

Incidence of Common Post-Insertion Complaints in Patients with Removable Complete Denture Prostheses

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Submitted for Publication: 06-07-2022
Accepted for Publication 12-11-2022

How to Cite: Pasha B, Lone SB, Shahzad A, Khawaja H, Naeem M, Alam MA. Incidence of Common Post-Insertion Complaints in Patients with Removable Complete Denture Prostheses. *APMC* 2022;16(4):352-355. DOI: 10.29054/APMC/2022.1491

ABSTRACT

Background: Complete dentures are commonly used for edentulous patients, yet post-insertion complaints such as pain, discomfort, and functional issues frequently arise. **Objective:** This study aimed to evaluate post-insertion complaints associated with complete dentures and to identify the primary causes and categories of these complaints among patients fitted with Poly Methyl Meth Acrylate (PMMA) dentures. **Study Design:** Cross-sectional study **Setting:** Dental Department of Rashid Latif Dental College, Lahore **Duration:** From September 2021 to February 2022. **Methods:** A total of 150 patients who received complete dentures in both arches within the past month were included. Patients with chronic systemic disorders, psychological or neurological conditions, and those who had undergone surgical resections were excluded. Data on demographics, including age and gender, were recorded. Patients' complaints were categorized into four groups: retention, discomfort, esthetics, and miscellaneous. Complaints were further classified into three cause categories: denture base errors, occlusal errors, and physio-psychological errors. **Results:** The study found that 64 patients (42.7%) reported pain and discomfort, 35 (23.3%) experienced loss of retention, 24 (16.0%) had difficulty in speech, 18 (12.0%) suffered from ulceration, and 9 (6.0%) had difficulty in mastication. No significant differences were observed in complaints between genders ($p = 0.417$) or across different age groups. **Conclusion:** The study highlights that pain and discomfort are the most common complaints following denture insertion, with no significant variation by gender or age.

Keywords: Complete dentures, Post-insertion complaints, Poly Methyl Meth Acrylate (PMMA), Patient discomfort, Esthetic concerns.

INTRODUCTION

Tooth loss is a multifaceted issue influenced by both disease-related factors such as caries and periodontal disease, as well as non-disease factors including socioeconomic conditions, access to oral healthcare, and levels of dental awareness and education.¹ Approximately 30% of adults aged 65-74 years are edentulous, with the prevalence rising more rapidly in low-to-middle-income countries. While untreated dental caries affects about 2.5 billion people worldwide, around 23 million individuals are completely edentulous, with an additional 12 million lacking teeth in at least one arch.^{2,3} The process of prosthesis and adaptation to a removable

complete denture poses several problems that are both biological as well as mechanical.⁴ Because the oral cavity is a constantly dynamic area of the human body, there could be a number of complications which may arise after the placement of the prosthesis such as mucosal irritation and the experience of sore spots when eating, speaking and other general weekly activities as well as complication with mastication of food and talking and also problems with holding and/or remaining in place of the denture. When there is inaccuracy in the impression taking for the dentures or when there is alteration in the supporting tissues after insertion of the dentures. Mucosal irritation causes a lot of discomfort, which makes patients to visit the dental practitioners for

correction, or in extreme cases; patients abandon the use of the dentures altogether.^{5,6}

It is also quite common that the denture wearers often face the problem of impaired mastication abilities. Chewing efficiency with complete dentures reduces considerably than that of normal teeth and this leads to limited diet and malnutrition.⁷ They also include speech difficulties which are considered to be significant problems for patients with new dentures. Denture retention and stability are factors that are very sensitive among patients and need to be managed properly. This can also result to poor retention due to unsuitable designs of the denture or alterations of the oral tissues.⁸ Changes in saliva may lead to such signs as xerostomia, dry mouth which will worsen some of the features linked to complete dentures.⁹ It is argued that close compliance with denture fabrication, appreciation of biomechanics and tissue response is imperative in managing complaints that occur after the placement of the removable complete dentures.¹⁰

METHODS

This study was a cross-sectional one which aimed at doing prevalence and assessment of various post-insertion complaints in patients with RCDs. They comprised of 150 patients who had received removable complete dentures at dental Department of Rashid Latif Dental College from September 2021 to February 2022. Patients in the sample had to be over 31 years old, in which they received new complete dentures not earlier than 6 months prior to the study and capable of giving informed consent. These exclusion criteria were patient's systemic diseases impacting oral health and function, severe oral mucosal disease and recent oral surgery.

The inclusion criteria for selecting patients in this study were as follows: To be included in the study patients should be full denture wearers and should have had their dentures inserted within the past one month and this should have been made entirely from PMMA resin. Patients were required to be free of any chronic debilitating diseases or systemic disorders. Disabled patients, whether mental or physical, were also excluded. Ethical approval was obtained from the institutional ethical board (IRB-007/19). Demographic information, including age and gender, was recorded for each patient. An intra-oral examination and assessment of the dental prosthesis were conducted by the principal investigator. Patient complaints were categorized into four groups: retention, discomfort, esthetics, and miscellaneous.

Potential causes of symptoms were categorized into three main types: denture base errors (e.g., rough surfaces, nodules), occlusal errors, and physio-psychological errors (poor muscle tone, reduced salivary flow,

compromised psychological health).¹² Each complaint category was assigned specific codes, resulting in a total of 12 codes (R1, R2, R3 for retention; D1, D2, D3 for discomfort; etc.) to systematically classify and analyze the data.

The collected data were analyzed using IBM SPSS, version 27.0. Categorical variables were presented as frequency and percentage and compared by Chi square test. Continuous variables were expressed as mean and standard deviation (SD). The results were visualized in the form of graphs where possible for easier interpretation. Level of significance was set 5% and $p < 0.05$ (at 95% CI) was considered significant.

RESULTS

The study included 150 patients, with a slight majority being male ($n=81$, 54.0%) compared to female patients ($n=69$, 46.0%). The mean age of patients was 59.7 ± 11.38 years. The primary reason for wearing dentures was mastication ($n=122$, 81.3%), followed by both mastication and esthetics ($n=18$, 12.0%), and esthetics alone ($n=10$, 6.7%) as shown in Table 1.

Table 1: Clinical and demographic characteristics of study participants

Variables	Category	N (%)
Gender	Female	69 (46%)
	Male	81 (54%)
Age	Mean \pm SD	59.7 \pm 11.38
Reason for Wearing Denture	Mastication	122 (81.3%)
	Esthetics	10 (6.7%)
	Both	18 (12.0%)
Denture Site	Upper arch	39 (26%)
	Lower arch	63 (42%)
	Both arches	48 (32%)

After denture insertion, 42.7% of patients reported pain and discomfort, 23.3% experienced loss of retention, 16.0% had difficulty in speech, 12.0% reported ulceration, and 6.0% faced difficulty in mastication, as shown in Table 2

Table 2: Post insertion complaints in complete dentures

Patient complaints	N(%)
Pain and discomfort	64(42.7%)
Loss of retention	35(23.3%)
Difficulty in speech	24(16.0%)
Ulceration	18(12.0%)
Difficulty in mastication	9(6.0%)

The comparison of post-insertion complaints between genders showed no significant differences: pain and discomfort were reported by 47.8% of females and 38.3% of males ($p=0.417$), loss of retention by 20.3% of females and 25.9% of males, speech difficulty by 13.0% of females and 18.5% of males, ulceration by 10.1% of females and 13.6% of males, and difficulty in mastication by 8.7% of females and 3.7% of males given in table 3.

Table 3: Comparison of post insertion complaints with gender

Patient complaints	Female (n=69)	Male (n=81)	p-value
Pain and discomfort	33(47.8%)	31(38.3%)	0.417
Loss of retention	14(20.3%)	21(25.9%)	
Difficulty in speech	9(13.0%)	15(18.5%)	
Ulceration	7(10.1%)	11(13.6%)	
Difficulty in mastication	6(8.7%)	3(3.7%)	

DISCUSSION

Our study included 150 patients, with males slightly outnumbering females (54.0% vs. 46.0%). The age distribution revealed that the largest group was between 51-60 years (32.7%), followed closely by the 61-70 years group (31.3%), while the smallest group was the 31-40 years cohort (7.3%). These findings closely mirror the results reported by Qamar *et al.* (2021), who studied 110 patients and found a similar male predominance (56.4% males vs. 43.6% females) and an analogous age distribution, with the highest proportion of patients aged 51-60 years (32.7%) and the lowest in the 31-40 years group (7.3%).¹² In our study, the primary reason for wearing dentures was mastication (81.3%), followed by a combination of mastication and esthetics (12.0%), and esthetics alone (6.7%). This is consistent with the findings of Qamar *et al.*, who observed that post-insertion complaints were most common among patients aged 51-60 years (32.7%), with discomfort (37.3%) and retention issues (35.5%) being the most frequently reported problems.¹² In comparison, Salih *et al.* found a higher proportion of female patients (63%) reporting complaints, contrasting with our findings and those of Qamar *et al.*, where males were more predominant. The higher female proportion in Salih's study might indicate different cultural or social factors influencing healthcare-seeking behaviors, as noted in Pervez *et al.*'s study, which also reported a higher male-to-female ratio (72.5% vs. 27.4%) for post-insertion complaints.^{13,14}

In our study, 42.7% of patients reported experiencing pain and discomfort after denture insertion, making it the most common post-insertion complaint. Loss of retention was reported by 23.3% of patients, difficulty in speech by

16.0%, ulceration by 12.0%, and difficulty in mastication by 6.0%. These findings align with the results of previous studies, though there are some notable differences. Jabeen *et al.* reported a significantly higher incidence of pain and discomfort, with 75% of their patients experiencing these issues, compared to the 42.7% observed in our study. Additionally, Jabeen *et al.* found that 58% of their patients reported loose dentures, which is higher than the 23.3% in our study.¹⁵ This could suggest variations in the quality of denture retention or the anatomical differences in patients' ridges, as noted by Koul *et al.*, who reported that 43% of patients experienced loss of retention, particularly due to poor mandibular ridge contours.¹⁶ Hassan *et al.* reported that 25% of patients with upper dentures experienced pain during chewing, while 28.6% of those with lower dentures had similar pain, indicating that discomfort is a common issue regardless of the denture's placement. These rates are somewhat lower than the overall pain and discomfort reported in our study (42.7%), possibly due to differences in patient populations or denture types.¹⁷ Kumar *et al.* (2022) similarly reported pain as the most common complaint, present in more than 50% of patients, which is slightly higher than the 42.7% in our study. They also noted significant issues with mastication and speech, which aligns with our findings of 16.0% reporting difficulty in speech and 6.0% having trouble with mastication.¹⁸ Our study found that 42.7% of patients experienced pain and discomfort, closely aligning with Maqsood *et al.*'s report of 50% experiencing pain due to impingement and sharp edges, and 23.3% due to disturbed occlusion, matching our findings on retention issues.¹⁹

Our study found no significant association between gender or age and post-insertion complaints among denture wearers, with pain and discomfort reported similarly across both demographics. These results align with those of Mehtab *et al.*, Ahmed *et al.*, and Pervez *et al.*, who also found no significant relationship between age, gender, and post-insertion issues. Despite variations in complaint frequencies, such as pain being more common in the 61-70 age group, none were statistically significant. These findings suggest that post-insertion issues are not strongly influenced by demographic factors, emphasizing the need for personalized care rather than demographic-based assumptions.²⁰

CONCLUSION

In conclusion, our study highlights that pain and discomfort are the most common post-insertion complaints among denture wearers, with no significant differences observed across gender or age groups. The findings underscore the need for personalized denture care and precise fitting to address common issues effectively. Further research with long-term follow-up is

recommended to evaluate the persistence and management of these complaints.

LIMITATIONS

The study's limitations include its reliance on self-reported data, which may introduce bias, and the lack of long-term follow-up to assess the persistence of complaints over time.

SUGGESTIONS / RECOMMENDATIONS

Large-scale research should be done in future studies.

CONFLICT OF INTEREST / DISCLOSURE

None.

ACKNOWLEDGEMENTS

None to declare.

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