

AWARENESS OF DIABETIC PATIENTS REGARDING THEIR ORAL HYGIENE

¹NIDA TALPUR

²MUNIR AHMED BANGLANI

³SALMAN SHAMS

⁴SUNEEL KUMAR PUNJABI

ABSTRACT

The study was conducted at Diabetic Clinic of Liaquat University Hospital Hyderabad from July 2013 to December 2013, with the sample size of 200 patients who fulfilled the inclusion criteria. Data were collected through a self-designed questionnaire through an interview by the investigator.

79.5% patients did not know what type of diabetes they were suffering from 94% of the patients were well aware of the systemic complications of diabetes mellitus whereas 31.5% had no idea that being a diabetic they need to take extra care of their oral hygiene. Around 52% of the patients brushed their teeth once a day and 34% brushed twice a day. 69% of the participants did not take any extra measures for maintaining their oral hygiene. Gingivitis was thought to be the most common oral manifestation occurring in the oral cavity of a diabetic patient was the reply of 49.2% of the patients.

This study concludes that although diabetic patients seem to have a good knowledge and awareness about systemic complications related to the disease, the accurate awareness about oral hygiene, how to properly maintain it and diabetic related oral manifestations was deficient and there was considerable room for improvement.

Key Words: Awareness, Diabetes Mellitus, Oral hygiene.

INTRODUCTION

Globally, Diabetes Mellitus one of the common chronic metabolic disease has become a rapidly spreading public health problem.¹⁻³ The World Health Organization has announced it as an epidemic. Its prevalence has increased dramatically over the past few decades and is expected to triple in the next decade.⁴

In a developing country like Pakistan with a population of 180 million, 10% of the adult populations were estimated to be diabetic and 9.4 million undiagnosed, 3.5 million Pre diabetes, 38 million people, 20.5% women and 15.9% men have prediabetes. It is estimated that Pakistan was become 7th largest country in terms of Diabetes population.⁵

Correspondence: ¹Dr Nida Talpur, MSc Trainee, Department of Community Dentistry, Liaquat University of Medical & Health Sciences, Jamshoro. Email: nida_unique@hotmail.com
Cell: 0342-3155636

² Assistant Professor, BDS, MSc, Department of Community Dentistry, Liaquat University of Medical & Health Sciences, Jamshoro

³ Research Officer, MSc (Trainee), Institute of Dentistry, Liaquat University of Medical & Health Sciences, Jamshoro

⁴ Assistant Professor, Oral & Maxillofacial Surgery, Liaquat University of Medical & Health Sciences, Jamshoro

Received for Publication: May 2, 2015
First Revision: June 22, 2015
Second Revision: August 12, 2015
Approved: August 14, 2015

The disease is found to have several oral complications and manifestations. Poorly controlled diabetes is found to adversely affect salivary function and may lead to xerostomia and sometimes to sialosis.^{6,7,8} Dry mouth may be a causative agent for high prevalence of dental caries in these patients.⁴ Furthermore, several oral infections including bacterial, viral and fungal have also been shown to occur in patients suffering from diabetes.⁹

Researches carried out indicate a close relationship between the two diseases, as such that the periodontal disease worsening glycemic control and uncontrolled diabetes raising the chance of destructive periodontitis.¹⁰ Oral complications associated with diabetic patients can be effectively prevented by maintaining proper glycemic control and locally of course by keeping a healthy oral cavity.¹¹

METHODOLOGY

Two hundred diabetic patients fulfilling the inclusion criteria were included in this study. An informed written consent form was obtained from the subjects for collecting the data for this research study in their own language.

All the information including the age, gender, and awareness of the oral hygiene were obtained through

a self-designed questionnaire. These Proformas were filled by the investigator through an interview of the patients attending the diabetic clinic of Liaquat University Hospital, Hyderabad. Questions in the questionnaire were asked in the mother tongue of patients by the interviewer.

The data were analyzed by SPSS version 16.

INCLUSION CRITERIA

- Patients suffering from diabetes mellitus both type1 and type 2
- Patients aged between 40-60 years of age
- Either gender
- Patients willing to participate in the study

EXCLUSION CRITERIA

- Subjects having some abnormalities like physical, mental and psychological deficiencies
- Patients <40years and >60years of age.
- Patients not willing to participate in the study.
- Patients with any other medical diseases like leukemia, hemophilia.

RESULTS

Most of the patients were between 50-60 years of age. The average age of the patients was 50.05±6.47 years as represented in (Table 1). Out of 200 patients 48.5% were males and 51.5% were females (Fig 1).

Among the 200 patients 79.5% replied that they had no idea regarding the type of diabetes they were suffering from, 7.5% knew they had type1 and the rest 13% said they knew they were suffering from type 2 diabetes (Fig 2). 94% of the diabetic patients were well aware that diabetes does also effect other systems of their body only 5% disagreed and about 1% had no idea about it. (Table 2) 70.5% used a tooth brush for cleaning and maintaining their oral hygiene, 15.5% used Miswak (wooden stick), 13.5% used tooth powder as shown in Fig 3.

The subjects participating in the study were asked to mark any one disease they think is a more common finding in a diabetic patient. In reply to this 16.4% said that they think periodontal disease is most common in a diabetic, 49.2% said that they think that gingivitis is more common, tooth loss was thought to be occurring more in diabetic patients by 27.5% whereas 6.9% thought that other oral infections were more common (Table 3).

DISCUSSION

The findings of this study show that most of the patients were 50 to 60 years of age. The results of this

TABLE 1: AGE DISTRIBUTION OF THE PATIENTS (N = 200)

Age	#	%
40	24	12%
41	1	0.5%
42	11	5.5%
43	5	2.5%
44	5	2.5%
45	10	05%
46	7	3.5%
47	4	02%
48	11	5.5%
49	8	04%
50	35	17.5%
51	1	0.5%
52	10	05%
53	5	2.5%
54	4	02%
55	12	06%
56	3	1.5%
57	6	03%
58	7	3.5%
59	6	03%
60	25	12.5%
Total	200	100

Mean + SD= 50.05 + 6.47

TABLE 2: AWARENESS REGARDING AFFECT OF DIABETES ON OTHER SYSTEMS OF THE BODY (N = 200)

Question	Frequency	%age
Do you think diabetes has any affect on other system of your body		
Yes	188	94%
No	10	05%
No Idea	02	01%

TABLE 3: ORAL COMPLICATIONS THAT OCCURED IN A DIABETIC PATIENTS

Question	Frequency	%age
Mark one of the following oral complications you think can occur in a diabetic		
Periodontal disease	31	16.4%
Gingivitis	93	49.2%
Tooth loss	52	27.5%
Oral infections	13	6.9%

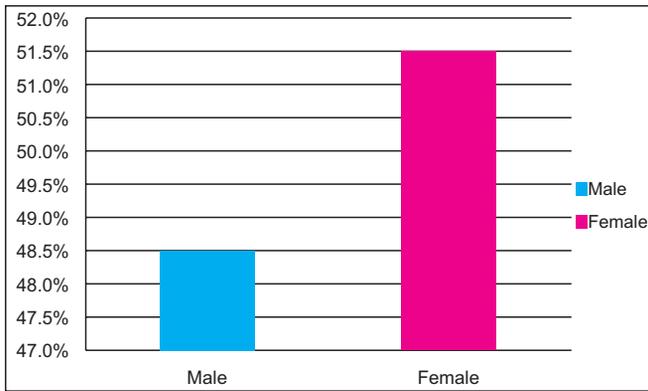


Fig 1: Gender distribution of the patients (n = 200)

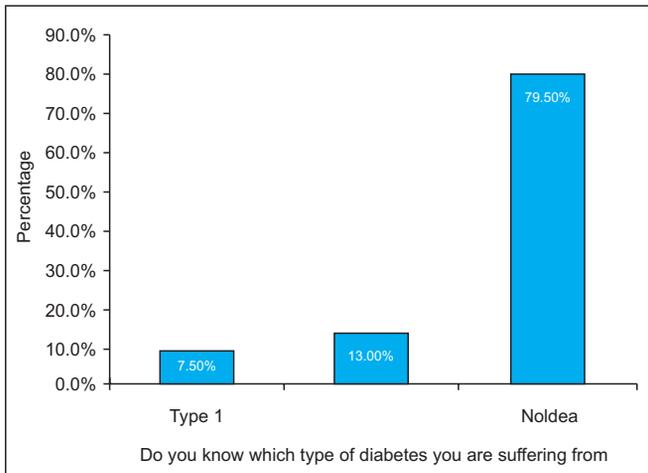


Fig 2: Type of diabetes

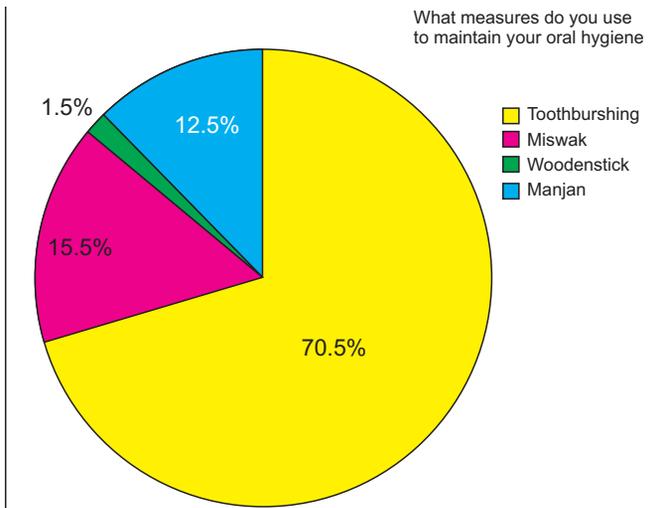


Fig 3: Measures taken for maintenance of oral hygiene

study reveal that 79.5% of the patients were unaware of the type of diabetes they were suffering from. A study done by Aziza H Eldarrat¹² shows only 16% of the patients were unaware.

The prevalence of diabetes worldwide has been increasing. It is estimated by WHO that 366 million people are expected to suffer from diabetes mellitus by 2030.¹³ The recent rise in diabetes is not a genetic

shift only but also an environmental shift as a result of lifestyle habits. The prevalence of type 2 diabetes is higher than type 1 diabetes. Majority of people with diabetes have type 2 diabetes (90- 95%). Unfortunately most of these people are unaware that they have diabetes mellitus.¹³

However, some diabetics know that they have the disease but do not know which type of diabetes they have although they are on medications for diabetes. Results of the study correlate with studies conducted by Eldarrat.¹⁴ He found out these 71% had type 2 diabetes, 18% of the participants suffered from type 1 and 11% did not know which type of diabetes they had. Similarly, another study showed that more than half of the diabetic participants (58%) had type 2 diabetes, 26% had type 1, and 16% did not know what type of diabetes they were suffering from.¹² Other investigators found 27% of diabetic participants had type 1 diabetes, 66% type 2 and 7% did not know what type of diabetes they had.¹⁵

Persistent hyperglycemia in uncontrolled diabetic cases has repeatedly been reported to be associated with serious systemic effects of diabetes mellitus, and these are responsible for the high rate of morbidity and mortality seen in the diabetic population.¹⁶ The 94% participants of this study showed systemic effects of the diabetes mellitus. These results were similar with studies done by Manfredi et al and Skamagas et al.^{17,18}

Miswak (wooden stick) use was being practiced by 15.5% patients for their oral hygiene maintenance. This differs from the findings of Jamjoum et al¹⁹ in Saudi Arabia. They reported that 73% patients was using Miswak as an oral hygiene aid.

When diabetes mellitus is left uncontrolled for an extended period, it negatively affects the flow of salivary glands and results in xerostomia. It also causes sialosis, taste impairment, dental caries and periodontal disease leading to teeth loss, oral infections like i-e; fungal infections and conditions like lichen planus, geographical tongue and fissured tongue.^{17,18,20,21}

CONCLUSION

The dramatic increase of the global prevalence of diabetes among adults is attributed to a genetic shift and an environmental shift as a result of modern lifestyle habits such as unhealthy diet, obesity and physical inactivity etc. Despite the worldwide recognition of the dangers of diabetes mellitus, diabetic patients' awareness of and attitudes toward their increased risk for oral diseases has not been fully addressed.

Diabetic patients are much less informed of their risk for dental diseases in comparison with their knowledge of their increased risk for systemic diseases.

es. Thus, it is necessary for dental professionals and related government agencies to promote awareness of the relationship between diabetes mellitus and oral health in order to prevent harmful complications.

REFERENCES

- 1 Diabetes- a global threat. *Lancet* 2009; 373: 1735.
- 2 World Health Organization. Global Prevalence of Diabetes: Estimates for the year 2000 and projection for 2030. Geneva: World Health Organization, 2009.
- 3 Abegunde DO, Mathers CD, Taghreed A, Ortegón M, Strong K. The burden and costs of chronic diseases in low-income and middle-income countries. *Lancet* 2007; 370: 1929-38.
- 4 Al-Maskari AY, Al-Maskari MY, Al-Sudairy S. Oral Manifestations and Complications of Diabetes Mellitus: A review. *Sultan Qaboos Uni Med J*. 2011; 11(2): 179-86.
- 5 Diabetes Statistics in Pakistan: <http://diabetespakistan.com/treatment/2013/05/08/diabetes-statistics-in-pakistan/>
- 6 Vernillo AT. Dental considerations for the treatment of patients with diabetes mellitus. *Am Dent Assoc*. 2003; 134: 24-33.
- 7 Yuen HK, Wolf BJ, Bandyopadhyay D, Magruder KM, et al. Oral health knowledge and behavior among adults with diabetes. *Diabetes Res Clin Pract*. 2009; 86: 239-46.
- 8 Al Habashneh R, Khader Y, Hammad MM, Almuradi M. Knowledge and awareness about diabetes and periodontal health among Jordanians. *J Diabetes Complications*. 2010; 24: 409-14.
- 9 Baldwin E. Oral Health. *Lancet* 2009; 373: 628-29.
- 10 Moritz A, Mealey B. Periodontal disease, insulin resistance, and diabetes mellitus: a review and clinical implications. *Grand Rounds Oral-Sys Med*. 2006; 2: 13-20.
- 11 Moore PA, Orchard T, Guggenheimer J, Weyant RJ. Diabetes and oral health promotion: a survey of disease prevention behaviors. *Journal of the American Dental Association* 2000; 131: 1333-41.
- 12 Eldarrat AH. Diabetic Patients: their knowledge and perception of oral health. *Libyan J Med*. 2011; 6: 5691-96.
- 13 Delong L & Burkhart N. Endocrine disorders. In *General and oral pathology*. 1st edition Philadelphia: Lippincott Williams & Wilkins. 2008, pp 147-78.
- 14 Eldarrat AH. Awareness and attitude of diabetic patients towards their increased risk for oral diseases. *Oral Health & Prev Dent*. 2011; 9: 235-41.
- 15 Allen EM, Ziada HM, O'Halloran D, Clerehugh V, et al. Attitudes, awareness and oral health related quality of life in patients with diabetes. *J Oral Rehab*. 2008; 35: 218-23.
- 16 Grover HS, Luthra S. Molecular mechanisms involved in the bidirectional relationship between diabetes mellitus and periodontal disease. *J Indian Soci Periodonto*. 2013; 17: 292-301. doi:10.4103/0972-124X.115642.
- 17 Manfredi M, McCullough MJ, Vescovi P, Al-Kaarawi ZM, et al. Update on diabetes mellitus and related oral diseases. *Oral Diseases*. 2004; 10: 187-200.
- 18 Skamagas M, Breen TL, LeRoith D. Update on diabetes mellitus: prevention, treatment, and association with oral diseases. *Oral Disease*. 2008; 14: 105-114.
- 19 Jamjourn H. Preventive Oral Health Knowledge, Practice And behavior in Jeddah, Saudi Arabia. *Odonto-Stomatologie Tropicale* 1997; 13-18.
- 20 Tanwir F, Tariq A. Effect of glycemic control on periodontal status. *J Coll Phys & Surg Pak*. 2012; 22: 371-74.
- 21 Burt BA. (2005). Position paper: epidemiology of periodontal diseases. *J Periodon*. 2005; 76: 1406-19.

CONTRIBUTION BY AUTHORS

- | | |
|--------------------------------|--|
| 1 Nida Talpur: | Data collection, introduction writing. |
| 2 Munir Ahmed Banglani: | Discussion & conclusion writing. |
| 3 Salman Shams: | Results compiling/data analysis. |
| 4 Suneel Kumar Punjabi: | Proof reading, editing. |