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## RESEARCH ARTICLE

# A COMPARATIVE EVALUATION OF PROBLEMS EXPERIENCED BY DIABETIC AND NON-DIABETIC COMPLETE DENTURE WEARERS

<sup>1,\*</sup>Malaika Varma, <sup>2</sup>Dr. Seema Sathe Kambala and <sup>3</sup>Dr. Anjali Bhojar Borle

<sup>1</sup>Sharad Pawar Dental College, DMIMS, Deemed to be University

<sup>2,3</sup>Department of Prosthodontics, Sharad Pawar Dental College, DMIMS Deemed to be University, Sawangi (M), Wardha

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### ABSTRACT

**Aim:** To evaluate and compare the post operative complaints in diabetic and non diabetic complete denture wearers. **Objective:** The objective of the study was to evaluate and compare problems faced by diabetic and non diabetic complete denture wearers. **Materials and Method:** This study was done with a sample of 100 patients out of which half were diabetic and half were non-diabetic. A self-administered structured questionnaire pretested through a pilot survey was used in the study. The data was analyzed using the Graphpad Prism 7.0 version. **Results:** results show significant difference in almost all of the questions except appearance of white or reddish lesion, pain while eating, difficulty in speech, difficulty in chewing which were non significant between diabetic and non diabetic patients. **Conclusion:** Diabetic patients experienced more problems after wearing a complete denture as compared to non diabetic patients. The most frequent problem listed by 78 % of diabetic patient was bad smell.

## INTRODUCTION

The elderly population has remarkably increasing worldwide, one tenth to one fifth of the general population in about half of the population above the age of 65 are edentulous either partial or complete (Sandesh et al., 2013). Functions esthetics and phonetics gets impaired by the loss of teeth and hence it needs to be restored with prosthesis. Despite the uses and benefit of the implant, conventional denture is considered as the most common type of prosthesis among elderly patients (Huunonen et al., 2012). Tooth has a direct influence on reduced masticatory function and a shift towards poorly balanced diet which ultimately results into an intraoral diseases due to deficiency of various micronutrients leading to uncompromised immune status (Shah et al., 2004). Therefore dental prosthesis are considered as an important part of dentistry. Quality of a denture depends upon a number of factors such as retention, stability, fit, vertical dimension, occlusion, esthetics, accumulation of food under denture, speech, difficulty in chewing, etc. The wearing of a new complete denture may be associated with some of these complaints after few days of insertion (Laurina, 2006).

Diabetes mellitus is a chronic and metabolic disorder that affect more than 100 million people worldwide. They are associated with many of medical and intraoral problems. Soft tissue pathologies, particularly lesions associated with delayed healing and candidial infections, have been observed more frequently in diabetic populations and this are the important considerations in the quality of life of diabetic patients (Serap Akyuz et al., 2004). To promote oral health in diabetic patient is very important to educate them about oral health. Before education it is necessary to assess the problems faced by diabetic patients after wearing prosthesis. Therefore this survey was carried out to evaluate and compare the problems experienced by diabetic and non diabetic complete denture wearers and to determine the most frequent complaint.

## MATERIALS AND METHODS

A total of 100 complete denture wearers of which 50 were diabetic and 50 non diabetic were selected to carry out this survey. Study was conducted in the Department of Prosthodontics and crown & bridge, Sharad Pawar Dental College, Sawangi (M), wardha.

**\*Corresponding author:** Malaika Varma,  
Sharad Pawar Dental College, DMIMS, Deemed to be University.

**Inclusion criteria:** 100 Complete denture wearers of which 50 were diabetic and 50 non diabetic were selected for the study.

**Investigation:** A self-structured questionnaire was prepared to evaluate the denture related problems of completely edentulous diabetic and non-diabetic patients. A questionnaire was designed to know the problems faced by both diabetic and non-diabetic patients. Most of the diabetic patients with the prosthesis presented with complains such as taste alterations, halitosis, burning sensation, pain, ulcers while only few of the non-diabetic patients replied positively to these questions. After obtaining the consent of the patient the filled questionnaire the results of both diabetic and non-diabetic population was compared.

**Data analysis:** Statistical analysis was done by using descriptive and inferential statistics using chi square test and software used in the analysis was SPSS 22.0 Version and Graph Pad Prism7.0 version and  $P > 0.05$  is considered as level of significance.

## OBSERVATIONS AND RESULT

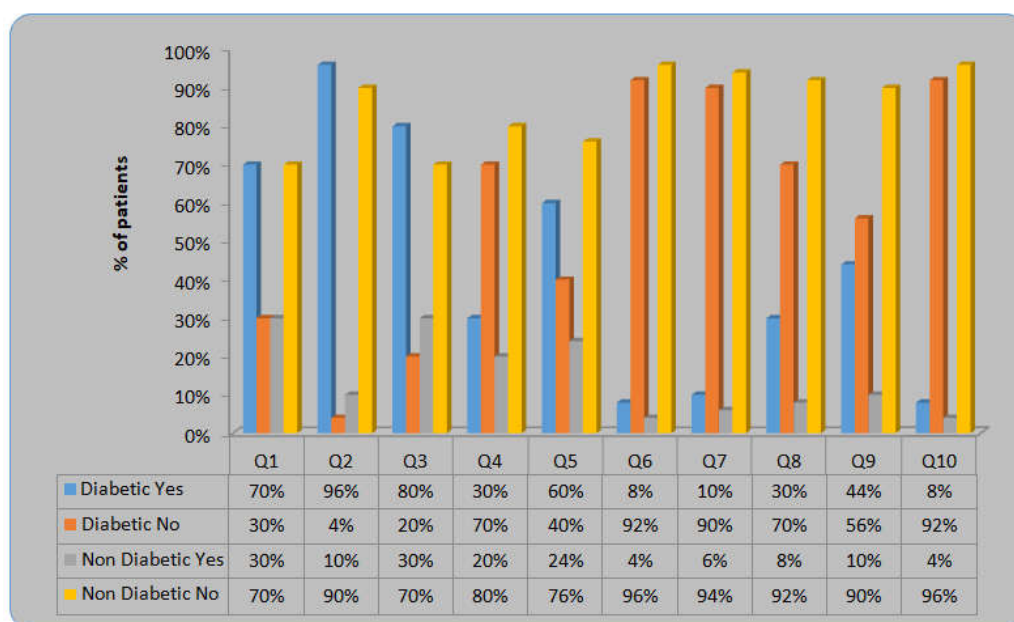
### RESULTS

The total study population was 100 which is further divided into 50 diabetic and 50 non diabetic patients. After denture insertion, post insertion instruction was given. The patient recall on follow up after a month.

On follow up visit when it was asked regarding cleanliness of denture almost all of them had a habit of daily cleaning as per instructions. This study comprised of diabetic and non diabetic patients. As diabetic patients are more prone to intra oral or autoimmune diseases, so this study was carried out to evaluate its influence on denture wearers and compare it with the problems experienced by diabetic patients over non diabetic patients. It was observed that 70% of diabetic patients and 30% of non diabetic have taste alteration after wearing denture, 96% of diabetic patients and 50% of non diabetic experienced bad smell/halitosis after wearing the denture, 80% of diabetic and 20% of non diabetic experienced white or reddish lesion after denture insertion, 60% of diabetic and 24% of non diabetic patients experienced discomfort after wearing the denture, 8% of diabetic patient and 4% of non diabetic patient experienced pain while eating, 10% of diabetic patients and 6% of non diabetic patients replied experienced difficulty in speech after wearing the denture, 30% of diabetic and 8% of non diabetic patients faced difficulty in opening mouth after wearing denture, 44% of diabetic and 10% of non diabetic patients had ulcerations due to denture, 8% of diabetic and 4% of non diabetic patients experienced difficulty in chewing. In the present study the results showed that diabetic patients experienced more problems after wearing a complete denture as compared to non diabetic patients as shown in Table 1 depicts significant difference in almost all of the questions

**Table 1. Comparative evaluation of problems experienced by diabetic and non-diabetic patients wearing complete denture**

Question	Diabetic		Non Diabetic		$\chi^2$ -value	p-value
	Yes	No	Yes	No		
Do you have taste alteration	35(70%)	15(30%)	15(30%)	35(70%)	32	0.0001,S
Do you experience bad smell/halitosis	48(96%)	2(4%)	5(10%)	45(90%)	148.5	0.0001,S
Do you feel burning sensation while wearing denture	40(80%)	10(20%)	15(30%)	35(70%)	50.51	0.0001,S
Do you experienced any white or reddish lesion after denture insertion	15(30%)	35(70%)	10(20%)	40(80%)	2.66	0.10,NS
Is there any pain or discomfort	30(60%)	20(40%)	12(24%)	38(76%)	26.60	0.0001,S
Do you experience pain while eating	4(8%)	46(92%)	2(4%)	48(96%)	1.41	0.23,NS
Difficulty in speech	5(10%)	45(90%)	3(6%)	47(94%)	1.08	0.29,NS
Difficulty in opening mouth	15(30%)	35(70%)	4(8%)	46(92%)	15.72	0.0001,S
Did you had any ulcers due to wearing denture	22(44%)	28(56%)	5(10%)	45(90%)	29.33	0.0001,S
Do you experience difficulty in chewing	4(8%)	46(92%)	2(4%)	48(96%)	1.41	0.23,NS



**Graph 1. Comparative evaluation of problems experienced by diabetic and non-diabetic patients wearing complete denture**

except appearance of white or reddish lesion, pain while eating, difficulty in speech, difficulty in chewing which were non significant between diabetic and non diabetic patients as shown in Graph 1.

## DISCUSSION

The mouth can function as an “early warning” system for some disease. The early identification of oral disease may contribute to the early diagnosis and treatment of diabetes (Serap Akyuz, 2004). Education of the patient particularly the diabetic complete denture wearer is very important for prevention of diabetes related oral complications like mucosal infections, neurological problems of taste and smell etc. For this assessment of diabetic patients wearing complete denture is helpful and the questionnaire studies play an important role for this purpose. The wearing of complete denture may be associated with some complaints especially immediately after the insertion of denture. The result of this study showed that most of the diabetic patient complained of halitosis (96%). This could be due to the fact that one of the feature of diabetes is xerostomia. This leads to bad mouth smell which was evident in our cases. This result agrees with the study carried out by Galli D in year 1978.

This study also agrees with the study by Sandesh Gosavi *et al* who said that this was because only half of their subjects were having the habit of removing denture during sleep (Sandesh *et al.*, 2013). 80% of the diabetic patients in our study complained of burning sensation while wearing denture<sup>6</sup>. 70 % of the diabetic patient experienced taste alteration. More than 200 reasons have been reported for taste alteration. Diabetes is one of them. Some patients cannot eat and they loose weight because of taste alteration (Berberoglu, 2000). 30 % of diabetic patients complained of discomfort with denture. This discomfort was due to mucosal injuries or traumatic ulcers. Soft tissue pathologies particularly lesions are more frequently observed in diabetic populations (Knecht, 2000). The fact that microvascular abnormalities leads to reduced response to tissue injury causing under perfusion during tissue stress and hypoxia could be one of the debilitating complications in diabetes. This finding does not agree with the findings of Brunello *et all* in 1998 who says that discomfort has no significant association with patients age sex or medical status (Brunello, 1998). 30% of the diabetic patient experience difficulty in opening of mouth. This could be due to problems of denture retention which were associated with some of the patients. This is a common problem and has been noted in the study by Bilhan *et al* in 2012 (Bilhan *et al.*, 2012).

## Conclusion

Halitosis was the most common complaint among complete denture wearer in the present study and the cause of it was mainly xerostomia and poor maintenance of complete denture hygiene in some cases. This study gives an awareness to dentist as to how important it is to give a consideration for salivary reservoir in patients with history of diabetes.

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