



## FREQUENCY OF DENTAL CARIES AMONG PATIENTS WITH TYPE-II DIABETES MELLITUS.

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### INTRODUCTION

Chronic disease of dental caries is particular amongst human and is one of the vital not unusual essential oral health events globally nowadays. It is the destruction of difficult acellular tissue of the dental via acidic by acidic side-effects from the bacterial growth of dietary sugars.<sup>1</sup> World health organization declared that the poor oral health status may have a thoughtful effect on the health mostly as quality of the life, and many diseases of oral cavity are associated with chronic diseases.<sup>2</sup> Dental Caries is very important oral health issue worldwide, though situations like as carcinoma of oral cavity, pharynx and lesions of oral tissues are also significantly concerning events.<sup>3</sup> Dental caries can be described through pain experience, eating and chewing problems, smiling and the communications due to missing, discolored or the damage teeth.<sup>2</sup> When left dental caries untreated these may lead to pain, infections, loss

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**ABSTRACT...** To determine the frequency of dental caries in patients with type II diabetes mellitus. **Study Design:** Cross sectional study. **Setting:** Dental OPD LUMHS Jamshoro. **Period:** 6 months from October 2016 to February 2017. **Materials and Methods:** All the diagnosed patients with type II diabetes mellitus of either gender were selected for the study. Complete dental clinical examination and duration of diabetes were carried out. Dental caries were categorized as mild moderate and severe. Duration of diabetes was categorized as < 5 years and > 5 years. All the data was recorded in the self-made proforma. **Results:** In this study total 58 patients were selected with history of type II diabetes mellitus; patient's mean age was 46.36±5.34 years. Male gender was found in the majority 38(65.5%). Majority of the cases 37(63.8%) were found with low socioeconomic status. 26(44.8%) patients had history of type II diabetes mellitus less than 5 years, 32(55.2%) were with more than 5 years history of diabetes. 15.51% patients were without dental caries, 37.39% patients were with mild, 34.4% had moderate and 12.06% patients were with severe dental caries. No significant difference was found in severity of dental caries when compared with duration of diabetes p-value 0.93. **Conclusion:** We concluded that there are a big prevalence dental caries among patients with type II diabetes mellitus, while severity of dental caries was insignificantly associated with duration of diabetes.

**Key words:** Dental Caries, Dietary Sugars, Diabetes Mellitus, Frequency, Oral hygienic.

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of tooth and eventually edentulism. Presentation of these oral manifestations may hinder quality of life, nutrition and, potential control of glycemic status. It is importantly known that cases with diabetes mellitus are susceptible to other several oral problems, like as periodontal disease and salivary disorders (dry mouth), which could raise their risk for newly developed and the recurrent dental caries.<sup>4</sup>

Diminished secretion of salivary glands, raised of the carbohydrate in the parotid gland saliva, oral yeasts growth, Streptococcus lactobacilli and Streptococcus mutans increased development are factors associated to be accountable to predispose diabetes to high frequency of dental caries.<sup>5</sup> Raised dental caries risk, would be associated to certain factors like as poor oral hygiene or a un-control of blood glucose. Diabetes is the commonest illness associated to

oral presentation which impacts on dental care, and there is concern regarding the ability of oral appearance to intensely affect metabolic control of diabetes state.<sup>4</sup> In some studies showed that dental caries prevalence was located to be less in diabetes patients in contrast to non-diabetic group,<sup>6-8</sup> while some other reported dental caries prevalence higher among diabetic group and some showed no difference.<sup>9-11</sup> A review in the literature shows that there is no strong association between diabetes mellitus and dental caries.<sup>4</sup> After above controversial findings this study has been conducted to assess the frequency of dental caries in patients with type II diabetes mellitus.

### MATERIAL AND METHODS

This cross sectional study has been conducted at Science of Dental Materials department and Oral pathology department, with 6 months duration from October 2016 to February 2017. All the patients with diagnosis of type II diabetes mellitus either gender were integrated. All the patients those were not agreeing to participate in the study and having history of dental caries before diagnosis of diabetes were excluded from the study. All included patients were underwent complete dental clinical examination and duration of diabetes was carried out. Dental caries were categorized as mild moderate and severe. Duration of diabetes was categorized as; less than 5 years and more than 5 years. All the data regarding patient's age, gender, their socioeconomic status, duration of diabetes and severity of dental caries was entered in the self-made Performa for the purpose of analysis, and analysis was done by using the SPSS version 16.

### RESULTS

In this study total 58 patients were selected with history of type II diabetes mellitus; patient's mean age was 46.36+5.34 years. Male gender was found in the majority 38(65.5%), while female were 20(34.5%). Majority of the cases 37(63.8%) were found with low socioeconomic status, 13(22.4%) were with middle socioeconomic class and 08(13.8%) patients were with upper socioeconomic class. 26(44.8%) patients having history of type II diabetes mellitus less than 5 years, 32(55.2%) were with more than 5 years

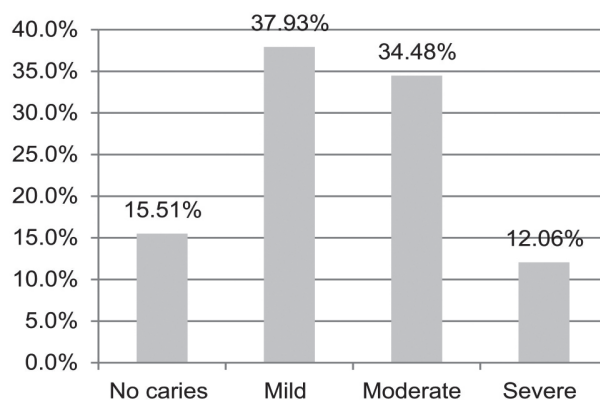
history of diabetes. Table-I

In this study only 15.51% patients were without dental caries, while remaining were found with dental caries and further categorized as 37.39% patients were with mild dental caries, following by 34.45% cases had moderate dental caries and 12.06% patients were with severe dental caries. Figure-1

A higher prevalence found of dental caries in diabetic patients but no significant difference was found in severity of dental caries when compared with duration of diabetes. Out of 22 cases with mild dental caries 11 were with duration of diabetes less than 5 years and 11 with diabetes duration more than 5 years. From 20 cases of moderate dental caries 8 had <5years duration of diabetes and 12 were with diabetes duration more than 5 years. Out of 7 severe dental caries patients 3 had <5 years diabetic duration and 4 were history of diabetes more than 5 years. Table-II.

Basis Characteristics	Frequency	Percent
<b>Gender</b>		
Male	38	65.5%
Female	20	34.5%
<b>Socio-economic Status</b>		
Low	37	63.8%
Middle	13	22.4%
Poor	8	13.8%
<b>Duration of Diabetes</b>		
<5 years	26	44.8%
>5years	32	55.2%
Total	58	100.0%

**Table-I. Basis characteristics of patients n=58**  
Age (Mean+SD) = 46.36±5.34 years



**Figure-1. Frequency of dental caries n=58**

Severity of Dental Caries	Diabetes Duration		P-Value
	<5 Years	>5 Years	
Non	04	05	0.93
Mild	11	11	
Moderate	08	12	
Severe	03	04	
Total	26	32	

**Table-II. Severity of dental caries according to duration of diabetes n=58**  
Chi-square test applied

## DISCUSSION

This study has been conducted to determine the frequency of dental caries in patients having type II diabetes mellitus and total 58 patients were selected with history of type II diabetes mellitus; Patient's mean age was 46.36±5.34 years. Similarly in a study of Miralles L et al<sup>12</sup> reported that in diabetic patients mean age was (7.41±4.17) years. We found male gender in the majority 38(65.5%), while female were 20(34.5%). Similarly in the study of Gupta VK et al<sup>13</sup> reported that in diabetic group out of 140 cases 52.7% were male and 47.3% were females.

In this study only 15.51% patients were without dental caries, while remaining were found with dental caries and further categorized as 37.39% patients were with dental caries, following by 34.45% cases had moderate dental caries and 12.06% patients were with severe dental caries. Similarly in the study of Abayon M et al<sup>14</sup> reported that moderate to severe dental caries among patients having diabetes. In the favor of this study Maj Saravanan SP et al<sup>15</sup> stated that out of all cases 34% were without caries 23% were with very mild caries, 28.5% were with mild caries, 10.2% were with moderate caries and only 3.5% were with severe caries.

In this study only 15.51% patients were without dental caries, while remaining were found with dental caries and further categorized as 37.39% patients were with mild dental caries, following by 34.45 cases had moderate dental caries and 12.06 patients were with severe dental caries. Several other studies demonstrated that diabetes mellitus may cause of the increasing risk of

periodontal disease, alveolar bone loss, gingivitis and the dental caries in those cases having very poor control on the glycemic status.<sup>16,17</sup> On other hand studies stated that oral health events of the periodontal disease are often encountered in cases having diabetes mellitus.<sup>16-18</sup> Association between DM and the dental caries has been investigated previously, while no clear positive correlation was seen. In literature it is found that cases having diabetes are more susceptible to the oral sensory, periodontal disease, and also salivary abnormalities those can raise the risk for development of recurrent and the new dental caries.<sup>19</sup> In study it is explored that the link between factors of the diabetes and dental status.<sup>18</sup>

We found higher prevalence of dental caries in patients with type II diabetes mellitus. Similarly in a study stated no link was in-between control of metabolic status of disease and dental caries.<sup>20</sup> On other hand Moore et al.<sup>21</sup> reported an raised incidence of dental caries in diabetics cases located specially at regions of root and dental neck. A study on 42 cases having Type II DM and controls reported significant statistical difference in-between mean of decayed, missing, and filled of the crown and the root's surfaces and filled surface between 2 study groups. Though converting scores to frequency to missing teeth account revealed no statistical significant difference in frequency of the decayed and filled surface of tooth between diabetes and non-diabetes cases.<sup>22</sup> Similar comparison was found in cases with controlled diabetes, poor controlled diabetes, and non-diabetic, and no significant difference was seen.<sup>14</sup> According to these findings it can be suggested that diabetic and poorly controlled diabetics may not be significantly linked with the raised prevalence of dental caries. This may be because of small sample size conducted studies in literature,<sup>22</sup> as well in our study. Our study was containing on small sample size and without control group. Similarly to our study some studies in the literature showed conflicting findings, and it is suggested that further studies are required for determine the potential link between DM and the dental caries.<sup>14</sup>

## CONCLUSION





We concluded that there was higher frequency of dental caries in patients with type II diabetes mellitus, while severity of dental caries insignificantly associated with duration of diabetes.

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