ASSOCIATION BETWEEN PATIENTS AGE, GENDER, LEVEL OF COOPERATION AND COMPLIANCE WITH ORTHODONTIC BRACKETS FAILURE

Ghulam Rasool[1], Tahmeena Naz[1], Ahsan Mehmood Shah[1], Inamullah Jan Khattak[2], Farhad Ali[3], Iraj Mushtaq[1]

[1]Department of Orthodontics, Khyber College of Dentistry, Peshawar.

[2]Department of Operative Dentistry, Shifa College of Dentistry, Islamabad.

[3]Research Cell, Khyber College of Dentistry, Peshawar.

ABSTRACT

Objective: *To determine association between patients age, gender, motivation for orthodontic treatment, level of cooperation and compliance with orthodontic bracket failure.*

Materials and Methods: *About 100 patients of age 14 to 40 years who were fulfilling the inclusion criteria were selected by lottery method at Khyber college of dentistry and were studied for 6 months(from February 2018 to August 2018). It was a cross sectional study. Sampling was done by non-probability consecutive sampling technique. Data was analyzed by spss 22. P value ≤0.05 was considered as significant.*

Results: *Our result showed that the difference among gender in brackets debonding was significant in first three months (p value = 0.01) and was in significant in the next three months(P value=0.44, 0.21, 0.70) in 4th, 5th and 6th month respectively. Level of compliance showed siginificant results .no of brackets debonded after one month (31.48)having p value (0.00). The results for motivation for orthodontic treatment was significant ,no of brackets debonded after one month (109.442) having p value (0.01) and level of cooperation were also siginificant. No of brackets debonded after one month (129.47) having p value (0.01) .Differnt age groups showed that adult patients results in less number of brackets debonding.*

Conclusion: *Patients of different age, gender and level of cooperation show different bracket failure rate. Adult patients with their own motivation and high compliance showed less brackets deboning. Similarly female patients showed less deboning.*

Keywords: *Motivation of orthodontic patients, bracket failure, level of cooperation orthodontic treatment*

INTRODUCTION

All orthodontic advances center on enhancing the orthodontic treatment. To increase such effectiveness, representing conventions for completing treatment in less time, yet additionally accomplishing the most ideal results have guided ongoing clinical inquires about. Other than the treatment span, supplanting sections requires seat time and presents significant expense, since it isn't constantly conceivable to supplant a similar section.[1] This section disappointment may happen due to a few components, from occlusal injury to wrong holding methods. Quiet inspiration for orthodontic treatment emerges as a significant factor, particularly when thinking about time and even nature of the outcomes. At the point when the orthodontist can't get the patients to cling to treatment, they become less concerned and don't appropriately adhere to the directions for appliance use and care, expanding the frequency of apparatus breakage along these lines trading off the

Correspondence:
Dr. Ahsan Mehmood Shah
Department of Orthodontics, Khyber College of Dentistry, Peshawar
Email: ahsanmshah@gmail.com
Contact: +923339117622

treatment results.[1-5]

Patients that are less dedicated to treatment and present higher section disappointment rate could have longer treatment length, a circumstance that influences quiet personal satisfaction, considering money related and fulfillment angles.[2-4] Patient motivation is an important factor for orthodontic treatment success, and it is directly related with patient cooperation regarding care and oral hygiene instructions provided by the orthodontist. Bracket failure is a common factor in delaying orthodontic treatment.[3-5]

Bracket failure is also affected by other factors like tooth type, bracket type, and design, adhesive type and occlusal forces.[2-3] It's a standard clinical practice to bond brackets to etched teeth utilizing concoction or light-restoring adhesive frameworks. The high starting bond quality, the insignificant degree of oxygen hindrance also, the all-inclusive working time for ideal bracket system have added to the ubiquity of light curing adhesives.[3]

Bracket failure not only prolongs treatment time but it also requires an extra chaired side time and cost.[4] Patient cooperation is crucial for the quality of the treatment outcomes. When the orthodontist failed to get the patients concern and motivation for the treatment, they become careless and don't follow the instructions which compromises the treatment.[5-8]

Parents motivation also plays a good role but when patients themselves are motivated then the whole treatment goes in a good environment and this motivation varies in patients of different ages.[9] Reaserchers are now working on finding ways for shorter duration of tretments.[10-12]

The purpose of this study was to compare the bracket failure rates of orthodontic patients who were compliant or non-compliant and who were self-motivated versus external motivated over a 6-month period. Another aim was to investigate age factors contributing to bracket failure.

MATERIALS AND METHODS

The sample included 100 patients from 12 to 40 years old, 53 female and 47 male, during active phase of fixed orthodontic treatment with metallic brackets, from the orthodontics department Khyber college of dentistry, from February 2018 to August 2018. A standardized bonding technique was applied for all patients, which could minimize a potential source of bias. The Inclusion criteria was having age of 14 to 40 taking orthodontic treatment at orthodontic department Khyber College of dentistry. Skeletal class I,class II, and class III. Dental class II, and class III. Midline diastema patients. Generalized spacing patients while exclusion criteria was Patients presenting some cognition problem Syndromic patients Patients less than 14 years and more than 40 years

After ethical approval the principal investigator explained to the patients how to complete the questionnaire correctly

And that the information would be confidential. The patients who agreed to participate in the research signed an informed consent form.. The wide range of patient's age aimed at evaluating the influence of age on bracket failure. Based on that, the patients were divided regarding age, and two groups were considered: (14 to 20 years old) , (21 to 26 years old) nd (27 to 40). A questionnaire composed by five questions was applied by the same researcher without any interference for each patient as follows

1. Age: 2. gender: a) Male b) Female 3. Motivation for orthodontic treatment: a) By your own initiative; b) Referred by another dentist; c) Because of a friend or relative

4. When you started treatment, did you receive any information about your diet in order to prevent brackets failure(level of cooperation) a) yes; b) no; c) I don't know 5. Compliance on (VAS) scale

Another parameter assessed was the phase of orthodontic treatment (in months) of the patient at the moment of assessment relative to the initial date of the corrective treatment. The patients were also instructed to report their compliance with treatment, which was assessed by means of the visual analog scale (VAS). This scale was defined as a 10-mm line, where zero at the leftmost end indicated the less compliance level, and the opposite end, on the right, indicated the highest possible compliance. The patients were instructed to mark a vertical stripe between the left and right ends of the line to indicate their scores of compliance. The overall bracket failure rate of the whole sample was assessed. These data regarding bracket failure rate was associated

With patients' age, gender, reported level of compliance, and the patient motivation to seek treatment.

The data was entered in spss 22 and was analyzed. Gender . level of cooperation and the number of bracket failure were numeric variable. Age and compliance were categorical variables. Tests applied were one way ANOVA and paired sample-t test. P value ≤0.05 was considered significant.

RESULTS

Out of total, difference among gender in brackets debonding was significant in first three months (p value = 0.00) and was in significant in the next three months (P value=0.44, 0.21, 0.70) in 4th, 5th and 6th month respectively. Level of compliance showed significant results (p value=0.00). And the results for motivation for orthodontic treatment and level of cooperation were also significant. Different age groups showed that adult patients results in less number of brackets debonding.

DISCUSSION

Orthodontic treatment achievement, and it is straightforwardly connected with tolerant participation in regards to mind and cleanliness guidelines gave by the orthodontist. An elevated level of inspiration may diminish sections disappointment, a typical issue saw in the orthodontic practice that may causes incredible treatment delays.[13] Robb et al.[14] (1998) reported that treatment duration changes up to 46% are related to bracket failure. Literature showed that an increase of 0.3 to 0.6 times in treatment duration could be attributed to each bracket failure.[8,9]

Inspiration turns into a significant factor for incredible treatment results. This trademark might

Table: 1 Mean Differences of motivation categories in different brackets debonding

	F	P value*
no of bracktsdebonded after one month	109.442	0.001
no of bracktsdebonded after 2nd month	123.576	0.002
no of brackets debonded after 3rd month	58.475	0.003
no of brackets debonded after 4th month	42.598	0.001
no of brackets debonded after 5thmonth	67.431	0.001
no of brackets debonded after 6th month	24.928	0.002

*One way ANOVA

Table: 2 Difference in brackets debonding among gender

	Mean Difference	95% Confidence Interval of the Difference		P value*
		Lower	Upper	
no of brackts debonded after one month	0.54	0.09	0.98	0.01
no of brackts debonded after 2nd month	0.70	0.25	1.15	0.02
no of brackets debonded after 3rd month	0.68	0.21	1.16	0.01
no of brackets debonded after 4th month	0.21	0.33	0.75	0.44
no of brackets debonded after 5thmonth	0.32	0.18	0.84	0.21
no of brackets debonded after 6th month	0.10	0.43	0.64	0.70

*Independent Sample T Test

Table: 3 Level of cooperation and brackts debonding

	F	P value*
no of brackts debonded after one month	129.475	0.02
no of brackts debonded after 2nd month	125.827	0.01
no of brackets debonded after 3rd month	91.447	0.003
no of brackets debonded after 4th month	51.929	0.001
no of brackets debonded after 5thmonth	64.833	0.002
no of brackets debonded after 6th month	38.405	0.003

*One way ANOVA

Table: 4 compliance and bracket failure

	F	P value*
no of bracktsdebonded after one month	31.48	0.002
no of bracktsdebonded after 2nd month	18.33	0.03
no of brackets debonded after 3rd month	13.60	0.01
no of brackets debonded after 4th month	9.63	0.02
no of brackets debonded after 5thmonth	11.31	0.01
no of brackets debonded after 6th month	5.29	0.002
compliance on vas scale	24.21	0.01

• One way ANOVA

be watched even before treatment, when the individual chooses to start treatment. This inspiration might be portrayed as either outside, coming about because of the weight from companions or relatives, or interior, coming about because of a individual want. This definition is significant considering that it is recommended that patients inside roused are progressively agreeable.[8]

Brackets failure are studied by various investigators.[1,2,4,5] A study by Barbosa IV ,et al1 suggested that patient motivation represents an important factor for orthodontic treatment success, and it is directly associated with patient cooperation regarding care and hygiene instructions provided by the orthodontist. A high level of motivation may decrease brackets failure, a common problem observed in the orthodontic practice that may causes great treatment delays. Another study by Sukhia RH and Mahar A suggested that lower arch was the most affected arch of debonding.[5] In our study we also find that lower arch was the most affected arch. In our study we find an association between age, gender, motivation and level of cooperation with bracket failure. And level of compliance had also an association. Adult patients show less brackets failure than younger patients. Among male and female patients the difference was significant in frst 3 months then the difference was non significant in the last 3 months.

Patients with their own motivation for orthodontic treatment showed less brackets debonding. The level of cooperation also showed a significant association with brackets debonding. Compliance showed significant results. In view of the data above, distinguishing patients who should be increasingly propelled along the treatment is a task experts ought not disregard. Going through a few time urging and rousing patients to increment their degree of participation with treatment is as significant as a decent treatment plan and execution.

CONCLUSION

Patients of different age, gender , level of cooperation showed different bracket failure. Adult patients with their own motivation and high compliance

showed less brackets debonding. Similarly female patients showed less debonding.

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