

## **Correlation between Pain Perception and Attitude towards Orthodontic Treatment in individuals undergone Fixed Orthodontic Therapy.**

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### **ABSTRACT**

**Introduction:** Pain perception and Attitude of individuals undergone orthodontic treatment of subjects were correlated. Approximately, 90% to 95% of patients undergoing orthodontic treatment experience pain during the whole procedure. The aim of the study was to investigate the relationship between pain perception and attitude towards orthodontic treatment.

**Material and method:** Total of 200 subjects were selected for the study from the age group of 16-29 years of age, they were divided into two groups according to gender that is 100 male and 100 females subjects.

**Result:** There was a statistically significant difference ( $P = 0.003$ ) in the attitude and pain experienced by the patients. A two-sample t-test revealed, there was no statistically significant difference in pain perception of males and females group ( $P = 0.23$ ).

**Conclusion:** Gender had no effect on the pain perception or attitude of the patients undergone treatment. A more positive attitude was found in patients who experienced less pain during orthodontic treatment.

**Keywords:** Pain Perception, Attitude, Questionnaire.

### **Introduction**

The success of orthodontic treatment largely depends on the knowledge and skills of the orthodontist and the mutual support of the patient. Additionally, the main factors that influence the outcome of treatment include patient cooperation in keeping regular appointments, compliance with wearing elastic bands, headgear, or removable appliances, and the possibility of damaging the archwire. These include avoiding certain hard foods, removing bonded brackets or ligature ties and maintaining proper patient oral hygiene.<sup>1</sup> Negligence on the part of the patient in following the above instructions can slow down the treatment, increase the time the patient spends in the chair, increase the number of appointments with the specialist and increase the anger of the specialist and the patient. It may jeopardize treatment plan.<sup>2</sup> Patient age and gender showed an association with patient's overall attitude toward orthodontic treatment. Men were less accepting, less motivated and less satisfied than women. Discomfort and pain are common symptoms during orthodontic treatment. Approximately 90% to 95% of orthodontic patients

report experiencing pain during orthodontic treatment.<sup>3</sup> The main cause of pain during treatment is force-induced tooth movement. Pain also depends on the patient's motivation for treatment, the patient's gender, and personality. Pain and discomfort can be a major hindrance to orthodontic treatment. The purpose of this study was to investigate the relationship between pain perception and attitudes toward orthodontic treatment<sup>4</sup>.

## **Material and Method**

Total of 200 subjects were selected for the study from the age group of 16-29 years of age, they were divided into two groups according to gender that is 100 male and 100 female subjects.

Inclusion criteria:

- patients should have undergone orthodontic treatment,
- patients should not have any systemic diseases.
- No history of trauma/surgery in the dentofacial region and the
- Patients should not be under medication that would influence pain perception (opioids, morphine, anticonvulsant, antidepressants etc.).

Two questionnaires were provided to all the subjects after the treatment was completed and asked to answer the questions by giving a score between 1 and 5.

In questionnaire one (figure 1), which was related to pain experienced, subjects needed to score for both A and B subdivisions individually, the lowest score indicated less pain experienced while highest scores indicated more pain experienced.

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NAME \_\_\_\_\_  
 GENDER: Male/ Female \_\_\_\_\_  
 PAIN \_\_\_\_\_  
 Instructions:  
 1. Give the scoring between 1-5 scale  
 2. For A and B subdivisions, give the individual scoring  
 3. The lowest score indicate less pain experienced from orthodontic treatment and the highest score indicates more pain experienced.

- Was impression taking painful?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---
- Was placement of separators between teeth painful?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---
- Was placement of bands between posterior teeth painful?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---
- Was bonding of brackets painful?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---
- Was placement of arch wires painful?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---
- Was wearing of orthodontic elastics painful?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---
- Did debonding of brackets cause pain?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---
- Did wearing of retainers cause pain?  
 AT THAT TIME 

1	2	3	4	5
---	---	---	---	---

  
 AFTER 48 HOURS 

1	2	3	4	5
---	---	---	---	---

figure 1: Questionnaire about Pain Experienced

In questionnaire Two (figure 2), which was related to attitude towards orthodontic treatment, the lowest score indicated a more positive while the highest score indicated more negative attitude towards orthodontic treatment.

**Attitude**

- Give scoring between 1-5
- The lowest score indicates extremely unlikely and the highest score indicates extremely likely

- Was the orthodontic treatment uncomfortable?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely
- Was change in the food habits necessary?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely
- Was maintenance of the oral hygiene difficult during orthodontic treatment?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely
- Was wearing of braces embarrassing?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely
- Was visiting of orthodontist after debonding necessary?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely
- Was wearing of elastics during orthodontic treatment have any use?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely
- Was orthodontic treatment unsatisfactory?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely
- Would you deny someone considering getting orthodontic treatment?  
 extremely unlikely 

1	2	3	4	5
---	---	---	---	---

 extremely likely

figure 2: Questionnaire Related to Attitude of Patient undergone Orthodontic treatment.

**Result**

Each group consisted of 100 males and 100 females of the age group of 16-29 years, with a mean age of  $22.7 \pm 1.2$

The mean pain perception was  $3.24 \pm 0.56$  for males and  $3.86 \pm 0.72$  for females (Table 1). A two-sample t-test revealed, there was no statistically significant difference in pain perception of males and females ( $P = 0.23$ ). Thus, there was no effect of gender on pain perception.

Table 1: Comparison of pain perception between males and females

	Mean	Std. Deviation	P Value
Males	3.24	0.56	0.231
Females	3.86	0.72	

The mean attitude was  $2.57 \pm 0.89$  for males and  $3.70 \pm 0.76$  for females (Table 2). A two-sample t-test revealed there was no significant difference in the attitude of males and females ( $P = 0.49$ ), suggesting that there was no effect of gender on an attitude of the patient.

Table 2: Comparison of attitude between males and females

	Mean	Std. Deviation	P Value
Males	2.75	0.89	0.492
Females	3.70	0.76	

The comparison of pain perception and attitude of the Male and Female groups indicated that there was a statistically significant difference ( $P = 0.003$ , males &  $0.002$ , females) that is, the attitude of the patients had an effect on pain perception. (Table 3)

Table 3: The comparison of pain perception and attitude of the Male and Female groups

	Mean (Pain vs Attitude)	Std. Deviation	P Value
Males	2.16	0.89	0.003
Females	3.70	0.78	0.002

**Discussion**

Patients' participation and motivation are essential components of the correct management of individuals receiving orthodontic treatment, and these factors can also be influenced by the patient's attitude toward the procedure and level of discomfort.<sup>5</sup> For achieving better outcomes of the treatment, patient compliance towards the treatment should be well understood. Understanding the connection between a patient's perception of pain and

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attitude toward treatment might assist to increase patient satisfaction in this day and age, when the patient is given priority while making decisions and planning their course of care.<sup>6</sup> The results of the present study have shown that a positive attitude towards orthodontic treatment had a positive effect on pain perception and patients showed less pain and discomfort (Table 3).

Zhang et al.<sup>7</sup> also obtained similar results employing a model based on questionnaires, Firestone et al.<sup>8</sup> studies the pain perception in orthodontically treated and untreated patients and found that both the groups experienced pain in the same way. Almost similar findings were quoted by Abu Alhaija et al.<sup>9</sup> To carry out the treatment successfully compliance of the patient and a positive attitude of the patient is needed.

Many studies have shown better attitude in treated patients than in untreated patients with greater internal control, dental awareness, and improvement in self-image than those who had not previously been treated.<sup>10</sup>

In the present study, gender did not have any effect on pain perception (Table 1). In accordance to the study by Ngan et al.<sup>11</sup> the pain perception did not show any gender variation over a period of 7 days into the treatment after the placement of archwires. Some studies described that females perceived pain more than males during the treatment.<sup>12</sup> According to a trial conducted by Abu Alhaija et al.<sup>9</sup> sex of the patient was considered as the only factor that affected the perception of pain in them. The findings of the current study may differ from those of the previously published studies because of the patients' socioeconomic position, different race, and different sample size.<sup>13</sup>

According to different studies carried out by many authors suggested that females had a more positive attitude toward orthodontic treatment than their male counterparts. In the present study, there was no effect of gender on the attitude of the patient toward orthodontic treatment (Table 2). Findings the same as that of the current study were depicted by Bos et al.<sup>14</sup> where the sex of the subjects did not show any effect on the attitude of the patient towards orthodontic treatment. A significant correlation was recorded among the perception of the pain and the attitude of the subjects undergone orthodontic treatment in the present study. Similarly, a study by Serogl et al.<sup>15</sup> showed a poor attitude with increased pain perception. One of the biggest deterrents to pursuing orthodontic treatment and one of the main reasons not to pursue orthodontic treatment was pain.<sup>16</sup>

This study shows that patients' beliefs toward orthodontic treatment have an impact on how painful they perceive it to be.<sup>17</sup> Knowing the attitude of the patient before commencing, during, and after the treatment may be beneficial for the patient and for the orthodontist.<sup>18</sup> Prior to, during, and after therapy, it is advised that the patient's psychological evaluation be given the attention it deserves in order to maximize compliance and raise patient satisfaction.<sup>19</sup>

## **Conclusion**

Patients' perceptions of pain and attitudes may differ depending on the expertise and experience of the operator. The patient's experience of pain or attitude toward the therapy were unaffected by their sexual orientation. A more positive attitude was found in patients who experienced less pain during orthodontic treatment.

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