

# COMPLEXITY OF PARTIAL EDENTULISM AMONG PATIENTS SEEN AT ARMED FORCES INSTITUTE OF DENTISTRY, RAWALPINDI

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## ABSTRACT

*The objective of this study was to determine the frequency of different classes of partially dentate patients reporting to Armed Forces Institute of Dentistry Pakistan on the basis of PDI classification. A cross-sectional study was carried out on five hundred thirty four (534) partially dentate patients of age between 35 to 65 years. Data was collected by taking history, clinical and radiographic examination. A Proforma was filled in by the principal investigator and PDI classification of the patient determined. Out of 534 patients, 92 patients (17.2%) were classified in PDI class I. 212 patients (39.7%) were classified in PDI class II. 146 patients (27.3%) were grouped in PDI class III while 84 patients (15.7%) were classified in PDI class IV.*

*Inclusion of PDI classification in everyday practice will be helpful in accurate diagnosis and treatment planning of the patients seeking prosthodontic rehabilitation.*

**Key Words:** Partial edentulism, Prosthodontic diagnostic index.

## INTRODUCTION

Partial or complete edentulism are indicators of oral health of a population.<sup>1</sup> Tooth loss affects speech, function and esthetics.<sup>2</sup> It adversely affects the overall quality of life.<sup>3</sup> Masticatory efficacy is strongly related to remaining number of occluding pairs of teeth.<sup>4</sup>

Much emphasis over tooth preservation has led to an increase in the number of partially dentate patients.<sup>5</sup> Increase in age of these partially dentate patients and oral morphological characteristics greatly add to the complexity of these cases. Therefore, each patient should be managed accordingly in order to ensure adequate function and comfort.<sup>6</sup>

Various classification systems have been devised for partial edentulism.<sup>7</sup> One of the most commonly used is the Kennedy's classification system that has many benefits including immediate visualization, recognition of prosthesis support and assessment of design features of removable partial denture.<sup>8</sup>

The condition of supporting structures, adjacent teeth and the location of the modification spaces are not given due consideration in classifying partial dentate patients in Kennedy's classification system.<sup>9</sup> These limitations have been rectified in the Prosthodontic Diagnostic Index (PDI) which has been postulated by the American College of Prosthodontists (ACP) for categorizing patients on the basis of specific objective criteria and diagnostic findings into four classes (Class I to IV) where class I represents a least compromised clinical condition, class IV being the most difficult and complicated condition having questionable prognosis.<sup>6</sup>

The purpose of this study is to determine frequency of classes of partial edentulism among the patients reporting for oral rehabilitation according to PDI which would thereby ensure accurate treatment planning. This will help patients in receiving the appropriate prosthodontic care (referral to specialists or under/postgraduate treatment) depending upon the level of complexity of the case. No research work has been done yet for classification of partially edentulous patients according to PDI classification in Pakistan.

## METHODOLOGY

A cross-sectional study was carried out on 534 partially dentate patients of age between 35-65 years reporting to department of Prosthodontics, Armed Forces Institute of Dentistry (AFID) Rawalpindi, Pakistan for provision of upper or lower removable par-

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tial dentures. After taking informed consent from the patients, data collection was carried out from January to July 2013 followed by appropriate history, clinical and radiographic examination.

A questionnaire was filled in by the principal investigator containing questions regarding extent and location of edentulous areas, condition of the abutment teeth and occlusion of the remaining teeth, residual ridge status and conditions creating a guarded prognosis to determine the PDI class of each patient. Data was analyzed using SPSS 17.0.

## RESULTS

After evaluating the data sheets of five hundred thirty four patients selected for the study (n=534), the results showed that:

- 1 Mean age was found to be  $50.51 \pm 8.40$  years.
- 2 249 (46.6%) patients were female while 285 (53.4%) patients were male.
- 3 17.2% patients were accorded PDI class I. These patients had ideal or favorable prognosis.
- 4 39.7% patients had physical degradation of the denture-supporting areas and were classified as PDI class II.
- 5 27.3% patients showed the conditions of class III and required preprosthetic surgical intervention.
- 6 15.7% subjects were grouped in class IV. These patients need to be evaluated by a prosthodontist for surgical reconstruction and specialized treatment.

## DISCUSSION

The four PDI classes of partial edentulism were allocated to the patients in this study based on the location and extent of edentulous areas, condition of the abutment teeth and occlusion of the remaining

teeth, residual ridge and conditions creating a guarded prognosis. Out of 534 patients, 92 patients (17.2%) were grouped as PDI class I, 212 patients (39.7%) as PDI class II, 146 patients (27.3%) as PDI Class III and 84 patients (15.7%) as PDI class IV.

A similar study by Polyxeni Chr. Ntala et al was conducted in 2004. In this study 71 partially dentate patients were examined and different classes of PDI were recorded. Only two of these patients presented with a diagnostic criterion with favorable prognosis and were classified into class I having the possibility of being treated successfully with conventional prosthodontic measures. Seventeen patients grouped in class II had significant degradation of the denture basal seat areas. 29 patients presented with the criteria of class III and required preprosthetic as well as surgical intervention. Twenty-three of the participants were classified in class IV, having residual ridge height of 10 mm or less. These patients need to be evaluated by a prosthodontist for specialized management and surgical rehabilitation.<sup>6</sup>

From a clinical point of view, classifying patients according to the preset criteria has many benefits. A more accurate basis and diagnosis for the suitable treatment procedures can be established resulting in the most effective patient care. There can be improved communication between dentists and specialists as they can use the same terminology (Class I-IV). The potential specialty-level fee for patients as well as its reimbursement by third parties can be justified by above indices. It can be used as a screening method in dental schools to allocate the treatment of the patients according to the complexity of the case to the special or intra-mural practice, undergraduate or postgraduate clinics. General dentists are facilitated in referral the patient with a more advanced class to a specialist in routine practice. The occurrence of retreatment can be minimized in this way.<sup>10</sup>

Although this study was conducted in one of the largest dental institutes in Pakistan, targeting serving, retired armed forces personnel and their families belonging to different regions of the country, yet it cannot be considered as a representative of the complete population of the region in general. The different classes of partial edentulism and their frequencies according to PDI in Pakistani population can be determined by conducting studies on this topic on a larger scale which may include sample from every part of the country. Furthermore, any relationship between the PDI classification system and prognosis of prosthodontic rehabilitation can be identified by carrying out further studies.

## CONCLUSION

A selected number of patients reporting at armed forces institute of Dentistry Rawalpindi were thoroughly

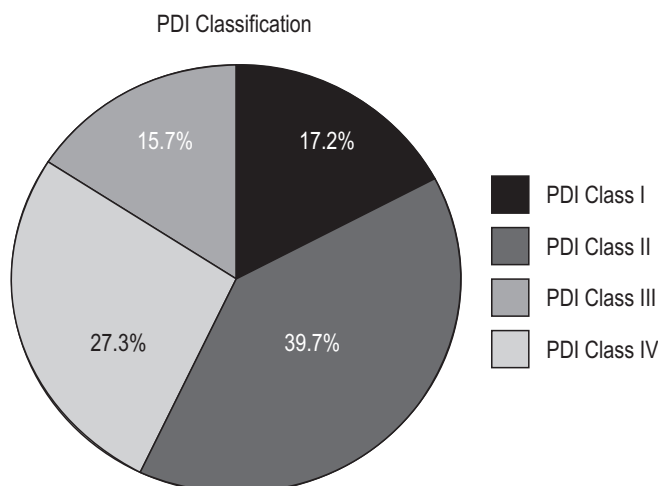


Fig 1: Classification of partially edentulous patients

evaluated and classified into four classes (class I to IV) as per the criterion of the PDI. Out of these, 39.7% patients were classified as PDI class I, 27.3% patients were grouped in class III while 17.2% and 15.7% patients were classified in class I and class IV respectively. The awareness of the dentists and auxiliary staff with PDI can be ensured by induction of this classification system in each patient's diagnosis which will eventually lead to the best possible treatment plan and potentially the most appropriate management of the patients seeking prosthodontic rehabilitation.

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