

Comparison of Relationship between Pain Perception and Attitude towards Orthodontic Treatment in Population Undergoing Fixed Orthodontic Treatment in North India

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ABSTRACT

Introduction: Gender and age of subjects were correlated with the general attitude toward orthodontic treatment. 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 100 subjects were selected for the study from the age group of 21-25 years of age, they were divided into two groups according to gender that is 50 male and 50 females subjects, further divided into subgroups consisting 25 treated and 25 untreated.

Result: There was a statistically significant difference ($P = 0.003$) in the attitude of untreated and treated groups. A two-sample t-test revealed, there was no statistically significant difference in pain perception of males and females in the untreated group ($P = 0.64$) and treated group ($P = 0.23$).

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

Keywords: Pain Perception, Attitude towards orthodontic Treatment, Questionnaire.

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Introduction

A successful orthodontic treatment is largely dependent on the knowledge and skills of the orthodontist and the mutual aid of patients.

The key factors that also aid in the outcome of the treatment include patients cooperation in keeping the appointments regular, compliance

in wearing elastics, headgear or removable appliances, not eating any hard food that could damage the archwires remove bonded brackets and a proper oral hygiene is to be maintained by the patient.¹

Any carelessness by the patient in following the above instructions might compromise the treatment by slowing its rate, increasing time of the patient on the chair, increasing number of appointments to the consultant and increasing anger of the consultant, patient and parents.²

The age and sex of the patients showed a correlation in the overall attitude of the patient towards orthodontic treatment. Males were less accepting, less willing, and less satisfied than females. Discomfort and pain are common findings during orthodontic treatment. Approximately, 90% to 95% of orthodontic patients are reported to experience pain during the course of orthodontic treatment.³

During the treatment, the main reason for the occurrence of pain is the movement of the teeth caused by the application of forces. Pain is also regulated by how motivated the person is for treatment, the sex of the patient and the nature of the person. Pain and discomfort can be one of the important discouraging factors for orthodontic treatment. Aim of the study was to investigate the relationship between pain perception and attitude towards orthodontic treatment.⁴

Material and Method

Total of 100 subjects was selected for the study from the age group of 21-25 years of age, they

were divided into two groups according to gender that is 50 male and 50 females subjects, further divided into subgroups consisting of 25 treated and 25 untreated. All subjects must fulfil the following inclusive criteria:

- ❖ All patients must be willing to undergo orthodontic treatment.
- ❖ Consent to participate in the study must be duly signed by both patients and parents
- ❖ Absence of systemic diseases
- ❖ No previous history of any orthodontic treatment.
- ❖ No history of trauma or surgery in the dentofacial region
- ❖ Absence of any other oral habits like finger sucking, lip sucking, etc at the time of selection

Two questionnaires were provided to all the subjects during the treatment and after the treatment was completed and asked to answer the questions by giving a score between 1 and 10.

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

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.

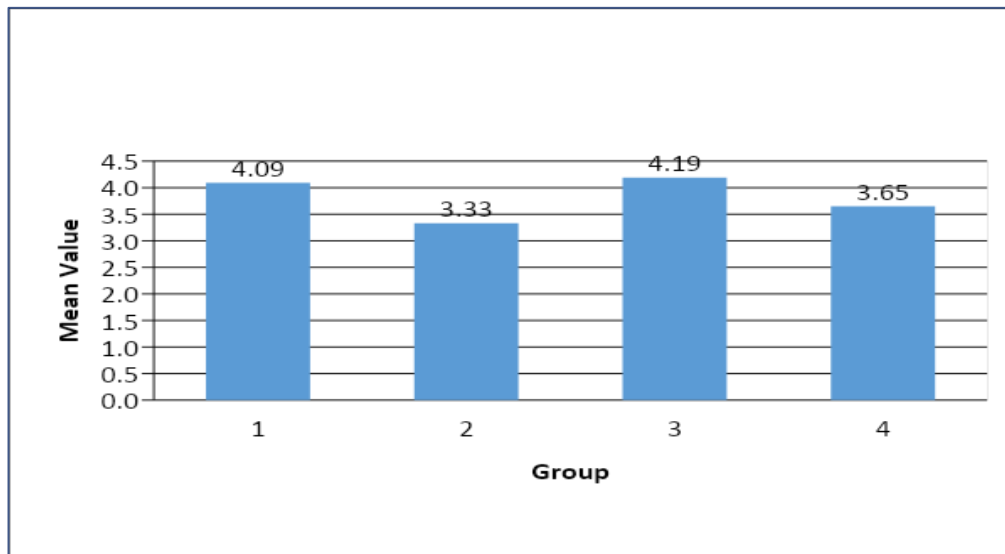
Result

Each group consisted of 25 males and 25 females of the age group of 21-25 years. The data suggest that both the groups were well matched for age and gender with a mean age of 22.7 ± 1.4 in the untreated group and 23.07 ± 1.3 in the treated group (Table1). The mean pain perception for Group 1 (untreated group) was 4.09 ± 0.89 and similarly for Group 2 (treated group) was 3.33 ± 0.53 . The

comparison of pain perception of the untreated and treated group indicated that there was a difference between the two groups, that is, orthodontic treatment had an effect on pain perception ($P < 0.001$). The mean attitude for the untreated group was 4.19 ± 0.97 and 3.65 ± 0.78 for the treated group. There was a statistically significant difference ($P = 0.003$) in the attitude of untreated and treated groups (Graph1).

Groups		N	MEAN	Std. Deviation	Std. Error Mean	Mean Difference	P Value
Pain Preception Mean	Untreated	50	4.09	0.89	0.125	0.76	<0.001*
	Treated	50	3.33	0.53	0.076		
Attitude Mean	Untreated	50	4.19	0.97	0.138	0.54	0.003*
	Treated	50	3.65	0.78	0.111		

Table1: Showing the Result of Independent t-test



Graph1: Showing the Result of Independent t-test

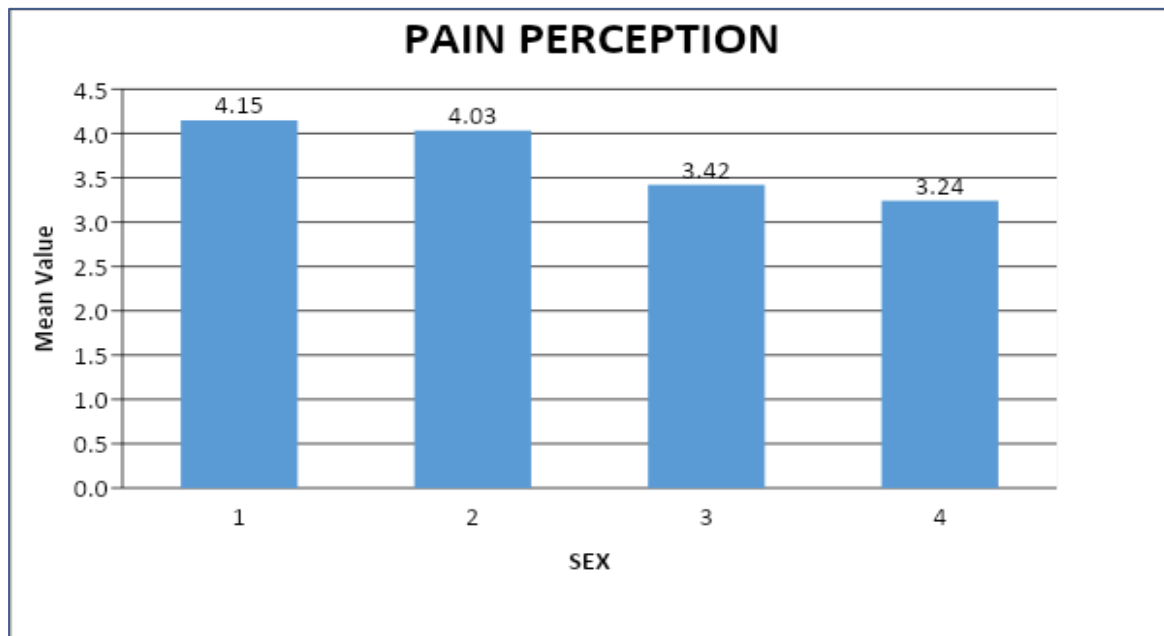
The mean pain perception of the males in the untreated group was 4.15 ± 0.92 and 4.03 ± 0.87 for females and in the treated group it was 3.42 ± 0.56 for males and 3.24 ± 0.21 for females (Table 2). A two-sample t-test

revealed, there was no statistically significant difference in pain perception of males and females in the untreated group ($P = 0.64$) and treated group ($P = 0.23$). Thus, there was no effect of gender on pain perception (Graph 2).

Sex		N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	P-Value
Untreated	Male	25	4.15	0.92	0.184	0.12	0.644
	Female	25	4.03	0.87	0.174		
Treated	Male	25	3.42	0.56	0.111	0.18	0.231
	Female	25	3.24	0.51	0.101		

Where* shows statistically significant

Table 2: Showing the Result of Pain Perception towards the Orthodontic Treatment



Graph2: Showing the Result of Pain Perception towards the Orthodontic Treatment

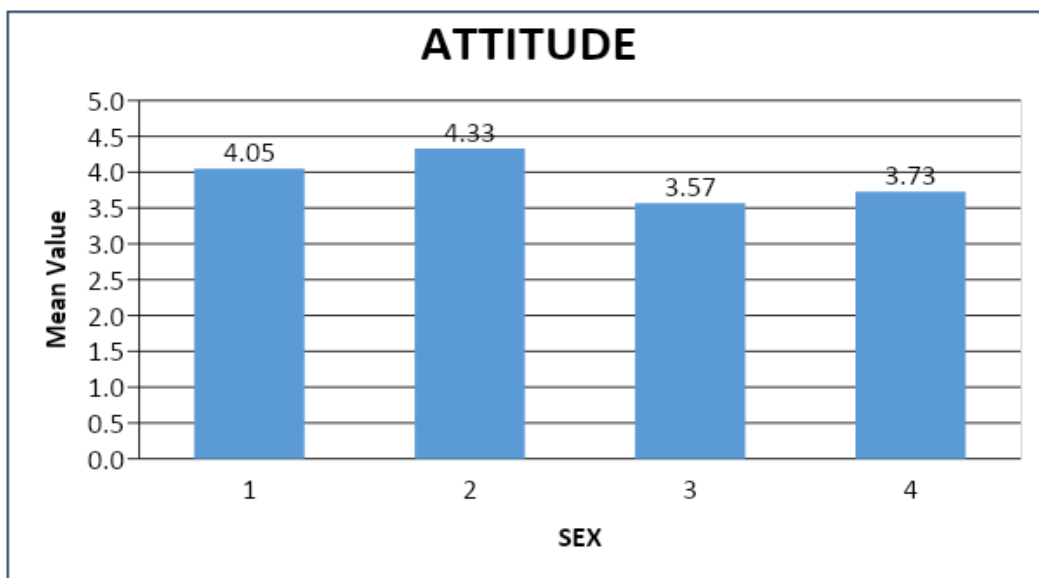
The mean attitude of males in the untreated group was 4.05 ± 1.03 and 4.33 ± 0.91 for females and in the treated group, it was 3.57 ± 0.82 for males and 3.73 ± 0.76 for females (Table 3). A two-sample t-test revealed there

was no significant difference in the attitude of males and females in the untreated group ($P = 0.31$) and in the treated group ($P = 0.49$), suggesting that there was no effect of gender on an attitude of the patient. (Graph3).

Sex		N	Mean	Std. Deviation	Std. Error Mean	Mean Difference	P- Value
Untreated	Male	25	4.05	1.03	0.206	-0.28	0.314
	Female	25	4.33	0.91	0.183		
Treated	Male	25	3.57	0.82	0.163	-0.15	0.492
	Female	25	3.73	0.76	0.152		

Where* shows statistically significant

Table3: Showing the Result of Attitude towards the Orthodontic Treatment



Graph3: Showing the Result of Attitude towards the Orthodontic Treatment

Discussion

The proper management of the persons undergoing orthodontic treatment includes the patient’s motivation and cooperation, which may further get affected by their attitude towards the treatment and perception of pain.⁵ For achieving better outcomes of the treatment, patient compliance towards the treatment should be well understood. Today, when the patient has paramount importance in decision making and treatment planning, knowing the relationship between pain

perception and his/her attitude toward treatment should help to improve patient satisfaction.⁶ The results of the present study have shown that the treatment had a positive effect on pain perception and treated patients showed less pain and discomfort, and a positive attitude towards orthodontic treatment (Table 1). Using a questionnaire-based model, Zhang et al.⁷ also obtained similar results.

Firestone et al.⁸ in contrast to the current study concluded that the perception of pain was the

same in both the treated and the untreated groups. Almost similar findings were quoted by Abu Alhaija et al.⁹ To carry out the treatment successfully compliance of the patient and a positive attitude of the patient is needed. In the present study, there was a statistically significant difference ($P = 0.03$) in the attitude of treated and untreated patients (Table 1). 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.¹⁰

In the present study, gender did not have any effect on pain perception (Table 2). Similarly, in a study by Ngan et al.¹¹ the pain perception did not show any gender variation over a period of 7 days into the treatment after the placement of archwires. Similar results were also shown by Jones and Chan¹² and Erdiñç and Dinçer¹³ in their studies.

Literature from the past described that females perceived pain more than males during the treatment.¹⁴ According to a trial conducted by Abu Alhaija et al.⁹ sex of the patient was considered as the only factor that affected the perception of pain in them. The possible reason for the variation of results of the present study from the aforementioned published studies could be due to the different races, different size of the sample taken and socioeconomic status of the patients.¹⁵

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 in treated and untreated groups (Table 3). Findings the same as that of the current study were depicted by Bos et al.¹⁶ where the sex of the subjects did not show any effect on the attitude of the patient towards orthodontic treatment. A very strong correlation was seen among the perception of the pain and the attitude of the subjects towards the treatment in the present study. Similarly, a study by Sergl et al.¹⁷ showed a poor attitude with increased pain perception. The Pain was one of the most important discouraging factors for taking up orthodontic treatment and most important negative motives for taking up orthodontic treatment.¹⁸

The present study indicates that patients' attitudes affect pain perception toward orthodontic treatment.¹⁹ Knowing the attitude of the patient before commencing, during, and after the treatment may be beneficial for the patient and for the orthodontist.²⁰

It is recommended that psychological assessment of the patient should be given due importance pre-treatment, during treatment and post-treatment to elicit maximum compliance of the patient and improve patient satisfaction.²¹

Conclusion

Lack of awareness towards the orthodontic treatment was noticed in the untreated patients. Pain perception and attitude of treated patients may vary by operator's skills and practice. The Sex of the patient did not have any effect on the perception of pain or attitude of the patient towards the treatment. A more positive attitude was found in patients who experienced less pain during orthodontic treatment.

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