Pain Perception Towards Orthodontics Treatment Among Patients In Riyadh Colleges of Dentistry and Pharmacy Dental Clinics

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**Abstract:**

**Objectives:** To find the intensity, duration and location of the pain during orthodontic treatment. Also To find if gender and age interact with the perception of the pain.

**Material and Method:** A 30 patients from Riyadh Colleges seeking orthodontic treatment was participated in this study, 15 male and 15 female. The sample underwent a self-reporting questioner. The first part of the questioner was about the patient’s general information. The second part was mainly about evaluating the pain intensity using VAS in three different durations. T1 immediately after receiving the orthodontic appliance, T2 after four hours from receiving the appliance and if pain killers was used, and T3 after 7 days of bonding. The last part was about the location of the pain concentration (Anterior area, cuspid and bicuspid area or the molar area). The type of function associated with the pain was determined wither with chewing the food by the posterior teeth or cutting the food with the anterior teeth.

**Results:** 56.7% reported negative pain response after immediately applying the fixed appliance. After four hours 70% of the patients stated that they felt pain. 53% of the sample was stated to have pain after seven days of application of the fixed appliance. We found a significant relation (P<0.05) between the patients who suffered from pain after four hours and used pain killers. 30% of the patients stated positive response toward pain and used some type of pain killers to stop the pain. As a result we found that the pain was associated more with cutting the food by the anterior teeth by 66.7%. And the pain location was concentrated in the anterior area by 60%, the bicuspid area was 20% and the molar area was 13%. No significant differences among different gender and age group was detected; (P>0.05)

**Conclusion:** pain intensity in the majority of the sample size gradually raise after 4 hours of applying the orthodontic fixed appliance. Then after 7 days the intensity declined. Age and gender have no significant differences with pain.

**Keywords:** Pain. Orthodontics

**Introduction :**

pain is one of the important factors that cause patient to withdrawal from orthodontic treatment , which is subjective feeling that differ from person to other, and mostly occurs after each session of the treatment [1]. The mechanism that causing pain not fully understood yet but it can occur due to changing in blood flow in periodontal ligament . Many factors have been reported to be associated with pain such as age, gender, pain threshold, the force applied, emotional state, culture and previous pain experience .

Orthodontic must inform the patient before starting the treatment about the side effect like pain and discomfort that can occur during the treatment period and the type of analgesics that can be used to control it[2] .

Many methods can be used to measure the intensity of the pain. It is commonly assessed through the Visual Analogue Scale (VAS),which records the subjective experience of pain. And it has been described by many investigators as being sensitive and reliable and having certain advantages over verbal scales [3-13].

The aim of this study to investigate the intensity , location, duration of pain during different periods of time and to detect if gender and age plays important role in that or not.

**Material and Method:**

Our investigation was done among patients seeking an orthodontic treatment in Riyadh Colleges of dentistry and pharmacy in Olaya campus. 30 patients 15 males and 15 females were participating in this study after filling a consent form they underwent a self-reporting questioner. The patient’s selection criteria were patients who need a fixed appliance in the bonding stage excluding any removable and functional appliances.

The self-reporting questioner was divided into three parts. The first part was about the patient’s general information gender and age. Age was divided in to two groups the first group was less than 20 years old and the other group was 20 years old and above.

The second part was mainly about evaluating the pain intensity using Visual Analogue Scale (VAS) based on a line marked at 10-mm intervals whose ends are anchored and defined with verbal descriptors such as ‘‘extremely likely’’ and ‘‘extremely unlikely.’’

The scale was used in three different durations. T1 immediately after receiving the orthodontic appliance, T2 after four hours from receiving the appliance and if pain killers was used, and T3 after 7 days of bonding.

The last part was about the location of the pain concentration (Anterior area, cuspid and bicuspid area or the molar area). The type of function associated with the pain was determined wither with chewing the food by the posterior teeth or cutting the food with the anterior teeth.

**Statistical analysis:**

Data was analyzed using Statistical Package for Social Sciences (SPSS) Version 18 to determine any significant difference. Non-Parametric test was performed. A calculation was obtained using a confidence interval of 95%, a type I error of 5%.

Pearson chi-square test was used to:

-Determine the relationship between the gender and the pain intensity

-Determine the correlation of the age with pain intensity

**Result:**

30 participants were included in this study 15 female and 15 male. The age group were 60% less than 20 years and the remaining were 20 years and above

**A) Frequency of the pain:**

56.7% reported negative pain response after immediately applying the fixed appliance. While gradually the pain frequency was increase up to 70% in T2 after four hours. And finally after seven days the pain frequency drop down again .(figure1)

(figure1)

**B)Intensity of the pain:**

The intensity of pain immediately after bonding was mainly a mild pain33% . While, after four hours the majority was suffering from moderate pain 37%. Back again the mild pain was more noticed after seven days by 40% . (Table1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | No pain | Mild | Moderate | Sever | Intensive Pain |
| Immediately after bonding | **50%** | **33%** | **13%** | **3%** | **0%** |
| After four hours | **27%** | **10%** | **37%** | **23%** | **3%** |
| After seven days | **40%** | **40%** | **13%** | **6%** | **0%** |

(Table1)

**C) Correlation between the prevalence of pain and the gender:**

58% of the sample that suffered from pain was females .72% of the females suffered from moderate pain after four hours and 75% of them suffered from pain after 7 days of the bonding. Unfortunately this correlation was not statistically significant.

41.5% of males reported that they suffered from pain .58% of the males suffered from mild pain after 7 days of the bonding. No statistically significant were found between the gender. ( Figure 2)

(Figure 2)

**D) Relationship between the age group and the pain:**

There is no significant differences between the age group and the pain on the time of bonding and after 4 hours P>0.05. (Table 2)

While a significant relationship between the age group and the pain after seven days of orthodontic application .As 27% of the age group less than 20 years old reported pain after seven days. While the age group 20 years and above 33% of them felt pain after 7 days.(Figure 3)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Immediately after bonding | | After four hours | | After seven days | |
| **Yes** | **No** | **Yes** | **No** | **Yes** | **No** |
| **< 20 years** | **6** | **12** | **12** | **6** | **8** | **10** |
| **20 years and above** | **7** | **5** | **9** | **3** | **8** | **4** |

(Table 2)

(Figure 3)

**E) The correlation between the pain after four hours and using painkillers:**

30% of the patients stated positive response toward pain and used some type of painkillers to stop the pain and 55% of them were suffering from moderate pain.(Figure4)

No significant relationship were found P>0.05.

(Figure4)

**F) The relationship between the location of the pain and the type of the function**

As a result we found that the pain was associated more with cutting the food by the anterior teeth by 66.7%. And the pain location was concentrated in the anterior area by 60%, the bicuspid area was 20% and the molar area was 13%. (Figure 5)

(Figure 5) (Figure 6)

There is no significant differences between the age group and the type of function that comes with pain.70% of the patients who is less than 20 years old had pain during cutting the food by the anterior teeth. While, 83% of the patients who is 20 years old an above had pain during chewing the food by the posterior teeth.

**Discussion:**

Pain is a complex experience and often accompanies orthodontic appointments. It is considered to be one of the major concern to patients as well as orthodontist[14].

In this study, 56.7% of the patients reported negative pain response after immediately applying the fixed appliance, the remaining who felt pain 33.3% of them suffered from mild pain and 13.3 % suffered from moderate pain. However, Kvam et al. (1987)[15] reported that 95% of all patients experienced pain from orthodontic appliances quickly after insertion of appliances.

After four hours from applying the fixed appliance 70% of the patients stated that they felt pain. The outcome of this study agrees with the results of others[16]. Scheurer A et al concluded that most of the patient they felt pain after applying fixed appiances.

In our study, 36.7% of the sample suffered a moderate pain while a 23% of them suffered from sever pain. While asking about using pain killers after four hours, 70% of the patients didn’t use any type of pain killers.

In this study, 30% of the patients who suffered from pain after four hours and used pain killers reported positive response toward pain and 55% of them were suffering from moderate pain. This significant correlation with agreement with Scheurer et al.(1996)[16] in contrast to Feinmann et al .(1987) [17],who found no correlation between pain experience and medication consumption

Scheurer A et al (1996) [16] reported 25% of the patients after 7 days had felt pain as a result of the appliances, though with a low intensity score. Which is in agreement to our finding 53% of the sample was stated to have pain after seven days of application of the fixed appliance. 40% of them suffered from mild pain and 13% suffered from moderate pain.

60% pain location was concentrated in the anterior area, the bicuspid area was 20% and the molar area was 13%. Another study stated the same result. Aslihan M.et al (2004)[2] showed also that the pain perceived at the anterior teeth was greater than at the posterior teeth .

In this study, gender differences were not detected regarding attitude toward orthodontic treatment. This was consistent with the finding of other study who reported that gender is not correlated with a subject’s attitude and cooperation during orthodontic treatment[18]. However, Feinmann et al .(1987) reported that gender correlates with the general attitude toward orthodontic treatment[17].

**Conclusion:**

We conclude that the The perception of pain and discomfort among orthodontic patients was high. pain intensity gradually raised after 4 hours of applying the orthodontic fixed appliance. Then after 7 days the intensity declined , Also in this study we found that pain perception toward orthodontic treatment was not affected by gender and age group.

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