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Research Article

**ANALYSIS OF ORTHODONTIC TREATMENT BY PAR  
INDEX IN PAKISTAN**<sup>1</sup>Dr Zarish Anjum, <sup>1</sup>Dr Hurera Pervez, <sup>1</sup>Dr Ayesha Naveed<sup>1</sup>Demontmorency College of Dentistry, Lahore

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**Abstract:**

**Introduction:** Quantitative evaluation of Orthodontic diagnosis is considered to be a difficult task due to its subjective nature. On the contrary, several indices have been presented for quantitative assessment of severity of malocclusion and evaluation of treatment need. **Aims and objectives:** The main objective of the study is to analyze the orthodontic treatment by PAR index in Pakistan. **Material and methods:** This cross sectional study was conducted in Demontmorency College of Dentistry, Lahore during October 2018 to February 2019. The data was collected from 100 orthodontics patients of both genders. All the data was collected before and after treatment. The total PAR scores were measured. Information regarding patients' age, gender, angle's malocclusion, duration of active treatment, extraction or non-extraction was collected from their files. **Results:** The data was collected from 100 patients. The mean age was  $35.67 \pm 5.46$  years. There was 100 % correction in upper and lower anterior segment followed by more than 85% correction in lower left, upper left, upper right, and right buccal segments respectively. Overbite was the only variable that ended up with less than 50 % correction. **Conclusion:** It is concluded that a significant positive correlation exists between pretreatment PAR score and point reduction.

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**INTRODUCTION:**

Quantitative evaluation of Orthodontic diagnosis is considered to be a difficult task due to its subjective nature. On the contrary, several indices have been presented for quantitative assessment of severity of malocclusion and evaluation of treatment need. These indices provide valid and reproducible system of measurement. The Peer Assessment Rating (PAR) index was introduced by Richmond in 1990 to assess the severity of malocclusion [1]. It provides a cumulative score for occlusal disharmonies and identifies a deviation between normal occlusion and malocclusion. It has been weighted according to the judgment of orthodontists and general dentists [2]. The malocclusion is quantified based on five criteria of variable weightings: upper and lower anterior segment alignment (x1), left and right buccal occlusion (x1), overjet (x6), overbite (x2), and centerline (x4). Pretreatment and post treatment study casts are used for and comparison. This comparison is used to judge treatment efficacy in correction of malocclusion. Reduction in the total score and percentage reduction are used to measure changes in PAR index [3].

It is unrealistic to expect all malocclusions to be treated to an ideal occlusion. The outcome of treatment is often dependent on many factors, e.g. complexity of the case and the expertise of the practitioner. It is, however, important to establish whether a worthwhile improvement has been achieved for an individual case and the proportion of cases that show improvement. The PAR index is primarily designed to look at the results of a group of patients, rather than an individual patient, as there are always a small number of patients where the index does not fully represent the result obtained [4]. The index is, however, generally accepted by the

British Orthodontic Society as a useful tool in this area. For its use to be accurate and reproducible, any individual providing a PAR scoring service must have first successfully passed an appropriate calibration test and have documentary evidence of this [5]. Unless an individual is calibrated on the use of the index, the results they produce will not be valid or reproducible and should not be used to assess the standard of someone else's treatment [6].

**Aims and objectives**

The main objective of the study is to analyze the orthodontic treatment by PAR index in Pakistan.

**MATERIAL AND METHODS:**

This cross sectional study was conducted in Demontmorency College of Dentistry, Lahore during October 2018 to February 2019. The data was collected from 100 orthodontics patients of both genders. All the data was collected before and after treatment. The total PAR scores were measured. Information regarding patients' age, gender, angle's malocclusion, duration of active treatment, extraction or non-extraction was collected from their files.

All the data was collected and analyzed using SPSS version 20.0. All the descriptive statistics were measured in mean and standard deviation values.

**RESULTS:**

The data was collected from 100 patients. The mean age was  $35.67 \pm 5.46$  years. There was 100 % correction in upper and lower anterior segment followed by more than 85% correction in lower left, upper left, upper right, and right buccal segments respectively. Overbite was the only variable that ended up with less than 50 % correction.

**Table 01:** PAR index analysis before and after treatment

	Class I		Class II		Class III	
	T1	T2	T1	T2	T1	T2
Mean	20.1	6	21.1	7	13	4
Max	34	15	36	19	12	4
Minimum	6	4	8	3	0	0

**DISCUSSION:**

We were able to highest percentage PAR reduction (78%) in Class II sub division malocclusion, followed closely by Class II division 1 and Class I malocclusion (77% and 76 % respectively) [6]. Lowest reduction was noted in Class III malocclusion (58%). These results are consistent with the results achieved by Gasgoos. However, the statistical relation between percentage reduction and malocclusions in both studies was insignificant. Treatment of Class II Division 1 group was found to

be most successful by Birkeland *et al* [7]. It was followed closely by Class II Division 2 malocclusion. In contrast to present study, their study design did not include class II sub division as a separate category. Fidler *et al* also found a high percentage reduction and better long term results in Class II malocclusion group [8].

A high standard of treatment may be judged according to the mean percentage reduction in weighted PAR score for an individual practitioner's

case load, for example, greater than 70 percent [9]. For a practitioner to produce high standards and treat those cases who have perhaps a greater need for treatment, the mean percentage reduction for the case load must not only be high (e.g. greater than 70 percent), but the percentage of cases having been 'greatly improved' should also be high [10].

### CONCLUSION:

It is concluded that a significant positive correlation exists between pretreatment PAR score and point reduction.

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