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ORIGINAL ARTICLE

Knowledge and Awareness of Oral Health in Type 2 Diabetes Mellitus Patients Visiting A THQ Hospital in Punjab, Pakistan

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ABSTRACT

Aim: Oral complications of diabetes mellitus have an influence on the general health and well-being of the people and demonstrate to be a burden for the dental health sector, predominantly in developing countries. The current study aimed to check the awareness and knowledge of oral health status concerning Type II diabetes mellitus patients at a THQ hospital in Sargodha, Pakistan, and perform an oral examination to evaluate oral health status.

Methods: This study was conducted at a THQ hospital in District Sargodha in which 180 Type 2 diabetes mellitus patients were included. Data was documented employing a structured questionnaire which was administered to participants visiting the outpatient department.

Results: The average age was documented to be 41.58 ± 8.35 years. It was discerned that 44% of the study participants had adequate oral health awareness; however, 56% had insufficient oral health understanding. The outcomes indicated that 62% had adverse oral health as revealed by their scores on the oral health attitude questionnaire while 38% were noticed to have good oral hygiene. It was also seen that the oral health attitude was strongly correlated with oral health knowledge (P 0.01).

Conclusions: The findings of this study signify that Type 2 diabetes mellitus patients visiting district Sargodha have insufficient oral health awareness and reveal undesirable oral health attitudes. Based upon these results, community-oriented oral health promotion programs are essential to steer the lifestyle of diabetic patients.

Keywords: Knowledge, dental, Diabetes mellitus, Type II diabetes, Oral health, Oral complications.

INTRODUCTION

Diabetes mellitus ensues to be a collection of metabolic disorders instigated by deficiency of insulin, resistance to its outcomes, or both.[1] Diabetic individual suffer from hyperglycemia consequently of the body's incapability to sustain standard blood glucose levels.[2] Diabetes mellitus transpires to be the ninth highly widespread reason of death globally and it is anticipated that half of the deaths below 70 years of age deaths were due to diabetes in 2019.[3] The foremost impact of the disease is on grownups mainly in unindustrialized countries.[4] The incidence of diabetes mellitus and its health consequences have augmented precipitously in South Asia in comparison to any other part of the globe.[5]

Diabetes adds to the load of preventable diseases and leads to financial losses.[6] The occurrence of diabetes mellitus in Pakistan within the 20–79 year age bracket is 6.2 million which designates that above 11% of the mature population have been diagnosed with diabetes mellitus.[7,8] This disease is associated with complications in the body and the oral cavity. Oral complications are gingivitis, periodontitis, xerostomia, opportunistic infections, accumulation of plaque, delayed wound healing, etc. These influence the general health and well-being of the population and strain the dental health sector, predominantly in developing countries.[9] It also increases the risk for periodontal diseases.[10-12]

Pakistan is a developing country bearing an excessive burden of this disease. The Pakistani health system is persistently confronted by low monetary provisions, negligence, and lack of responsibility. Under such conditions, it is of paramount importance that health professionals, as well as patients, comprehend the significance of disease awareness and its prevention. The appraisal of available information and amenities, perceptions, attitude, and practices is significant for the delivery of optimal health care as they are the foundation for strategic health planning and decision making.[13] This study aimed to fill this gap in prevailing research in the country concerning awareness of oral health knowledge and attitude in Type 2 diabetes mellitus patients visiting a secondary care health facility, as well as carry out an oral examination to evaluate oral health status.

PATIENTS AND METHODS

This cross-sectional descriptive study was conducted from October 2013 to December 2013 and convenience sampling technique was used. Prior approval was attained from the corresponding Executive District Officer Health and Medical Superintendent of THQ hospital for the enrolment of study subjects. Ethical approval was also taken from the institutional review board (IRB letter dated January 1, 2014). A total of 180 Type 2 diabetes mellitus patients visiting THQ hospital Sillanwali, District Sargodha participated in this study. Participants were educated about the intentions of the study and verbal as well as written consent was acquired from willing participants.

Data was gathered through a structured questionnaire which was administered to participants visiting Out-Patient Department at Tehsil Head Quarter Hospital, Sillanwali, district Sargodha. In addition to gathering data participants were also evaluated for their oral health knowledge and attitude. Data was entered into SPSS 20 for statistical analysis. Age was presented as mean ± standard deviation and the significance level was kept at $P \leq 0.05$.

RESULTS

In the study sample of 180 Type 2 diabetes mellitus patients, the mean age was recorded to be 41.58 years with a standard deviation of 8.35. The frequency distribution of participants' age indicated that the majority of them were over 40 years old within a range of 34 - 50 years (Figure 1).

Oral Health Knowledge and Attitudes: Results related to oral health revealed that 47% of the study population had some knowledge regarding diabetes-related oral health problems from medical doctors, 40% had acquired this information from the society, 11% received this information from the media, and 2% of the study participants informed obtaining this information from their dental practitioners (Table 1).

In the present study, 44% of the study participants had acceptable oral health information as shown by their scores on the structured oral health knowledge questionnaire while 56% fell in the group having insufficient oral health awareness. The findings in this study also pointed out that 62% of the study participants had

unfavorable oral health approaches as revealed by their scores on the structured oral health attitude questionnaire while 38% were discovered to have appropriate oral health approaches as measured by the aforementioned tool.

The oral health behavior amongst Type 2 diabetes mellitus patients was cross-tabulated alongside oral health knowledge among Type 2 diabetes mellitus patients and a significant association was found (Table 2). It was also found that the oral health attitude was strongly associated with oral health knowledge. Type 2 diabetes mellitus patients having sufficient oral health awareness had an elevated percentage of oral health approach in comparison to the patients with inadequate oral health knowledge.

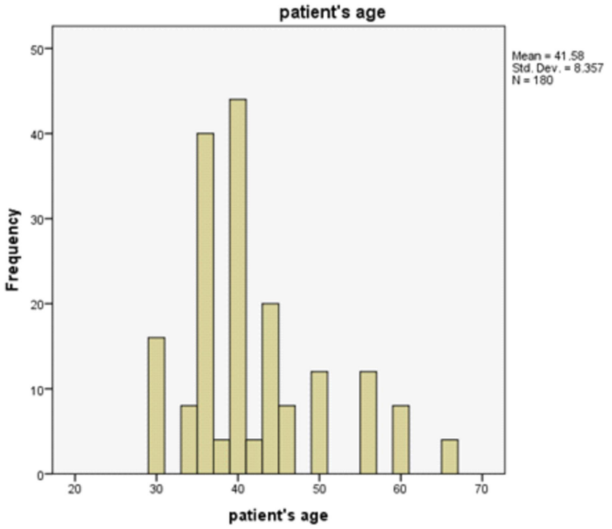

Figure 1: Bar Chart Showing Age Frequency of Study Participants

Table 1: Oral Health Knowledge And Attitude Of Study Participants

S.No.	Variable	Categories	Number of Participants	Percentage
1	Source of Information	Television	20	11%
		Physician	84	47%
		Community	72	40%
		Dentist	4	2%
2	Oral Health Knowledge	Adequate	79	44%
		Inadequate	101	56%
3	Oral Health Attitudes	Good oral health attitude	68	38%
		Adverse oral health attitude	112	62%

Table 2: Cross Tabulation Between Oral Heal Attitude And Oral Health Knowledge

	Oral Health Attitude					P-value
	Categories	Good		Bad		
		Frequency	% age	Frequency	% age	
Oral Health Knowledge	Adequate	64	35%	15	9%	0.001
	Inadequate	4	2%	97	54%	

DISCUSSION

This study was carried out to fill the gap in prevailing research in our country concerning awareness of oral health understanding and attitude in Type 2 diabetes mellitus patients visiting a secondary care health facility. Findings of this study disclosed that greater than half of the study participants did not have satisfactory oral health knowledge and awareness correlated with diabetes mellitus. These conclusions are coherent with investigations performed worldwide including the ones carried out in developed countries on oral health knowledge and attitudes of Type 2 diabetes mellitus patients.[14-20]

Yuen et al found out that 47% of their study participants had acceptable oral health knowledge of oral complications of diabetes.[14] Similarly, in a study conducted in Jordan, 48% of the study participants were conscious of diabetic patients' susceptibility to periodontal disease, whereas 38% recognized the effects of periodontal disease on glycemic control. The prevalence of oral health attitudes in the participants of the present study also corresponds to previous research where similar proportions of Type 2 diabetes mellitus patients have been found to show good and adverse oral health attitudes.[15]

In another study carried out by Sahril et al. in Malayasia, it was seen that merely 35.5% of Diabetes Mellitus patients knew of the existe nce of a link between diabetes and oral health status whereas 60% did not recognize the existence of this bond between diabetes and oral health. This observation is also sustained by the findings of Bowyer et al., and Valerio et al., which indicated that the knowledge and awareness of the association between diabetes and oral health were insignificant amongst the study population.[16-18]

Lasisi et al reported that 20.3% of the study participants had adequate oral health, 24.5% knew that diabetes could deteriorate oral health conditions and merely 2.1% knew the relationship between diabetes and oral health conditions. In another study carried out in India by Parakh et al, they found a significant lack of knowledge concerning oral manifestations of diabetes mellitus amongst patients and concluded that steps have to be taken to intensify this awareness employing outreach programs which were similar to our study findings. [19-20]

In a study carried out at a hospital in Lahore, Masood et al found that 57% of participants were unaware that due to diabetes mellitus they were susceptible to oral disease, and 7.6% declined the presence of any connection between diabetes mellitus and oral health. [21] Another study reported that the level of knowledge about diabetes mellitus was insufficient; furthermore a substantial correlation concerning lack of knowledge and oral wellbeing was appreciated in their sample. [22]

Regarding attitudes, 98% of the study participants were of the view that they have to be cautious concerning their oral hygiene as reported by De Silva et al. [23] The consideration given to oral health was found to be least among diabetics and non-diabetics so no modification about oral health awareness was seen in this study. [24] Regarding the effect of diabetes mellitus on oral health it was observed that 83% of the study participants anticipated that diabetes mellitus did not influence oral health status whereas another study reported that 43.5% of patients knew that they are more prone to oral complications. [25-26]

This low level of awareness in our as well as in the rest of the studies is due to the non-availability of oral health education and due to lack of awareness. Lack of awareness of oral health in Type 2 diabetes mellitus patients in this study as well as in others is a causative component related to the small number of diabetes patients who have their regular oral cavity examinations and treatments. For the betterment of Type 2 diabetes mellitus patients, it is appropriate that health care providers should reinforce their role in enhancing patients' understanding towards the maintenance of oral hygiene.[27]

CONCLUSION AND RECOMMENDATIONS

The findings of this study indicate that Type 2 diabetes mellitus patients visiting THQ Sillanwali, District Sargodha possess insufficient oral health awareness and exhibit adverse oral health attitudes. The majority of these patients had gathered information regarding oral complications of diabetes from their physicians, and not from their dentists. Health professionals should reinforce their roles to inform diabetic patients about oral manifestations and complications of diabetes mellitus to encourage appropriate oral health attitudes. They must offer oral health tidings regarding oral complications of diabetes as well as direct concerns towards dental practitioners.

Limitations: The primary restraint of this study was the usage of convenient sampling technique because of resource restrictions, restraining the generality of study outcomes. Moreover, as the evaluations of some study variables were history-based they may have undergone limitations in the recall.

Conflict of Interest: None.
Grant Support & Financial Disclosures: None

Authors' Contributions:

FR: Contributed to the conceptualization of the study and is responsible for the integrity of the study.
AE: Helped in the acquisition, analysis, interpretation of data, and writing of the manuscript.
EH: Contributed to the initial write-up in the introduction and discussion part.
AR: Revised it critically for important intellectual content.
All authors have read and approved the manuscript

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