

## USE AND EFFECTS OF ORTHODONTIC TREATMENT AMONG UNIVERSITY STUDENTS AT AL-LEITH PROVINCE, SAUDI ARABIA

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### ABSTRACT

*A setting-based a study was carried out on use and effects of orthodontic treatment among university students in Al-Leith colleges namely, University college at Al-Leith, College of Engineering at Al-Leith, College of Computer at Al-Leith, Health Sciences College at Al-Leith and Preparatory year. The relevant data were collected using pre-tested questionnaire containing data on use of orthodontic treatment, types, duration and effects in addition to characteristics of participant students. The questionnaire was directed to a total of 358 students who were selected proportionally from all colleges by simple random sample technique. The main findings were the prevalence of orthodontic treatment use among university students was 10.1%. fixed brace was frequently used by student 33(91.7%), in contrast, only 3(8.3%) were using removable braces. The frequent time durations of orthodontic treatment were 18 months (27.8%) and 24 months (25%). Dental bulge was the most (36.1%) reason behind orthodontic treatment among university students at Al-Leith, while about 27.8% due to teeth crowding, 16.7% due to dental curvature and 19.45 for other reasons. The study revealed several side effects of orthodontic treatment among the students i.e. pain (33.3%), discomfort (38.9%), gingivitis (13.9%), dental caries (5.6%) and effect on nutrition (8.3%). The study concluded that the proportion of orthodontic treatment was considerably high among university students.*

**Keywords:** Orthodontic, treatment, students, Al-Leith,

### INTRODUCTION

There are a lot of dental disorders occurred among different groups of people such as tooth decay (dental caries), Periodontal disease, Oral cancer, Tooth erosion, Stained teeth, Cavities, Hyperdontia, Malocclusion etc. (Tony, 2017)

Malocclusion is an anomaly in the development of the dental arches, causing esthetic and/or functional problems, with the most common causes being osteogenic development, hereditariness, and acquired functional conditions. The above-mentioned conditions, such as pasty diets, mouth breathing and deleterious oral habits, especially pacifier sucking, are among the main causes attributed to the development of malocclusion (Fábio et al, 2014).

Oral health and taking care of the mouth can affect the health and well-being of people (Essamet and Darout, 2016). Oral health includes also the dental health which is threaten by so many disorders and conditions, in addition to that the appearance of the mouth and smile is very important regarding facial beauty. In the last three decades, a considerable increase in orthodontic treatment demand has occurred because of the high perception rate of malocclusions and a greater attention to beauty and appearance (Letizia et al, 2010).

Orthodontic treatment depends on the clinician and patients' point of view. Patients and dentists differ in their evaluation of oral health and the demand for treatment is mostly related to personal deals with the appearance and other psychosocial points (Fatima and Amal, 2015).

Dentofacial abnormality is condition in which there is a deviation from the normal morphology, size and function of individual parts or the whole of the craniofacial complex. Impacts of disorders related to dentofacial abnormality are several, such as oral function disorders and disrupted facial beauty and appearance, which is a serious public health problem. Orthodontic defects, particularly dental arch crowding, lead to the rapid formation of caries and periodontal diseases (Ružica et al, 2017).

Malocclusion and other anomalies of teeth situation are some reasons for the need of orthodontic treatment In Recently, scientists have suggested many indices for scoring how much the teeth deviate from the normal, as indicators of orthodontic treatment need (Abdolreza et al, 2014).

Orthodontic treatment requires time to achieve good result this time ranging from short time in simple cases to long period for complicated cases. Roopa and Rani (2013) mentioned that there are several benefits of orthodontic treatment such as prevention of tissue damage, improvement in aesthetics and physical function.

Truth and accurate time estimation” are two of the most frequent recommendations, followed by “reduction in treatment fees. treatment time can provide superior cost-benefit outcomes, as it allows orthodontists to manage treatment, achieving, thus, great results in less time (Lívia et al, 2016).

In a study carried out in in King Khalid University, Abha, Saudi Arabia Medical students' awareness of orthodontics, it was found that 40.1% of respondents have received orthodontic treatment and 54.5% (n=144) of them had relatives who have received orthodontic treatment either in past or at present (Ibrahim and Reena, 2014).

The common adverse effects of orthodontic treatment are root resorption, pain associated with orthodontic treatment, pulpal changes during orthodontic treatment, periodontal disease and orthodontic treatment, decalcification and caries associated with orthodontic treatment, and TMD and orthodontic treatment (Nabeel, 2011).

## **MATERIALS AND METHODS**

### **Study design and sampling**

The study design was a descriptive targeting student in Al-Leith University College, College of Engineering at Al-Leith, College of Computer at Al-Leith, Health Sciences College at Al-Leith, and students of Preparatory year at Al-Leith.

A total of 358 students were selected by statistical equation. The selected students were divided proportionally into five segments namely University college at Al-Leith (315 students), College of Engineering at Al-Leith (13), College of Computer at Al-Leith (6), Health Sciences College at Al-Leith (10) and Preparatory year (14).

### **Data collection method and analysis**

The relevant data will be obtained using a questionnaire. The questionnaire included questions about the characteristics of participated students, the use of orthodontic treatment, its types, reasons and side effects. The collected data will be analyzed using SPSS (Statistical Package of Social Science).

## RESULTS

In table 1, the prevalence of orthodontic treatment use among university students was 10.1%. Table 2 shows the types of appliances, fixed brace was frequently used by student 33(91.7%), in contrast, only 3(8.3%) were using removable braces. The frequent time durations of orthodontic treatment were 18 months (27.8%) and 24 months (25%) as illustrated in table 3. Table 4 shows that dental bulge was the most (36.1%) reason behind orthodontic treatment among university students at Al-Leith, while about 27.8% due to teeth crowding, 16.7% due to dental curvature and 19.45 for other reasons. Several side effects of orthodontic treatment were pain (33.3%), discomfort (38.9%), gingivitis (13.9%), dental caries (5.6%) and effect on nutrition (8.3%) as shown in table 5.

**Table 1. The prevalence of orthodontic treatment use among university students in Al-Leith, Saudi Arabia**

<i>Usage of orthodontic treatment</i>	<i>n</i>	<i>%</i>
Use	36	10.1%
Do not use	322	89.9%
Total	358	100%

**Table 2. Types of orthodontic treatment use among university students in Al-Leith, Saudi Arabia**

<i>Type</i>	<i>n</i>	<i>%</i>
Fixed braces	33	91.7%
Removable braces	3	8.3
Total	36	100%

**Table 3. Time duration of orthodontic treatment use among university students in Al-Leith, Saudi Arabia**

<i>Duration</i>	<i>n</i>	<i>%</i>
6 months	6	16.7%
12 months	3	8.3%
18 months	10	27.8%
24 months	9	25%
30 months	2	5.5
36 months	6	16.7%
Total	36	100%

**Table 4. Reasons for orthodontic treatment use among university students in Al-Leith, Saudi Arabia**

<i>Reason</i>	<i>n</i>	<i>%</i>
Dental bulge	13	36.1%
Teeth crowding	10	27.8%
Dental curvature	6	16.7%
Other	7	19.4%
Total	36	100%

**Table 5. Side effects of orthodontic treatment use among university students in Al-Leith, Saudi Arabia**

<i>Side effect</i>	<i>No.</i>	<i>%</i>
Pain	12	33.3%
Discomfort	14	38.9%
Gingivitis	5	13.9%
Dental caries	2	5.6%
Effect on nutrition	3	8.3%
Total	36	100%

## **DISCUSSION**

Dental health is very important specially for younger people. Many diseases and disorders affect the health of mouth and teeth, some are minor problem and others are serious. Some behaviors and habits lead to avoidance of several dental disorders such as brushing teeth and eating a balanced diet. Other dental problems are complicated and need long-lasting treatment such as occlusion of teeth. In this study we were going to study the usage of orthodontic treatment as a phenomenon among youth in Saudi Arabia particularly university students. Although many studies were conducted in this field, but further factors and information related to orthodontic treatment are needed.

In the present study the prevalence of orthodontic treatment use among university students was 10.1% most of braces used are fixed ones. Most of studies carried out in Saudi Arabia measured the prevalence of orthodontic treatment need but did not measure the actual percentage of those who were use braces. For example, in a study on orthodontic treatment need among young Saudis attending public versus private dental practices in Riyadh, seventy-seven percent of orthodontically treated patients at KSU clinics needed treatment, compared with 58.5% of patients treated at private clinics (Asma et al, 2016). Also, in a study implemented in the western region of Saudi Arabia, revealed that among the 743 patients studied, 60.6% expressed no or slight need for treatment (Ali, 2006).

Orthodontic treatment may require long duration, and the compliance of orthodontic patients for the successful treatment outcome is mostly needed (Essamet, Ismail, 2017). Our study found the most frequent time duration of orthodontic treatment was 18 months.

In this study, reasons behind seeking orthodontic treatment were dental bulge, teeth crowding, dental curvature. While Ahmed (2013) in his study in Qassim region, Saudi Arabia concluded that patients seek orthodontic treatment mainly to enhance facial esthetics, self-confidence and social acceptability. Malocclusion is the top reason of orthodontic treatment (Asma et al, 2016).

Despite the orthodontic treatment has important benefit, most of users complain adverse effects. This issue was clear in this study as several side effects of orthodontic treatment among the students were reported i.e. pain, discomfort, gingivitis, dental caries and effect on nutrition. In comparison with data from Saudi Arabia reported by Nabeel (2011), orthodontic treatment is associated with several adverse effects, such as root resorption, pain, pulpal changes, periodontal disease, and temporomandibular dysfunction (TMD).

Samah et al, (2014) has been mentioned in a study in Saudi Arabia, that the most commonly reported adverse effects of orthodontic treatment can be both local and systemic. This includes, tooth discolorations, decalcification, root resorption, periodontal complications, psychological disturbances, gastrointestinal complications, allergic reactions, infective endocarditis, and chronic fatigue syndrome.

Finally, all the studies on orthodontic treatment in different regions convinced that many benefits of orthodontic treatment will obtained after the required period of treatment such as the obvious physical changes of an improved bite and straighter teeth; it's also a great way to improve a person's overall self-image.

## **CONCLUSION**

As a conclusion, the prevalence of orthodontic treatment use among university students was 10.1%. fixed brace was frequently used by student. The frequent time duration of orthodontic treatment was 18 months. Dental bulge was the most reason behind orthodontic treatment among university students at Al-Leith. The study revealed several side effects of orthodontic

treatment among the students i.e. pain, discomfort, gingivitis, dental caries and effect on nutrition. The study concluded that the proportion of orthodontic treatment was considerably high among university students.

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