

Frequency of Post-insertion complaints in Edentulous patients and their relation with Age and Gender

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ABSTRACT

Objective: To assess the frequent post-insertion complaints associated with complete dentures and their association with age and gender.

Study Design: Cross sectional observational study.

Place and Duration: Prosthodontic Department of Lahore Medical and Dental College, Lahore, from 10th Feb 2021 till 10th May 2021.

Methodology: The patients reported for the first follow-up after complete denture insertion. The post insertion complaints were classified into four categories e.g., discomfort, retention, esthetics and miscellaneous. Clinical evaluation of patient's oral cavity and the prosthesis was done. The frequency of the post insertion complaints and their association with age and gender was assessed.

Results: Out of 110 patients' majority (56.4%) were male. Post-insertion complaints were common in between 51 to 60 years of age (32.7%) and least reported in 30 to 40 years of age (7.3%). Discomfort was recorded as most common post insertion complaint 37.3% followed by lack of retention of dentures 35.5%. Miscellaneous problems were found to be 21.8%. Least reported problems were the problems of esthetics 5.5%; where the soft tissues problems recorded were 3.6% and hard tissue problems were 1.8%. The error in denture base was the most frequent cause of complaint reported in all the four categories i.e., retention (33.6%), discomfort (20.0%), esthetics (3.6%) and in miscellaneous complaints (12.7%). Discomfort was the commonest complaint in females whereas lack of denture retention was in males. No significant association of complaints was obtained with patient's gender and age; $P < 0.05$.

Conclusion: Post-insertion complaints identification in complete denture prosthesis would be helpful in developing strategies effectively managing and focusing to prevent all negative factors responsible for these complaints that escalate with increasing age.

Keywords: Complete denture, Denture retention, Edentulism, Esthetics, Geriatric Dentistry, Patient satisfaction, Post insertion complaints.

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INTRODUCTION

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Edentulism is a term used to describe the condition of a patient's mouth where there is complete loss of dentition¹. Rehabilitation of edentulous patients is always very challenging for the prosthodontists.² A complete denture is a dental prosthesis that is given to the edentulous patients to restore not only their lost esthetics, phonetics, function but also to improve their psychological health.³ A well fabricated complete denture is of great importance and should be fabricated in such a way that it not only restores the efficacy of the musculature but should also be compatible with the oral environment.⁴ Patient's response to a complete denture wear can be rewarding or it can be a frustrating experience. Oral tissues need time to accommodate the prosthesis and do not accept the new complete denture immediately.⁵ The adaptation of a new complete denture in an elderly patient is even more challenging as aging is associated with many limitations like; deterioration of muscle strength, bone resorption, compromised intelligence, problems of hearing and sight.⁶

A complaint is the term used for a discomfort, dissatisfaction or pain. Complaints may also arise due to factors like loose or tight

fitting of the denture, over and under extended denture flanges, esthetics, discomfort or pain.⁷ Lack of retention and stability, chewing difficulty, poor esthetics and food accumulation under the dentures are the frequent complaints.⁸

Studies have been conducted in the different parts of the world to find out the relationship of different complaints not only with the factors like age, gender, health of oral conditions and patients' mental health but also found the relation of the complaints with the deficiency in denture fabrication.^{9,10} Few studies have concluded that the denture satisfaction and avoidance of food has strong relation with the oral health of an edentulous patient. Furthermore, there are still no standard reliable ways to predict the complete denture treatment outcomes and post insertion problems do exist in almost all dentures.¹¹

Post insertion phase after denture insertion is very important in prosthodontic treatment as it exposes the minor complaints and renders their redressal. This recall appointment is the most crucial time in the complete denture service where redressal of these complaints is required which otherwise will result in patient disappointment and failure of the denture prosthesis.¹² An unsatisfactory prosthesis not only results in functional irritation like poor phonetics, eating difficulties but can also affect social behaviors of elderly individuals by deteriorating their self-confidence.^{13,14}

Very few studies have been conducted in our region to assess the common denture problems of elderly patients with complete dentures. This will help dental planners to have an awareness of the common complaints; thus, fine tune their dental practice by focusing on the avoidance of the common factors responsible. This study was conducted with an objective to assess the frequent post-insertion complaints associated with complete dentures and their association with age and gender.

METHODOLOGY

This cross-sectional observational study was carried out on 110 completely edentulous patients. Both male and female patients with age range 30 to 80 years were selected. All the patients had their new complete dentures fabricated and inserted. These patients were visiting for the first time within the 1st month after the complete denture insertions. These patients visited the Prosthodontic department of Lahore Medical & Dental College with post-insertion complaints from 10th Feb 2021 to 10th May 2021. Non probability purposive sampling was used for patient selection. The sample size was estimated from the previous studies conducted on the oral complaints of edentulous patients. The inclusion criteria for selection of patients were; the patients with complete dentures in both arches; which were inserted within past one month. Complete dentures fabricated only with Poly Methyl Meth Acrylate (PMMA) were included. All patients free of any chronic debilitating disease or systemic disorders were included. All the patients with psychological or neurological problems like dementia, motor neuron diseases and Parkinson's disease were excluded from the study. Patients undergone surgical resections and intervention were also not included. Disable patients (mental or physical) were excluded.

Ethical approval was obtained from the ethical board of the institution.

Patients were allocated into decades of age and 5 groups were made. Patient's demographic information like age and gender was recorded. Intra-oral examination and the examination of dental prosthesis was done by the principal investigator. Patients' complaints were grouped into 4 categories, i.e., retention, discomfort, esthetics and miscellaneous. The first category i.e., the dentures retention was checked. The complaints like general looseness, denture falls on opening mouth, falls during mastication, looseness during speech were checked. For the second category i.e., the discomfort, patient's oral cavity was clinically checked for sore spots, generalized pain, redness. Tongue bite and complaint of cheek biting because of newly fabricated complete dentures were also noted. The 3rd category which was the esthetics concerns; was subdivided into hard tissue and the soft tissues factors. The complaints regarding hard tissue factors i.e., shape, size, and color of the teeth and their arrangements were elicited. Soft tissue esthetics like improper lip and cheek support were noted. In the fourth category i.e., the miscellaneous category, all complaints like speech problems, gagging, poor adaptation were assessed and noted.

There could be multiple causes of a symptom for example; pain can be due to faulty occlusion, denture surface irregularities or can be due to over extended denture. Therefore, the possible causes were condensed into three categories; namely denture base errors, occlusal errors and physio-psychological errors. The complaints categories were assigned code so there were 12 codes in total (R1, R2, R3) for retention, for discomfort (D1, D2, D3) and so on. R1 means complaint of denture retention due to denture base errors (which can be due to rough denture surface, nodule and so on.) E3 means esthetic complaint due to physio psychological errors (means reason of complaint is not because of defective denture but due to other reasons like patient's poor muscle tone, less salivary flow and compromised psychological health).

Data Analysis: The data was entered and processed in SPSS version 20. Descriptive statistics (frequency and percentages) were calculated for the complaints and their causative factors. Association of problems with gender and age was obtained using chi-square. Significance level was set at $p < 0.05$.

RESULTS

Out of 110 patients 62 (56.4%) were males and 48 (43.6%) were females. Patients were divided into five groups age wise. Group I (31-40), Group II (41-50), Group III (51-60), Group IV (61-70), Group V (71-80) as shown in table I. Post-insertion complaints were common in age group 51 to 60 years 36 (32.7%) and least reported in 31 to 40 years of age 8 (7.3%) Table I. Discomfort was recorded as most common post insertion complaint 41 (37.3%) followed by lack of retention of dentures 39 (35.5%). Miscellaneous problems were found to be 24 (21.8%). Least reported problems were the problems of esthetics 6 (5.5%) where the soft tissues problems recorded were 4 (3.6%) and

hard tissue problems were 2(1.8%).

Table – I: Frequency of age distribution in both genders (N=110)

Age group	Age (years)	Number (%)
Group I	31-40	8(7.3%)
Group II	41-50	12(10.9%)
Group III	51-60	36(32.7%)
Group IV	61-70	34(30.9%)
Group V	71-80	20(18.2%)

The error in denture base was the most frequent cause of complaint reported in all the four categories i.e., retention 37(33.6%), discomfort 22(20.0), esthetics 4(3.6) and in miscellaneous complaints 14(12.7%). Error in occlusion was the second most frequent cause responsible for the loss of retention 3(2.7%) and miscellaneous complaints 8(7.3%), whereas for the complaint of discomfort 14(3.6%) and esthetics 1(0.9%) the second most common cause reported was the physio-psychological status of the patient. Table II

Table – II: Frequency distribution of the complaints with respect to causative factor (N=110)

Cause	Complaints							
	Retention n(%)	Discomfort n(%)	Esthetics n(%)	Misc. n (%)				
Denture base error	R1 37 (33.6)	D1 22 (20.0)	E1 4 (3.6)	M1 14 (12.7)				
Occlusal error	R2 3 (2.7)	D2 13 (3.6)	E2 1 (0.9)	M2 8 (7.3)				
Physio-psychological error	R3 1 (0.9)	D3 14 (3.6)	E3 1 (0.9)	M3 2 (1.8)				

According to age and gender the post insertion complaint i.e., discomfort and lack of retention of dentures were mostly found in 51-60 years and 61-70 years old patients. Discomfort was the commonest complaint in females whereas lack of denture retention was in males. Esthetic concerns were the least complaint reported in all age groups. No significant association of complaints was obtained with patient's gender and age; $P < 0.05$. Table III.

Table – III: Association of post insertion complaints with age and gender (N= 110)

Denture problems	Gender		Age				
	Male	Female	30-40 years	41-50 years	51-60 years	61-70 years	71-80 years
Discomfort	20	21	3	2	14	14	8
Retention	23	16	4	4	15	9	7
Esthetics	4	2	1	1	2	1	1
Misc.	15	9	0	5	5	10	14
p- Value	0.64		0.59				

DISCUSSION

Complete denture complaints interpretation is as difficult as rectifying them. Providing a patient with complete dentures that are well functioning at the first place is challenging.¹⁵ Many authors have reported that the design faults and the structural defects of the dentures are the prime cause of the complaints.¹⁶ Laurina and Sobolleva¹⁷ has reported that the patient most commonly comes with the complaint when there is a real fault in denture fabrication. The current study was carried out to find out the most common post insertion complaints in our patients, their frequent causes and also see if there is any association of age and gender with the complaints.

In our study more male patients (56.4%) reported with post insertion complaints and their dominance was seen on females (43.6%). However, in contrast Ahmed⁹ and coworkers reported 63% females and only 37% male patients with complaints. Whereas in accordance with the results of our study more male to female ratio 1.6:4.0 was found in a study done by Pervez¹⁸ and coworkers; where 72.5% males and only 27.4% had post insertion complaints. This is in agreement with the study done by Sadr¹⁹ and coworkers' study. Females do not often seek dental treatments as they are more home bounded and also public hospitals are not their first choice. When seeking dental treatment, they might feel better compelled to visit private practices, furthermore they take better care of their teeth so less edentulous.^{18, 20}

High percentage (32.7%) of the patients belonged to the 51 to 60 years of age group followed by 61 to 70 years (30.9%). The least group reported was of the youngest age group 31 to 40 years (7.3%). Parvez¹⁸ and coworkers reported 39.2% patients in 60 years age and 27.4% 60 to 70 with maximum complaints. Similarly, Ahmed⁹ and coworkers found 79% patients with denture complaints who were above 60 years of age. The reason for the old age groups with more complaints could be explained on the base that this was the maximum reported age group that required complete denture treatment so more post insertion complaints reported furthermore aging results in reduce muscle strength, health of oral tissues and compromised patients' general health.^{5, 6} No association of gender and age with post insertion complaints was seen in the current study. These findings were in accordance with the findings of a study conducted by Ahmed⁹ and coworkers where no gender difference was found with complaints. Likewise, Pervez¹⁸ reported no significant association with age and gender.

Various post insertion complaints may arise after denture insertion and careful examination is needed for proper diagnosis. In current study we observed that the denture discomfort was the frequent complaint seen (37.3%) that was followed by the complaint of denture retention loss (35.5%). Miscellaneous complaints were 21.8% and surprisingly the complaints related to esthetics were the least observed complaints (5.5%). In accordance with the results of present study Pervaez¹⁸ reported that pain and discomfort was the most frequent complaints. Jabeen²¹ and coworkers reported pain and discomfort in 75% of their patients and 58% with loose dentures. Koul²² and coworkers reported highest complaints

23.7% belonged to discomfort whereas least were speech problems in males and females 2.02%.

Many factors are responsible for the post insertion complaints. This study concluded that the denture base errors were the main cause of the complete denture complaints and it was the commonest factor out of the four categories. In case of complaints like discomfort and retention there was dominance of errors of denture base i.e., (33.6%) and (20.0%) respectively. Errors in denture base were also dominant factor responsible for the complaints related to the miscellaneous (12.7%) and esthetics complaints (3.6%) as well. Koul²² and coworkers in accordance to the results of our study reported denture base errors the main causative factor of complaints in their patients. Ahmed⁹ and coworkers stated that the loss of retention, pain and denture stability results due to errors in denture base while Ettinger⁵ and Verma⁷ recognized it as a causative factor for denture retention loss.

Kiviovi²³, and coworkers stated that to overcome retention problems many dentists tend to over extend the denture flanges. They further reported that highest frequent injuries were found in border areas, retro-mylohyoid area, 48.6%, buccal sulcus area 9.8% and 9.5 % in retromolar pad. Improper denture peripheries result in discomfort and retention failure and has been claimed by other dentists.⁷⁻⁹ Tongue plays an important role in denture success especially the lower denture. Its activity and size make dislodgment of new denture by breaking the tissue seal and such problems are universally present.¹⁹

The second most prominent causative factor seen in the current study was the occlusal errors that was accounted for 2.7% complaints of denture retention, 3.6% discomfort, 0.9% esthetics and 7.3% for miscellaneous complaints. It was observed in this study that occlusal errors and physio-psychological causes were equally responsible for esthetic complaints. Whereas in case of miscellaneous complaints occlusal errors accounted for the second most common cause followed by the Physio-psychological factor. Similar findings were reported by Jabeen¹⁸ and coworkers.

Occlusal errors like incorrect centric and eccentric relation and disturbed vertical dimension are prime reason behind denture complaint. Disturbance of occlusion may be due to acrylic inherent polymerization shrinkage that attributes to the altered tooth position from its desired one.²⁴ Furthermore, the encroachment of tongue space and incorrect teeth arrangement that results in imbalance occlusal contacts further cause retention failure.

Patient's physio- psychological wellbeing matters a lot in success or failure of complete denture therapy. Koul²² and coworkers just like the present study reported occlusion and physio-psychological complaints were secondary important causative factor in certain complaints. Physio-psychological cause were the least frequent reason of denture retention loss, esthetics and miscellaneous complaints; however, it was the second most frequent reason responsible for the complaint of discomfort. We conclude that the physiological factors like poor salivary flow, muscular tone and deficient saliva are responsible for such complaints.^{2,5,6} Psychological factors that are post menopausal changes in females have been related to the

cause.^{9,15}

Poor diagnosis incorrect planning and denture designing results in post insertion complaints. Dentist should focus on developing good skills in clinical steps of denture fabrication, better impression taking techniques, with proper accurate border molding and teeth setup. Dentist should treat the post insertion complaints in a logical and systematic way after they been evident. All this should be followed by schedule recall visits. Along this patients counselling is mandatory as their motivation and acceptance plays vital role in success and failure of complete denture.

Limitations of the study were its small sample size therefore we recommend that it should be conducted on larger scale and include different races and regions that will give the clear picture of enormity of common denture problems.

CONCLUSION

Post-insertion complaints identification in complete denture prosthesis would be helpful in developing strategies effectively managing and focusing to prevent all negative factors responsible for these complaints that escalate with increasing age.

AUTHOR'S CONTRIBUTION

Qamar K: Data collection, Manuscript writing

Raja HZ: Conceived idea, Designed research

Awais F: Statistical analysis

Iqbal U: Data collection

Saleem A: Manuscript final reading

Afridi F: Literature review

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