

## THE INFLUENCE OF DEMOGRAPHIC FACTORS AND MEDICAL CONDITIONS ON PATIENTS COMPLAINTS WITH COMPLETE DENTURES

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### ABSTRACT

**Objective:** The purpose of this study was to determine the most frequent complete denture complaints and to investigate the influence of age, gender and systemic disease conditions on the complaints.

**Methodology:** This was a retrospective study in which information on the demographic data, medical and dental history of complete denture patients were obtained from their case records. Also the type of complaints and adjustment made to the denture at review appointments were recorded. All data generated were entered into IBM-Compatible micro-computer and analysed using the statistical packages of social sciences (SPSS) version 15. Chi-square test was used to test for statistical significance.

**Result:** Eighty-two case records of complete denture patients were reviewed. Fourty-six of the patients were male while 36 were female. The age ranged between 40 and 90 years with mean age of 69.10 (SD=10.6) years. Fifty-one (62.2%) patients had complaints with their dentures during a week review appointment. Pain was the most common complaint 23 (28%), followed by lack of retention, 12 (14.6%). Eighteen (21.9%) patients had systemic medical conditions.

**Conclusion:** There was no statistically significant relationship between patient age, gender, systemic health and denture complaints; but statistically significant relationship exist between types of denture, denture faults and complaints.

**Keywords:** demographic factors, medical condition, complete dentures, complaints

### INTRODUCTION

The wearing of a new complete denture may be associated with some complaints especially shortly after the insertion of the denture. The complaints may be lack of retention and stability, pain or discomfort, accumulation of food under the denture, altered speech, difficulty in chewing, unsatisfactory appearance and wrenching.<sup>1,2</sup> Several studies<sup>2,3,4,5</sup> had been conducted on patients' complaints after delivery of complete dentures; however, there was no agreement on the most common complaint. Pain or discomfort was reported by some researchers<sup>3,4</sup> as the most common complaint among new denture wearers while others stated that lack of retention and stability<sup>5,6</sup> were the most frequent complaints.

While some patients may accommodate dentures with obvious construction fault, others may come with complaints from dentures that appear satisfactory in the patients' mouths. These conflicting observations

suggest that there may exist some unidentified factors associated with patients complaints.<sup>2,3</sup> The factors that have been found to determine the prognosis of rehabilitation with complete dentures include: age, gender, previous denture experience, attitude of the patient to treatment, systemic health of the patient, period of edentulousness, skills and experience of the dentists.

It has been reported that with advancing age both men and women experience difficulty in learning to adapt to and manage removable prosthesis.<sup>7</sup> This, coupled with unrealisable high expectation of some older age group has been reported as a major cause of complaints following denture insertion in the elderly.<sup>8</sup>

Fiske *et al*,<sup>8</sup> stated that there is a social dimension to denture complaints especially the persistent ones in the elderly, as a visit to the dentist for adjustment provides

these elderly patients opportunity to go out. Women of menopausal age have been reported to experience more difficulty in adapting to denture than younger age group because of the physical and emotional changes they undergo during and after menopause.<sup>9</sup>

Systemic medical conditions like diabetes mellitus and neuromuscular diseases may make successful wearing of complete dentures difficult.<sup>3,7</sup> Problems with complete dentures may result from direct effect of these conditions or effect of the medications use in the treatment of the diseases on oral mucosal. Xerostomia for example has been reported to cause difficulty in wearing complete denture by making the denture bearing mucosal to become sore and ulcerated.<sup>10</sup> In addition, denture retention may be affected by lack of saliva.<sup>11</sup> Xerostomia in diabetes mellitus is thought to be caused by the polyurea of the disease while drugs like diuretics used in treatment of hypertension are possible causes of xerostomia.<sup>12</sup>

The purpose of this study was to determine the most frequent complaints following delivery of complete dentures and to investigate the influence of age, gender and systemic disease conditions on patients' complaints during the early post delivery period among patients seen in a Nigerian teaching hospital.

## MATERIAL AND METHODS

The case records of complete denture patients who attended the prosthetic dental clinic of the University College Hospital, Ibadan between January 2004 and December 2010 were reviewed. Information on the demographic data, medical and dental history, previous denture experience, period of edentulousness, oral findings at commencement of the denture fabrication, the edentulous ridge form, the type of complaints and adjustment made to the denture at review appointments and the oral findings at review appointments were obtained from their records.

The complete dentures were fabricated by resident doctors and undergraduate students under the supervision of consultant prosthodontist and qualified technologists using the same treatment protocol. The treatment protocol adopted in the hospital included: Taking a preliminary impression using impression compound; use of custom tray border moulded with type 2 modelling compound (green stick) to make secondary impression using zinc-oxide impression paste; bite registration; try-in of the trial dentures in the patients mouth (verification of occlusion and teeth arrangement were few of the observations made at this stage); and finally insertion of the processed denture. The patients were given a 48 hours and a week follow-up appointment to start with.

## Statistical Analysis.

Data obtained were entered into IBM-Compatible micro-computer and analysed using the statistical packages of social sciences (SPSS) version 15. Percentages, means and standard deviation were employed in the analysis. Also chi-square test was used to detect statistical significance differences between the variables. P-value less than 0.05 were considered to be statistically significant.

## RESULTS

Eighty-two out of ninety-eight case records of complete denture patients retrieved had complete information. Forty-six of the patients were male while 36 were female. The age ranged between 40 and 90 years with mean age of 69.10 (SD=10.6) years (Table 1).

Age group (years)	Gender of Patients		Total (N/%)
	Male (n/%)	Female (n/%)	
=50	3 (3.7)	2 (2.4)	5 (6.1)
51 - 55	2 (2.4)	1 (1.3)	3 (3.7)
56 - 60	7 (8.5)	4 (4.8)	11 (13.3)
61 - 65	5 (6.1)	2 (2.4)	7 (8.5%)
66 - 70	6 (7.3)	12 (14.6)	18 (22.0)
71 - 75	8 (9.8)	5 (6.1)	13 (15.9)
76 - 80	11 (13.4)	7 (8.5)	18 (22.0)
>80	4 (4.9)	3 (3.7)	7 (8.5)
Total	46 (56.2)	36 (43.8)	82 (100)

Mean age is 69.10 (SD = 10.6) years

**Table 1:** Gender and age distribution of the patients

**Age:** Majority (68.29%) of the patients were above 65 years and 16 out of 23 (69.57%) patients that complained of pain were above 65 years. No patient below the age of sixty complained of loose denture, altered taste or unsatisfactory appearance. Multiple complaints were seen in patients above sixty years of age (Table 4).

Complaints	Types of Denture			Total
	Full-full (n / %)	Full lower (n / %)	Full upper (n / %)	
Nil	9 (11.0)	12 (14.6)	10 (12.2)	31 (37.8)
Pain	14 (17.1)	7 (8.5)	2 (2.4)	23 (28.0)
Loose denture	8 (9.7)	3 (3.7)	1 (1.2)	12 (14.6)
Inability to eat	1 (1.2)	1 (1.2)	0 (0)	2 (2.4)
Altered taste	1 (1.2)	0 (0)	0 (0)	2 (2.4)
Unsatisfactory appearance	0 (0)	0 (0)	1 (1.2)	1 (1.2)
> 1 complaints	10 (12.2)	2 (2.4)	0 (0)	12 (14.6)
Total	43 (52.4)	25 (30.5)	14 (17.1)	82 (100)

**Table 2.** Distribution of Patient's complaints and types of denture

**Gender:** Twenty nine of the forty-six (63%) male complete denture wearer patients had complaints, while twenty-two of the thirty-six (61%) female patients had complaints. Male patients presented more with multiple complains than females, while females presented more with pain than males (Table 3).

Complaints	Gender of the patients		
	Male (n/%)	Female (n/%)	Total (N/%)
Nil	17(20.7)	14(17.1)	31 (37.8)
Pain	10 (12.2)	13 (12.9)	23 (28.0)
Loose denture	7 (8.5)	5 (6.1)	12 (14.6)
Inability to eat	2 (2.4)	0 (0)	2 (2.4)
Altered taste	0 (0)	1 (1.2)	2 (2.4)
Unsatisfactory appearance	0 (0)	1 (1.2)	1 (1.2)
> 1 complaints	10 (12.2)	2 (2.4)	12 (14.6)
Total	46 (56.1)	36 (43.9)	82 (100)

**Table 3:** Distribution of patients' complaints and gender

**Background medical condition:** Majority (78.1%) had no systemic disease condition. Sixteen (19.5%) patients that had no system condition complained of pain while seven (8.5%) with systemic condition complained of pain. Hypertension was the major 10 (12.2%) systemic disease condition presented by the patients (Table 5).

Patients complaints	Age group (years)								Total
	= 50	51-55	56-60	61-65	66-70	71-75	76-80	> 80	
Nil	4	2	5	2	7	4	5	2	31
Pain	1	1	5	0	6	5	4	1	23
Loose denture	0	0	0	3	2	2	3	2	12
Inability to eat	0	0	1	0	0	1	0	0	2
Altered taste	0	0	0	0	0	0	0	1	1
Unsatisfactory appearance	0	0	0	0	1	0	0	0	1
> 1 complaints	0	0	0	2	2	1	6	1	1
Total	5	3	11	7	18	13	18	7	82

**Table 4:** Distribution of patients' complaints and age

**Prevalence of complaints following delivery of dentures:** Fifty-one (62.2%) patients had complaints with their dentures during a week review appointment. Pain was the most common complaint 23 (28%), followed by lack of retention, 12 (14.6%). The frequency of other complaints are as indicated in Table 2.

Forty-three patients had full-full dentures while 25 patients had full lower and 14 patients had full upper dentures. Thirty four (41.5%) patients with complete upper and lower dentures presented with complaints, while thirteen (15.9%) with complete lower dentures

Complaints	Systemic medical conditions		
	Absent (n/%)	Present (n/%)	Total (N/%)
Nil	24 (29.3)	7 (8.5)	31 (37.8)
Pain	16 (19.5)	7 (8.5)	23 (28.0)
Loose denture	11(13.4)	1 (1.2)	12 (14.6)
Altered taste	2 (2.4)	0 (0)	2 (2.4)
Inability to eat	1 (1.2)	0 (0)	1 (1.2)
Unsatisfactory appearance	1 (1.2)	0 (0)	1 (1.2)
> 1 complaints	9 (10.9)	3 (3.7)	12 (14.6)
Total	64 (78.1)	18 (21.9)	82 (100)

*Medical diseases profile: Hypertension was present in 10 (12.2%) of the patients, Hypertension and Diabetes 6 (7.3%), Diabetes 1 (1.2%) and depressive illness 1 (1.2%).*

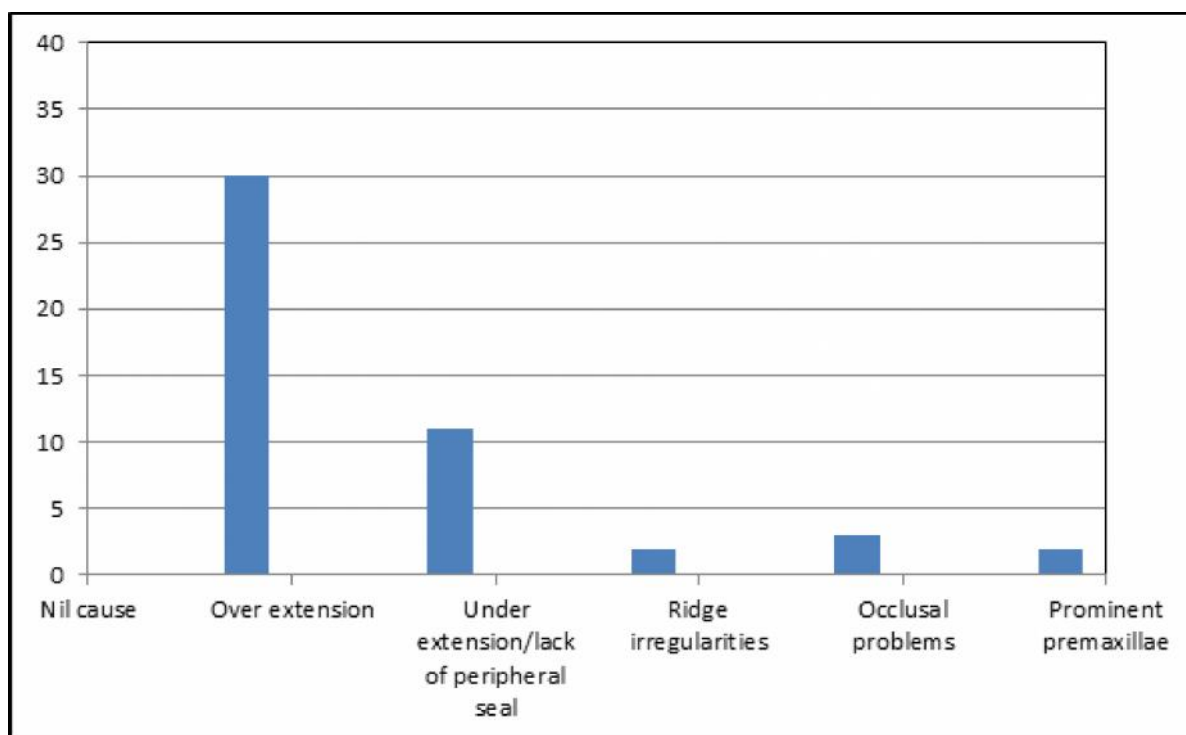
**Table 5:** Distribution of patients' complaints and Systemic medical conditions

and four (4.8%) with complete upper dentures had complaints (Table 2).

**Design faults:** Fig. 1 shows the distribution of design fault associated with complaints. The main cause of complaints was over extension of the flange, 30 (36.7%), this was followed by lack of peripheral seal/

underextension, 11 (13.5%) while ridge irregularity was the least cause of complaints, 2 (2.4 %). No fault was noted in three patients that had complaints in addition to thirty-one patients that had no complaint.

Table 6 shows the relationship between patients' age, sex, medical condition, type of complete dentures and patients complaints using chi-square test. There was no significant relationship between complete denture complaints and patient gender (P= 0.858), age (P=0.288), medical condition (0.915), but significant relationship with type of denture (P=0.001) and denture design faults (P=0.000)



**Fig 1:** Distribution of design faults associated with denture complaints

Demographic factors and medical conditions of patients		Patients' Complaints		
		Nil complaint	complaints	P-value
Sex	Male	17	29	0.858
	Female	14	22	
Age group	≤65 years	13	13	0.288
	>65 years	18	38	
Medical Condition	Nil disease	24	40	0.915
	Presence of disease	7	11	
Types of Complete Denture	Upper and lower	9	34	0.001
	Upper	12	13	
Denture Fault	Lower	10	4	0.000
	Nil fault	31	3	
Presence of faults		-	48	

**Table 6:** Relationship between patients' age, sex, medical status, types of denture and Complaint using chi-square test.

## DISCUSSION

The proportion of patients who were edentulous in one or both arches was higher in men than in women. This finding was in contrast to general reports<sup>5, 10, 13</sup> which showed that men to women ratio varied from 1:1.4 to 1:4, but supports previous studies<sup>14, 15</sup> in the same geographical location. This suggests that men lose their teeth more readily than their female counterpart in this environment possibly because women are more concerned about their health and appearance. The mean age of the patient (69.10 years) was consistent with the study of Brunello *et al*<sup>6</sup> which reported a mean age of 68.7 years and higher than

Carr *et al*;<sup>10</sup> with mean age of 58.37 years. This suggests that few young patients are completely edentulous in our environment.

In this study 62.5% patients had complaints at one week review appointment. This gives a better success rate than previous studies<sup>3, 16</sup> in which 100% and 87% of the dentures respectively required adjustment at one week appointment. The previous studies however were conducted on complete denture patients that were referred by general dental practitioners because of persistent complaints. The most common complaints

of the complete denture patients was pain (28%) followed by loose denture (14.6%). This result supports the finding of Smith and Hughes<sup>4</sup> (77% pain and 55% loose denture) and Brunello *et al*<sup>3</sup>, (pain 75% and loose denture 59%).

This is in contrast with previous reports<sup>7,10</sup> that older patients are more likely to experience difficulties with their dentures and complain more frequently. The possible explanation to this might be that the patients reviewed in this study had stable oral condition. Marcus *et al*<sup>13</sup> reported that problems common in the aging population such as xerostomia, atrophic ridge and mucosal, and other conditions associated with aged edentulous patients affect the ability of the patients to adapt to new dentures when the condition is clinically apparent.

There was no significant relationship between gender and the number of complaints contrary to the report of Heartwell<sup>7</sup> and Powter and Cleaton-Jones.<sup>9</sup> The result of our study however, supports the findings of Brunello *et al*<sup>3</sup> who observed no significant patient gender relationship with complete denture complaints. This suggests that sex does not have a significant influence on post denture delivery complaints in our environment.

The non-significant relationship between the background medical condition of the patients and the complaint of pain is in conflict with the report of Depaole *et al*<sup>17</sup> who reported a relationship between common medical conditions and denture complaints. The result of this study however, is in agreement with Brunello's<sup>3</sup> who reported no relationship between patient's medical status and denture complaints. This is possibly because the patients in this study with systemic diseases condition had no oral affectation.

The significant relationship between the type of denture and patients complaints agreed with previous studies.<sup>10,11</sup> The wearing of complete upper and lower dentures was more associated with complaints than with only upper or lower complete dentures. The need to learn to adapt to two dentures at a time may be more demanding than learning to adapt to a single upper or lower complete denture. The fewer complaints observed with complete upper denture is in agreement with previous studies<sup>10,13</sup> and this is because upper edentulous arch has greater denture bearing area for retention and support for dentures than lower edentulous arch.<sup>1</sup>

Finally, significant relationship between faults in denture construction and patient complaints recorded in our study supports previous reports.<sup>3,4,16</sup> Over extension

was the major cause of complaints in this study. This might be due to inappropriate border moulding during secondary impression procedures which led to production of master casts with over-extended borders. And processing of over-extended dentures from such casts.

Previous studies<sup>3,4</sup> reported under extension of the denture base and problems with vertical and horizontal jaw relationship as major causes of complete denture complaints. The studies, however, were conducted on complete denture patients that were referred by general dental practitioners because of persistent complaints.

**Limitation of the study:** Information on denture faults was obtained retrospectively from patients case records and the method of assessment was not stated. The gold standard of diagnosing over-extension of denture flange with pressure indicating paste may not have been employed

## CONCLUSION

Pain was the most frequent complaints among complete denture wearers in this study and the common cause of complaints was over extension of denture flanges. There was no correlation between age, gender and systemic conditions with complete denture complaints. However there were statistically significant relationship between types of dentures, construction faults and denture complaints. This study suggest that complete denture patients present with complaints most often when there are denture faults.

## REFERENCES

1. **MacGregor AR.** Fenn, Liddelow and Gimson Clinical Dental Prosthetics. 3<sup>rd</sup> ed. London. Butterworths. 1989; 164 – 174.
2. **Laurina L.** Sobolever U. Construction faults associated with complete denture wearers complaints. Stomatologija, Basic dental and maxillofacial journal, 2006; 8(2): 61-64
3. **Brunello DL,** Mandikos MN. Construction faults, age, gender and relative medical health: Factors associated with complaints in complete denture patients. J Prosthet Dent. 1998; 79: 545-554.
4. **Smith JP,** Hughes D. A survey of referred patients experiencing problems with complete dentures. J Prosthet Dent 1988; 60: 583-586
5. **Kotkin H,** Diagnostic significance of denture complaints. J Prosthet Dent. 1985; 53: 73-77
6. **Dervis E.** Clinical assessment of common patient complaints with complete dentures. European J. Prosthodont Rest. Dent: 2002; 10(10): 113-117
7. **Heartwell CM.** Psychological considerations in complete denture prosthodontics. J prosth Dent 1970; 24: 5-10

8. **Fiske J**, Davis DM, Horrocks P. A self-help group for complete denture wearers. *Br. Dent. J* 1995; 178: 18-22.
9. **Powter G**, Cleaton-Jones P. Quantitative assessment of some factors governing complete denture success. *J Dent Assoc. S. Afri.* 1980; 35; 5-8.
10. **Car L**, Lucas VS, and Becher PJ, Disease, Medication, and post insertion visits in complete denture wearers. 1993; 70: 257-260,
11. **Chen M.S**, Daly TE. Xerostomia and complete denture retention. *J. Oral Health* 1980; 70: 27-29.
12. **Screehng LM**. Recognition and treatment of salivary induced conditions. *Int Dent J* 1989; 39: 197-204.
13. **Marcus PA**, Joshi A, Jones JA and Morgano SM. Complete edentulism and denture use for elders in New England. *J Prosthet Dent.* 1996; 76: 260-266.
14. **Dosumu O.O**. Edentulousness in adult patients seen at the Dental Centre, University College Hospital Ibadan (January 1989-December 1990). Dissertation submitted to the National Post graduate Medical College, Nov. 1992.
15. **Esan T. A**, Olusile A. O, Akeredolu P. A, Esan A. O. Socio- demographic factors and edentulism: the Nigerian experience. *BMC Oral health.* 2004; 4: 3.
16. **Kivovics P**, Jahn M, Borbely J, Martonk. Frequency and location of traumatic ulceration following placement of complete dentures. *Int. J. Prosthodont* 2007; 20(4): 397-401
17. **Depaola LG**, Meiller TF, Leupod RJ, Balciunas BA, William GC. The relationship of medical problems and medications to treatment of denture patients. *Gerodontology* 1986; 2: 53-56.