52%) of males said that orthodontist would align their teeth (**Table 3**). This suggests that there is general satisfactory awareness regarding the orthodontic treatment among school children. 203 (45%) and 250 (65%) of males and females respectively are aware that few teeth needed to be removed for aligning irregular teeth. Majority of the children are aware of taking braces treatment at an earlier age would improve facial appearance. 320 (83%) and 227 (59%) of female children aware of that irregular teeth can affect chewing ability and speech respectively. 261 (58%) of males knew that orthodontic treatment is longer than other dental procedures. 374 (83%) also know that orthodontic treatment is very costly treatment compared to other dental procedures.

4. Discussions

Malocclusion is the most common oral health problem along with dental caries and periodontal diseases. Malocclusion is a serious problem present in the population, but some people do not take it as important to correct the orthodontic

Table 1. Gender distribution of the sample.

| Gender | No of children |
|--------|----------------|
| Male | 450 |
| Female | 385 |
| Total | 835 |

Table 2. Age distribution of the sample.

| Age/Gender | 10 years | 11 years | 12 years | 13 years | 14 years | 15 years |
|------------|----------|----------|----------|----------|----------|----------|
| Male | 44% | 60% | 51% | 48% | 53% | 59% |
| Female | 56% | 40% | 49% | 52% | 47% | 41% |

Table 3. Questionnaire format to analyze the awareness of children towards orthodontic treatment.

| Sl. No. | QUESTIONS | Males (Total-450) | | Females (Total-385) | |
|---------|---|-------------------|----|---------------------|----|
| | | n (Yes) | % | N (Yes) | % |
| 1 | Have you heard of an Orthodontist? | 293 | 65 | 285 | 74 |
| 2 | Are you aware that they align your teeth? | 234 | 52 | 243 | 63 |
| 3 | Have you noticed people having irregular teeth? | 378 | 84 | 358 | 93 |
| 4 | Do you believe teeth should be properly aligned for a better facial appearance? | 419 | 93 | 339 | 88 |
| 5 | Are you aware that few teeth may have to be removed for aligning irregular teeth? | 203 | 45 | 250 | 65 |
| 6 | Have you seen people wearing braces? | 221 | 49 | 142 | 37 |
| 7 | Has anyone advised you to get your teeth aligned? | 117 | 26 | 131 | 34 |
| 8 | Did you know taking braces treatment at an earlier age would improve facial appearance? | 342 | 76 | 347 | 90 |
| 9 | Do you think irregular teeth can affect chewing ability? | 392 | 87 | 320 | 83 |
| 10 | Do you think irregular teeth can affect speech? | 311 | 69 | 227 | 59 |
| 11 | Do you know the duration for braces treatment is longer than other dental procedures? | 261 | 58 | 181 | 47 |
| 12 | Do you know that orthodontic treatment is costly? | 374 | 83 | 362 | 94 |

problems and does not prefer to go for treatment [13]. Some sections of the population consider this, and they go for orthodontic treatment. In a study conducted in the Netherlands, opting for orthodontic treatment mainly depends on the positive or negative attitude of patients towards the orthodontic treatment of their teeth [14].

Therefore, for an orthodontist, awareness towards orthodontic treatment is a foremost important and essential prerequisite for the patient to take the best treatment outcome. Moreover, it is why the present study was conducted in the Kingdom of Saudi Arabia to evaluate the knowledge, and attitude of school children was undertaken. In the present study, a bulk of respondents (88.5%) agreed that the orthodontic treatment is expensive, while only 11.5% of the respondents disagreed for the same. These results were similar to the earlier studies wherein the financial restriction was found to be one of the barriers for the patients to undergo orthodontic treatment [15]. They found that the majority of those who opted for orthodontic treatment belonged to high socioeconomic status, while very few patients who belonged to low socioeconomic status would prefer to undergo orthodontic treatment. Socioeconomic factor has been seen as having an impact on the uptake on orthodontic treatment [16].

Around 58% of boys and 47% of girls respondents agreed that orthodontic treatment takes a long time. This observation was by the previous study wherein majority of Malaysian patients thought that the orthodontic treatment takes a

long time, while only 4% of the patients thought the other way [17]. It is suggestive of the fact that respondents were aware of the time-consuming nature of the orthodontic treatment.

The main factors for not undergoing orthodontic treatment by patients are lack of awareness, the inadequacy of resources, literacy rate and socio-economic status. In our study, girls were better in knowledge and awareness towards orthodontic treatment compared to boys, which were in agreement with other studies [18]. It might be explained on the basis that girls care more about their appearance and would tend to be more educated about their oral health and irregularity in the dentition. However, some studies had shown that boys significantly higher knowledge scores as compared to females [19].

In a similar study by Siddegowda [20], High school children showed a higher level of awareness about orthodontic treatment when compared to middle school children. Urban children had shown a more positive attitude like visiting a dentist in a study done by Singh *et al.* in 2012 [21]. In a study conducted by Friedman *et al.* in 1976 [22], found that the awareness of orthodontics increased depending upon the age of the patients and its influence towards taking treatment. In a similar study, results shown that the awareness of orthodontic treatments was increased among children and adults, the main aim of the orthodontic procedure is to improve dental occlusion, which results in better esthetic and good functioning in harmony with the face [23]. As the main shortcoming, this survey was performed in a limited group of school children selected; future surveys are needed to take place in large. Also, long-term retention of information was not assessed. The presence or absence of malocclusion of the respondents was not assessed. Future studies are needed to develop valid questionnaires to investigate concerns about orthodontic treatment in a more unbiased manner. The strengths of the study were that we used simple language in the leaflets and the questionnaire was formulated to be understood by a range of education abilities.

5. Conclusion

Enhancing the appearance and improving psychosocial status have been identified as important motivating factors behind the decision to initiate orthodontic treatment. This survey created awareness of orthodontic treatment among school children. The school children had a good awareness of Orthodontic treatment. Findings confirmed that there is a positive awareness towards orthodontic treatment among school children's, but specific misconceptions and barrier exist. Patients were significantly more concerned about "the appearance of braces" and a "long treatment duration". Children and all the members of the community should be reached through school/community health education programs so that they avail the orthodontic treatment facilities without any barrier.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication

of this article.

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