

**ORAL HEALTH RELATED QUALITY OF LIFE IN WELL CONTROLLED AND UNCONTROLLED TYPE II DIABETIC PATIENTS ATTENDING TMU MEDICAL HOSPITAL, MORADABAD CITY**Dr. Debashis Roy<sup>1</sup>, Dr. Pradeep Tangade<sup>2</sup>, Dr. Najmus Sahar<sup>\*3</sup>, Dr. Surbhi Priyadarshi<sup>4</sup>, Dr. Mushahid Hasan<sup>5</sup><sup>1,3,4</sup>Postgraduate Student, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, U. P.<sup>2</sup>Prof. & Head, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, U. P.<sup>5</sup>Postgraduate Student, Subharti Dental College, Uttar Pradesh.**\*Corresponding Author: Dr. Najmus Sahar**

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**ABSTRACT**

**Introduction:** Diabetes is one of the major Public Health Issue Worldwide. Diabetes Is Now Considered To Be Heterogenous Group of Disease, Characterized By A State Of Chronic Hyperglycemia Resulting From Diversity Of Aetiology, Environmental And Genetic Acting Jointly. Diabetes And Its Complications Affecting Oral Health Related Quality Of Life. Some Studies Have Reported That Diabetic Patients Have Poor Oral Health Of Life. This Can Be Assessed By Understanding The Consequences Of Oral Diseases And Patients Perception Regarding Oral Health. Thus This Study Was Conducted To Know The Oral Health Related Quality Of Life In Well Controlled And Uncontrolled Type Ii Diabetic Patients Attending Tmu Medical Hospital, Moradabad City. **Materials and Methods:** A Questionnaire based study was conducted on 350 diabetic patients attending Teerthanker Mahaveer Hospital, Moradabad. A total of 175 diabetes (controlled diabetes) and 175 in (uncontrolled diabetes) were included in the study. Sociodemographic details including age, Gender were recorded. Oral health impact profile (OHIP-14) Questionnaire was used to know the oral health quality of life. **Results:** The results showed that scores of uncontrolled diabetes group were more in OHIP-14 experienced in difficulty in chewing, shollowing, speaking and during eating respectively (p=0.000). Oral Health Impact profile-14 showed that impact was more in uncontrolled diabetic patients as compared to controlled diabetic patients. In uncontrolled diabetics 27.3% had difficulty in chewing food, 20.0% were feeling self conscious, 12.7% oftenly felt tense, 33.3% felt irritable, 46.7% were unable to enjoy other people company, 6.7% were having unclear speech. The difference between the uncontrolled and controlled diabetics was statistically significant when analyzed using the Chi square test at p less than 0.05. **Conclusion:** Oral health quality of life negatively affect the quality of life in diabetes subjects.

**KEYWORDS:** DIABETES MELLITUS, QUALITY OF LIFE.**INTRODUCTION**

Disease is defined as the specific abnormal condition negatively affecting the structure or part of all organism and is not caused by any external injury.<sup>[1]</sup> Diabetes Mellitus is one of the most common disease worldwide affecting developing and developed countries.

World Health Organization declared that diabetes is one of the major cause of death by the 2030 in the world.<sup>[2]</sup> According to International Diabetes Federation, around 366 million people have reported to have diabetes.<sup>[3]</sup> In India, about 32 million individuals reported to have diabetes which tends to have highest prevalence worldwide. These numbers are estimated to increase to 80 million by 2030.

Diabetes Mellitus is chronic metabolic disease characterized by elevated level of glucose in blood

resulting from the defects of insulin action, insulin secretion or both.<sup>[4]</sup> Diabetes has three mainly three identification features mainly polyuria (increase production of urine), Polydipsia (increase in ingestion of water), Polyphagia (Excessive hunger).

Oral health diseases such as periodontitis, Dental caries, toothloss can negatively affect patients' Health related quality of life.<sup>[5]</sup> The most common oral health problems associated with Diabetes are tooth decay, dental caries, increase prevalence of xerostomia. There are basically two types of diabetes mellitus, Type I diabetes mellitus, Type II diabetes mellitus. Type 2 diabetes is the most leading form of diabetes which comprises at least 90% of all cases of diabetes mellitus.<sup>[6]</sup>

Complications of diabetes mellitus accounts for increased mortality, morbidity, disability for all

developing countries. Complications include diabetic nephropathy, neuropathy, retinopathy, atherosclerosis, coronary artery disease. Oral complications of diabetes include dry mouth(xerostomia), gingivitis, periodontitis, tooth loss, oral pathologies.<sup>[7]</sup>

Type II diabetes mellitus had developed into an universal community problem. It also affect the world economy directly or indirectly as it somehow has reached epidemic levels.<sup>[8]</sup>

Studies have reported that diabetes is can alter the oral and general health of the individuals affecting their quality of life. It is important to know the interaction of oral health quality of life in diabetes patients. According to World Health Organization, Quality of life is defined as the individual's perception of their position in life, in the context of culture, value system belief, where they live, and in relation to goals, expectations, standards and concern.<sup>[9]</sup>

Evaluating diabetic patient's well-being and oral health related quality of life will be useful in managing and improving their health status and to overcome any further complications involved. Mortality and disability are other related factors that may be increased due to Type II diabetes mellitus. Formerly considered to be adult-onset diabetes, incidence of type 2 diabetes is increasing in younger populations including adolescents and children.<sup>[10]</sup>

People with diabetes often feel challenged by their disease and it demands day-to-day management and these demands are substantial. Patients must deal with their diabetes every day, making countless decisions in an effort to approximate the non-diabetic metabolic state.

Thus, The present study was carried out to know the oral health related quality of life in Type II Diabetic patients In Teerthanker Mahaveer Hospital, Moradabad.

## MATERIALS AND METHOD

A Questionnaire Based comparative study was conducted 350 patients attending Outpatient Department of Teerthanker Mahaveer Hospital, Moradabad. The ethical clearance was obtained from the institutional ethical committee prior to the onset of the study. The selected participants who had diagnosis of Diabetes attending the TMU hospital were included in the study. The participants who were ready to give the consent were included in the study. Participants who were aged from 35years to 60 years above were included in the study. Those participants who were unable to understand the questionnaire were excluded from the study. Those participants who were present with systemic condition such as cirrhosis, pulmonary disorder (COPD), HIV, pregnancy, smoking, cardiovascular disease were excluded from the study.

The participants were divided in two groups diabetic as well as non diabetic group .Participants who were diagnosed with type 2 diabetes mellitus based HbA1c <5.7% were kept under controlled diabetics group and HbA1c >5.7% as uncontrolled diabetics group.

General information of the participants including age, gender, type of diabetes were recorded.

The research was recorded on 350 subjects which consisted of 175 uncontrolled diabetes and 175 controlled diabetes. All the participants were informed about the questions in their own language of communication to remove the bias. All the subjects were informed about the aim and objective of the study.

## STATISTICAL ANALYSIS

Collected Data were tabulated and evaluated statistically using Statistical Package for Social Service (SPSS) version 21 software for Microsoft excel. 'P' value of <0.05 was considered to be statistically significant.

## RESULTS

S.no.	Questions		Uncontrolled	Controlled	p Value
1.	Difficulty Chewing Food	Very often	27.3%	21.1%	0.032
		Sometimes	6.1%	5.6%	
		Rarely\ never	66.7%	73.2%	
2.	Difficulty Pronouncing Words	Very often	1.8%	3.8%	0.474
		Sometimes	15.8%	13.6%	
		Rarely\ never	82.4%	82.6%	
3.	Being Self Conscious	Very often	20.0%	9.9%	0.018
		Sometimes	55.2%	64.3%	
		Rarely\ never	24.8%	25.8%	
4.	Felt Tense	Very often	12.7%	11.7%	0.030
		Sometimes	52.8%	51.6%	
		Rarely\ never	29.1%	36.6%	
5.	Unable to Brush Teeth Properly	Very often	35.2%	38.2%	0.527
		Sometimes	26.7%	21.1%	
		Rarely\ never	38.2%	40.1%	

6.	Diet Unsatisfactory	Very often	33.9%	38.2%	0.615
		Sometimes	29.1%	21.7%	
		Rarely\ never	37%	40.1%	
7.	Unclear Speech	Very often	6.7%	6.1%	0.021
		Sometimes	17.0%	10.8%	
		Rarely\ never	76.4%	83%	
8.	Disturbed Sleep	Very often	6.7%	7.1%	0.654
		Sometimes	44.2%	39.6%	
		Rarely\ never	49.1%	53.3%	
9.	Difficulty in Relaxing	Very often	19.4%	19.3%	0.825
		Sometimes	23.6%	30.7%	
		Rarely\ never	57%	50%	
10.	Being Irritable	Very often	33.3%	25.5%	0.023
		Sometimes	33.9%	36.3%	
		Rarely\ never	32.7%	38.2%	
11.	Difficulty Doing Jobs	Very often	27.9%	29.7%	0.275
		Sometimes	23.6%	17%	
		Rarely\ never	48.5%	53%	
12.	Unable to enjoy other people Company	Very often	46.7%	40.6%	0.047
		Sometimes	34.5%	37.3%	
		Rarely\ never	18.8%	22.2%	
13.	Felt Life Unsatisfactory	Very often	29.1%	32.7%	0.722
		Sometimes	35.8%	32.7%	
		Rarely\ never	35.2%	34.6%	

S.no.	Questions		Male	Female	p Value
1.	Difficulty Chewing Food	Very often	26.8%	20.7%	0.321
		Sometimes	5.2%	6.5%	
		Rarely\ never	68.0%	72.8%	
2.	Difficulty Pronouncing Words	Very often	4.1%	1.6%	0.047
		Sometimes	10.8%	18.5%	
		Rarely\ never	85.1%	79.9%	
3.	Being Self Conscious	Very often	13.9%	14.7%	0.918
		Sometimes	59.8%	60.9%	
		Rarely\ never	45%	24.5%	
4.	Felt Tense	Very often	13.4%	10.9%	0.303
		Sometimes	57.7%	51.1%	
		Rarely\ never	28.9%	38.0%	
5.	Unable to Brush Teeth Properly	Very often	36.1%	37.7%	0.247
		Sometimes	22.1%	25.7%	
		Rarely\ never	41.8%	36.6%	
6.	Diet Unsatisfactory	Very often	36.1%	28.4%	0.034
		Sometimes	25.3%	30.6%	
		Rarely\ never	38.7%	41.0%	
7.	Unclear Speech	Very often	6.7%	6.0%	0.799
		Sometimes	12.4%	14.8%	
		Rarely\ never	18.9%	79.2%	
8.	Disturbed Sleep	Very often	5.2%	8.7%	0.374
		Sometimes	41.8%	41.5%	
		Rarely\ never	53.1%	49.7%	
9.	Difficulty in Relaxing	Very often	22.2%	16.4%	0.045
		Sometimes	29.4%	25.7%	
		Rarely\ never	48.5%	57.9%	
10.	Being Irritable	Very often	28.4%	29.5%	0.942
		Sometimes	35.1%	35.5%	
		Rarely\ never	36.6%	35.0%	
11.	Difficulty Doing Jobs	Very often	29.4%	28.4%	0.447
		Sometimes	17.5%	22.4%	

		<b>Rarely\ never</b>	<b>53.1%</b>	<b>49.2%</b>	
<b>12.</b>	Unable to enjoy other people Company	<b>Very often</b>	<b>42.8%</b>	<b>43.7%</b>	<b>0.728</b>
		<b>Sometimes</b>	<b>35.1%</b>	<b>37.2%</b>	
		<b>Rarely\ never</b>	<b>22.2%</b>	<b>19.1%</b>	
<b>13.</b>	Felt Life Unsatisfactory	<b>Very often</b>	<b>33.2%</b>	<b>29.0%</b>	<b>0.491</b>
		<b>Sometimes</b>	<b>34.7%</b>	<b>33.3%</b>	
		<b>Rarely\ never</b>	<b>32.1%</b>	<b>37.7%</b>	

In the present table there is intergroup comparison between the oral health impact profile among uncontrolled and Controlled diabetics. Oral Health Impact profile-14 showed that impact was more in uncontrolled diabetic patients as compared to controlled diabetic patients. In uncontrolled diabetics 27.3% had difficulty in chewing food, 20.0% were feeling self conscious, 12.7% often felt tense, 33.3% felt irritable, 46.7% were unable to enjoy other people company, 6.7% were having unclear speech. The difference between the uncontrolled and controlled diabetics was statistically significant when analyzed using the Chi square test at p less than 0.05.

The table shows the intergroup comparison of oral health impact profile in between the males and females. Difficulty in Pronouncing Words (4.1%), Unsatisfactory diet (36.1%) and Difficulty in Relaxing (22.2%) was more pronounced in the males as compared to the females. The difference between the groups was statistically significant when analyzed using the Chi square test at p less than 0.05.

## DISCUSSION

The present study was conducted to know the oral health quality of life in uncontrolled and controlled diabetes mellitus patients of Teerthanker Mahaveer Hospital, Moradabad. Diabetes mellitus is considered to be the most prevalent chronic disease affecting developed as well as developing countries which can affect the oral health along with general health. Hence, there is increase evidence of oral complications related to diabetes. Studies on oral health related quality of life expresses all the psychological and clinical aspects of life and can be used for the future planning of public health policies.<sup>[11]</sup> Many researchers have conducted the research on quality of life among diabetic patients, but only few studies have investigated the oral health related quality of life in this population.

Type II diabetes mellitus is considered to be most common type of diabetes, affecting 90 to 95% of diabetic individuals. It is characterized by hyperglycemia in blood due to defects in action and secretion of insulin.<sup>[12]</sup> Hyperglycemia is associated with alteration in normal flora of mouth, opportunistic infections, delayed healing of injured mucous membrane, decrease in flow of saliva and decreased in immunity in patients.

Oral Health Impact Profile(OHIP), also known as OHIP-14 questionnaire comprises of 14 questions that focus on seven dimensions of impact (i.e. physical pain,

functional limitation, psychological discomfort, psychological disability, physical disability, social disability and handicap).<sup>[13]</sup> The study conducted by Batra M and Jain R et al also used GOHAI and OHIP-14 questionnaires to know the oral health related quality of life in diabetes patients. This questionnaires was used because it is universally acceptable and have reliability.

In the present study, OHIP-14 items related to pain was most prevalent. Our study had findings that maximum patients with uncontrolled diabetes were having pain and discomfort while eating (85.8%) which might be due to periodontal diseases, tooth loss or mobility of teeth.<sup>[14]</sup> Most of the participants of uncontrolled diabetes were having deep psychological impact and pain and discomfort than controlled diabetes worried (80.5%) and tensed (85.5%). Many studies have suggested that higher level of stress directly affect the nervous system, it increases secretion of glucagon resulting increase in levels of glucose levels. In present study, uncontrolled diabetes patients had more psychosocial impact than controlled diabetes. Similar findings were reported by Sousa De Vieira Raulison et al where similar level of impact i.e functional limitation, physical pain, psychological and social disability was reported in diabetic patients.

Oral health quality of life (OHIP-14) was more sensitive for determining pain and psychological discomfort and physical pain. Most common complaint due to diabetes is xerostomia which can lead to periodontitis, plaque accumulation, dental plaque, candidiasis.<sup>[15]</sup>

Most of the researchers have suggested that major complaint due to diabetes is xerostomia which can lead to significant oral problems like plaque accumulation, candidiasis, periodontitis, periapical abscess and burning mouth syndrome affecting the quality of life of the patients.<sup>[16]</sup> In our study, we found that patients with poor glycemic control, had difficulty in chewing food(82.6%), altered taste(83%) which indicate presence of xerostomia. Although it was noticed that altered taste sensation was seen in both uncontrolled and controlled diabetes but uncontrolled diabetes have more altered taste sensation.

In the present study particular age group (35-44 (44-60)year WHO indexed was selected because majority of the participants in this age group have certain diseases like hypertension, diabetes mellitus, Obesity, periodontal disease, tooth loss. Our study found statistically significant association with oral health related quality of

life in diabetes patients. Our study also found that it has greatest negative impact on quality of life due to physical pain and discomfort. Similar findings have been reported in the study conducted by Kumara Monika et al where uncontrolled diabetes patients have poor quality of life.<sup>[17]</sup>

In the present study it was found that males were having difficulty in pronouncing words, 4.1%), Unsatisfactory diet (36.1%) and Difficulty in Relaxing (22.2%) as compared to the females. This might be due to the consumption of tobacco smoking along with systemic diseases.

The results of the present study indicated that T2DM did not have a negative impact on the OHRQoL of older adults, and the difference between the OHRQoL of the T2DM group and healthy controls was not statistically significant. In our study, age of the participant, educational level, and frequency of toothbrushing showed a significant association with the OHRQoL of the patient. Although this study showed more impact on oral health related quality of life in uncontrolled diabetic patients, limitations should be considered in the interpretation of the results. The patients were not clinically examined. These results were collected from patients who were referred to one hospital only. Patients usually reply to questions with answers which seem to be more reasonable. Based on the results of this survey, it was seen that OHRQoL is adversely affected by the presence of uncontrolled diabetes mellitus dentists and physicians play an important role in improving diabetic patients' knowledge regarding oral complications and their effect on their quality of life.<sup>[18]</sup>

The overall evaluation of our study revealed that diabetes did not hamper the OHRQoL of patients to a larger extent; however, there might be a relationship between some variables and OHRQoL. At the same time, the significant correlation between OHRQoL and general health in our study needs more attention since it is a relevant topic in the field of both dentistry and general medicine.

## CONCLUSION

This study showed the oral health related quality of life in well controlled and uncontrolled type II diabetic patients. This study concluded that uncontrolled diabetes is related with various oral health status like pain and discomfort while eating, deep psychological impact, difficulty in chewing, altered taste sensation, difficulty in pronouncing words, xerostomia etc.<sup>[19]</sup> though there was not any pessimistic effect on OHRQoL of older individuals with T2DM.

Uncontrolled diabetes can result in various complications which can only be controlled if precautionary measures are taken at an early age. Diabetes and its general and dental health issues can be managed by changing lifestyle and following proper routine and being active.

The lethal complications and ill effects of this disease should be minimized by visiting the general and dental practitioners at regular intervals and moreover the dentists and general practitioners should work in collaboration to combat the adverse effects of diabetes.<sup>[20]</sup>

Emphasis should also be led on patient's education and their awareness regarding the disease.

## RECOMMENDATIONS

It is recommended that dental professionals play a vital and major role to come across any oral diseases, lesions or difficulty in oral cavity while screening patient's oral cavity. They should provide or advise the required preventive measures along with the treatment required.

Patients should control and have restrictive glycaemic levels allowing them to maintain their quality of life, preventing disease progression and diabetic complications. Certain measures and strategies should be followed to diagnose diabetes at an early age so that blood pressure, albumin levels, lipid levels etc. can be maintained and controlled.

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