

Knowledge about Oral Health-Related to Quality of Life in Diabetic Patient

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Abstract:- Diabetes mellitus is a most common chronic disease which is characterized by elevated level of glucose in the blood. A number of oral diseases and disorders have been associated with it. Diabetic patient shows an increased risk of oral disorder and oral health related to quality of life (OHRQL) that might affect their management and also their treatment modalities. A good oral hygiene and regular dental visits are recommended to prevent and manage oral health problems. This study shows how diabetes mellitus affect the oral health and oral health related to quality of life. For a safe management of Diabetes Mellitus patients requires an effective communication among the health care providers. Dentists should know the techniques to diagnose, treat and prevent stomatological disorders in Diabetes Mellitus patients.

Keyword:- Diabetes Mellitus, Oral Health, Quality Of Life, Gingivitis.

I. INTRODUCTION:-

Disease is an abnormal condition that affects the structure or function of a part or all part of the body and not due to external injury i.e., associated with certain signs and symptoms. There are several systemic disease of which diabetes mellitus is one of them (1). Diabetes is a chronic metabolic disease that is characterized by elevated level of glucose in the body and defect in insulin secretion or insulin function or both (2). Diabetes is a disease that is characterized by polyuria (abundant production of urine), polydipsia (abundant production of water) and polyphagia (excessive hunger) (3).

There are several medical and oral complications. In which oral complications include tooth loss, gingivitis, periodontitis, reduced salivary flow, increased salivary glucose and soft tissue pathologies like Candida infections (1). Type 1 diabetes mellitus is referred as insulin – dependent diabetes mellitus (IIDM), mostly seen in younger adults. It is an autoimmune disorder that results by

destruction of beta cells of islets of langerhans (4). Type 1 diabetes leads to hypo salivation and increases risk of developing caries (1).

Type 2 diabetes is referred as non-insulin dependent diabetes mellitus (NIIDM), usually seen in older adults, that leads to changes related to age, arteriosclerosis (1). It is encountered that high prevalence of oral complications includes xerostomia, taste impairment, oral candidiasis, oral lichen planus and periodontal disease (2). However several studies conducted worldwide tells us that people with diabetes lack important knowledge on oral health and have poor level of oral self – care (5).

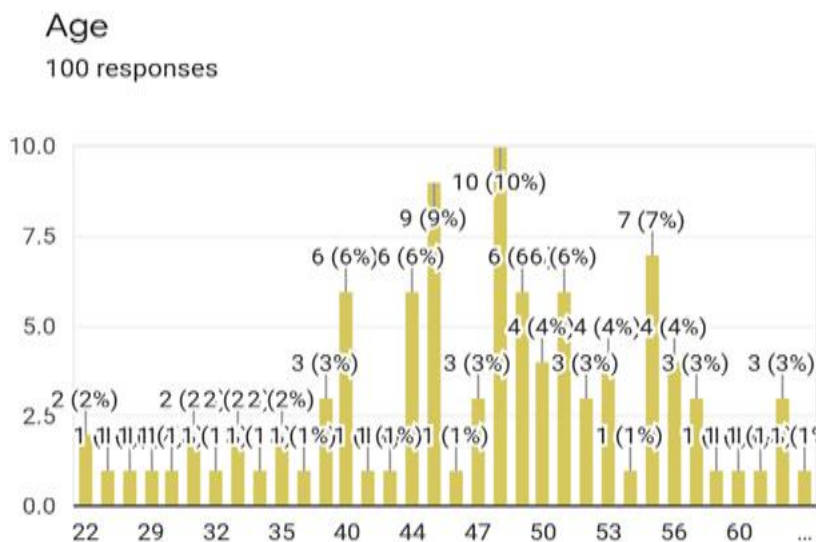
II. METHODS AND METHODOLOGY

Survey questions were distributed as Google forms to the people who has diabetes and to people whose family members are diabetic. A total of 100 questionnaire forms were sent. 20 questions were framed up with choice of four options respective to each questions was made. People were asked to choose one answer in the choices set up.

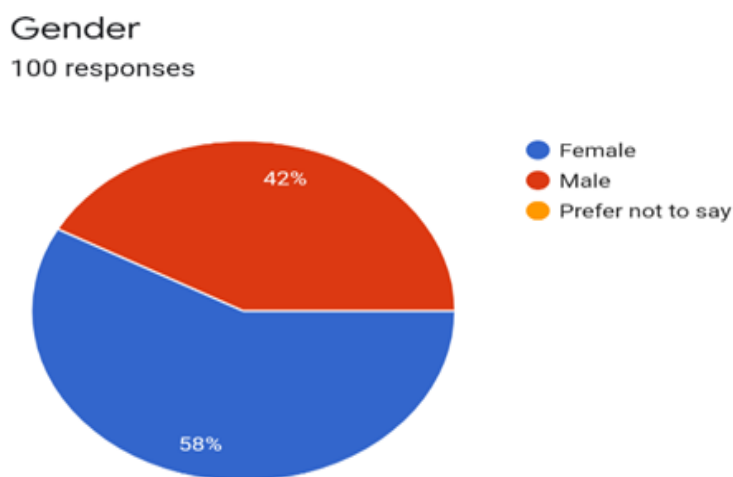
The survey was conducted among the common people who have diabetes or a family member who has diabetes majorly in South India. The questions were about length of their diagnosis, cause of extraction, oral hygiene habits, treatment undergoing, and oral problems related to diabetes like bleeding gums, oral ulcers, and their restrictions of their food habits were also included. Ethical committee approval was obtained from the university. People were verified about the survey and informed consent was obtained.

III. RESULTS

This study was conducted “oral health related to quality of life in diabetic patients”. A total of 100 samples were collected of age [fig-1] ranged from 22-60 years of which 58 (58.0%) were female and 42 (42.0%) were male [fig-2].



[Fig-1]



[Fig-2]

When questioned about their ‘type of diabetes’, 71% of our participants said that they have type 1 diabetes and about 29% said that they have type 2 diabetes.

Regarding ‘Treatment procedures they are undergoing’, most of the participants are taking oral anti diabetic drugs. About 16 % of them said that they are taking insulin for diabetes,11% of the participants are taking both and very few participants are not taking any medications but they said they are following diet as their treatment.

When asked about their oral hygiene habits, most people around 67% told they brush their teeth only once a day and about only 33% of participants brushes twice a day.

And regarding awareness of diabetes related to oral health 37% of participants told that they are aware of the

effects of diabetes on oral health .and they have mentioned the source of knowledge is majorly from their doctor followed by dentists and internet, TV and social media .63% participants said that they don’t have any awareness.

And related to oral health 43% told sometimes they have bleeding gums during brushing and 15% of them often experiences this problem .10% of them told that they always have bleeding gums. 19% of them do not have this problem at all.

“Do you think oral problems affect your day to day activities“(n=67) of participants selected the option “sometimes” it affects ,14% selected the option “always” ,13% selected it never affected their day to day activities.

QUESTION	OPTION	FREQUENCY	PERCENTAGE
1) Smoking status	Chain smoker (more than 3 cigarette per day)	9	9.0
	Non smoker	76	76.0
	Smoker (1 cigarette per day)	15	15.0
2)Type of diabetes	Type 1	71	71.0
	Type 2	29	29.0
3)Length of diagnosis	< 5 years	61	61.0
	10 - 14 years	4	4.0
	15-19 years	1	1.0
	20-24 years	1	1.0
	5 - 9 years	32	32.0
	More than 25 years	1	1.0
4)What is the treatment procedure you are undergoing for diabetes	Oral anti diabetic drugs	63	63.0
	combined	11	11.0
	Diet	16	16.0
	Insulin	10	10.0
5)What is the cause of your tooth extraction	Both of the above	39	39.0
	Caries	39	39.0
	Mobility	13	13.0
	No missing tooth	9	9.0
6)How many missing teeth do you have	0	6	6.0
	1	4	4.0
	2	12	12.0
	3	12	12.0
	4	10	10.0
	5	6	6.0
	6	4	4.0
	7	1	1.0
	8	9	9.0
	10	2	2.0
	12	2	2.0
	Nil	32	32.0
7)Do you brush your teeth twice a day	No	67	67.0
	Yes	33	33.0
8)Did your physician referred you to visit a dentist	No	48	48.0
	Yes	52	52.0
9)Are you aware of effects of diabetes on oral health	No	63	63.0
	Yes	37	37.0
10.Do you talk to your dentist about your diabetes when you visit for any other oral problem	Often	2	2.0
	Sometimes	81	81.0
	Always	15	15.0
	Never	2	2.0
11) Do you visit your dentist for regular checkup	Sometimes	81	81.0
	Often	6	6.0
	Never	4	4.0
	Always	9	9.0
12) Do you have trouble in biting or chewing	Sometimes	68	68.0
	Often	6	6.0
	Never	24	24.0
	Always	2	2.0

13) Do you feel pain or any discomfort while eating food	Sometimes	65	65.0
	Often	4	4.0
	Never	22	22.0
	Always	9	9.0
14) Do you feel any mouth dryness	Sometimes	69	69.0
	Often	10	10.0
	Never	15	15.0
	Always	6	6.0
15). Do you find any bleeding gums during brushing your teeth	Sometimes	43	43.0
	Often	31	31.0
	Never	19	19.0
	Always	7	7.0
16). Do you find any delay in wound healing mainly in your oral cavity	Sometimes	56	56.0
	Often	15	15.0
	Never	19	19.0
	Always	10	10.0
17). Do you have any mouth/oral ulcers	Sometimes	44	44.0
	Often	25	25.0
	Never	28	28.0
	Always	3	3.0
18. Do you feel that you have bad breath	Sometimes	60	60.0
	Often	16	16.0
	Never	17	17.0
	Always	7	7.0
19. Do you have any restrictions while eating food	Sometimes	53	53.0
	Often	7	7.0
	Never	13	13.0
	Always	27	27.0
20) Do you think any oral problems affect your day to day activities?	Sometimes	67	67.0
	Often	6	6.0
	Never	13	13.0
	Always	14	14.0

IV. DISCUSSION

Diabetes mellitus affects all age people and its prevalence has been increasing to provide safe and effective oral medical care for diabetic patients must understand the disease and can be familiar about its oral manifestations. Oral health promotion in diabetic patient's diagnosis and prevention of diabetes in dental patients who are receiving routine stomatological care and enhancing the quality of life for patients is the therapy of goal.

The dentist plays a significant role with allied members of the health team in helping a patient maintain glycemic control by properly treating oral infections and by instructing the patient with diabetes to require care of rigorous oral hygiene and an accurate diet. The dentist also plays a task in referring undiagnosed diabetic patients to a physician for evaluation. The dentist can counsel patients with diabetes to stop smoking as it is a major risk factor which can exacerbate variety of the vascular complications associated with diabetes.(6)

Questions	Option	Frequency(n)
Do you find any bleeding gums during brushing your teeth	Sometimes	43
	Often	31
	Never	19
	Always	7
Do you find any delay in wound healing, mainly in your oral cavity	Sometimes	56
	Often	15
	Never	19
	Always	10

Hypoglycemia is that the main issue that sometimes confronts dental practitioners when they're treating patients with diabetes mellitus, especially when patients are asked to fast before undergoing a particular dental procedure. Although patients with diabetes mellitus usually recognize hypoglycemia and take action before becoming unconscious, occasionally they'll not.

Dental practitioners should be trained to acknowledge and treat patients who have hypoglycemia. Patients who have DM and exhibit unusual behaviour should raise

suspicion among staff members, and a glucometer should be used to test their blood glucose levels. Each dental office/clinic should have emergency medicines for treating hypoglycemia in both conscious and unconscious patients. (7) Treatment of oral complications of diabetes. Dentists must be cognizant for treating effectively the oral complications of DM. Many treatments aren't different from those recommended for general population without diabetes. However, managing diabetes patients do require more rigorous follow-up, more aggressive interventional therapy rather than observation, regular communication with physicians and greater attention to prevention. Diabetes patients, with a history of poor glycemic control and oral infections require frequent recall visits and fastidious attention should tend to acute oral infections (8).

Question	Option	Frequency(n)
Do you feel any mouth dryness	Sometimes	69
	Often	10
	Never	15
	Always	6
Do you have any mouth/oral ulcers	Sometimes	44
	Often	25
	Never	28
	Always	3
Do you feel that you have bad breath	Sometimes	60
	Often	16
	Never	17
	Always	7

One of the foremost important complaints of diabetic patients is xerostomia, which can contribute to some oral problems, like tooth decay, halitosis, oral burning sensation, oral ulcers and accumulation of plaque [9-11] which can cause gingival inflammation, in patients with poor oral hygiene; on the other hand, in diabetic patients, because of disturbances in function of white blood cells and vascular changes in gingiva, flow of nutrients to the oral tissues and removal of noxious agents from oral tissues decrease, which successively can decrease the facility of host defense mechanisms to resist inflammation [12]. Therefore, in such patients there's higher CAL and more severe periodontal diseases.

Some studies have shown a far better rate of cavity in diabetic patients because of xerostomia and seepage of glucose into Gingival Cervicular Fluid (GCF) (13, 14). An increase in number of lost teeth in diabetic patients with xerostomia might be attributed to tooth mobility because of periodontal diseases and an increase within the incidence of cavity in such patients, which is consistent with the results of present study, indicating higher CAL and more lost teeth in patients with xerostomia.

REFERENCES

- [1]. Kumari, et al.: Oral health-related quality life in well-controlled diabetic patients of Modinagar city: A cross-sectional study.
- [2]. JODDD, Vol. 8, No. 4 autumn 2014
- [3]. Hindawi Biomed Research International Volume 2019, Article ID 5907195, 14 pages <https://doi.org/10.1155/2019/5907195>
- [4]. 2020 Journal of Family Medicine and Primary Care | Published by Wolters Kluwer – Medknow
- [5]. 5.2011 Macmillan Publishers Limited. All rights reserved.
- [6]. Diabetes and Oral Health SahanaU.Baratakke 1, Rekha Raju2, Sushi Kadanakuppe3, NagashreeSavanur Ravindranth4, Radha Gubbihal5, Pallavi Swami Kausalya6, International Journal of Oral Health and Medical Research | ISSN 2395-7387 | NOVEMBER-DECEMBER 2016 | VOL 3 | ISSUE 4
- [7]. Lalla RV, Ambrosio JA. Dental management considerations for the patient with diabetes mellitus. JADA 2001; 132:1425-32.
- [8]. Taylor GW. Periodontal treatment and its effects on glycemic control: a review of the evidence. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1999; 87:311-16.
- [9]. Manfredi M, McCullough MJ, Vescovi P, and Al-Kaarawi ZM, Porter SR: Update on diabetes mellitus and related oral diseases. Oral Dis 2004, 10:187–200.
- [10]. Vernillo AT: Dental considerations for the treatment of patients with diabetes mellitus. J Am Dent Assoc 2003, 134:245–335.
- [11]. Lux J, BA MSW: Review of the oral disease-systemic disease link. Part I: heart disease, diabetes. CJDH 2006, 40:288–342.
- [12]. Ueta E, Osaki T, Yoneda K, and Yamamoto T: Prevalence of diabetes mellitus in odontogenic infections and oral candidiasis: an analysis of neutrophil suppression. J Oral Pathol Med 1993, 22:168–174.
- [13]. Hallmon WW, Mealey BL: Implications of diabetes mellitus and periodontal disease. Diabetes Educ 1992, 18:310–315.
- [14]. Sandberg GE, Sundberg HE, Fjellstrom CA, and Wikblad KF: Type 2 diabetes and oral health: a comparison between diabetic and non-diabetic Subjects. Diabetes Res Clin Pract 2000, 50:27–34.