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Research Article

The relations among obesity, diabetes mellitus and periodontitis in common people of Pakistan: A study analysis

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ABSTRACT

Introduction: Diabetes is a major cause of mortality globally, and it has been estimated that 400 million people worldwide will suffer from it by 2030. Despite the fact that hereditary qualities seems to assume an essential part in the advancement of diabetes, examine recommends that dietary decisions driven by natural and financial components are of critical significance.

Objectives of the study: Our main objective is to find the relations among obesity, diabetes mellitus and periodontitis in common people of Pakistan.

Methodology of the study: The study was conducted at Tehsil Head Quarter Hospital, AhmadpurSial, Jhang, Pakistan. This area of Pakistan is considered to be the less aware area regarding awareness of diabetes. This study was conducted during October 2016 to February 2017. There was 100 patients which was visit the health center during this time period.

Result: Results shows that values of glucose become high diabetic patients as compared to normal values. IFG factor shows that diabetic people suffer more from oral health problems as compared to others.

Conclusion: Obesity for many is a sensitive subject and may not be easy to bring up. Hence the need for more education. The demand for dental hygienists who specialize in treating patients with obesity may increase as the condition itself is increasing and the link with inflammatory diseases is relevant.

Keywords: Diabetic, Patients, Globally

INTRODUCTION

Diabetes is a major cause of mortality globally, and it has been estimated that 400 million people worldwide will suffer from it by 2030. Despite the fact that hereditary qualities seems to assume an essential part in the advancement of diabetes, examine recommends that dietary decisions driven by natural and financial components are of critical significance. Amazing eating regimens assume an essential part in diabetes avoidance.[1] Suitable dietary adherence can enhance insulin affectability and glycemic control, and consequently add to way of life change and general personal satisfaction. Nonetheless, past research recommends that dietary adherence is seemingly among the most troublesome foundations of diabetes administration.[2] Higher HEI scores demonstrate nearer adherence to current dietary rules for singular food and supplement gatherings.

For the sufficiency segments, for example, vegetables and natural product, a higher score demonstrates higher utilization. Dietary proposals depend on the useful effects of devouring products of the soil and expressly stress their constructive outcomes of decreasing corpulence and certain sorts of growths. The last three segments of the HEI incorporate refined grains, sodium, and discharge (calories from strong fats, liquor, and included sugars) and a higher score demonstrates bring down utilization.[3,4]

Obesity creates risk for chronic health problems, is associated with increased mortality and exists in complexes of multiple, clustered behavioral risk factors. Similarly periodontal disease is one of the world's most common chronic diseases. Increasing evidence establishes periodontal disease as a significant risk factor in the etiology of diseases with inflammatory components. Severe periodontal disease is the well-established sixth complication of diabetes and the relationship may be two-way.[5] Obesity is a systemic disease predisposing to co-morbidities and complications that affect overall health; cross-sectional research suggests obesity is associated with periodontal diseases by underlying biologic mechanisms yet to be established.[6]

Obesity rates and its associated health problems have risen to exponential proportions in the United States (U.S.) and globally.1 Obesity has been targeted as the sixth most significant risk factor worldwide that is known to contribute to both oral and other associated systemic diseases. According to the Centers for Disease Control and Prevention (CDC), the prevalence of obesity among adults in the U.S. is 40% and 18.5% in youth with prevalence higher among middle aged adults (42.8%) than younger adults (35.7%). As of 2016, nearly two billion people worldwide were either overweight or obese. Research indicates accumulated excessive fat from being overweight or obese contributes to serious health impairments.[7] World-wide obesity is associated with increased risk for chronic inflammatory diseases such as arthritis, diabetes, cardiovascular disease, and some cancers. Increasing concerns regarding obesity-related health implications include adverse consequences on oral health, in particular periodontal disease. Obesity is also be measured by waist circumference (WC) with ≥ 102 cm and ≥ 88 cm for males and females respectively, indicative of obesity.[8]

OBJECTIVES OF THE STUDY

Our main objective is to find the relations among obesity, diabetes mellitus and periodontitis in common people of Pakistan.

METHODOLOGY OF THE STUDY

The study was conducted at Tehsil Head Quarter Hospital, Ahmadpur Sial, Jhang, Pakistan. This area of Pakistan is considered to be the less aware area regarding awareness of diabetes. This study was conducted during October 2016 to February 2017. There was 100 patients which was visit the health center during this time period. We assess the level of glucose in those patients who was obsess and suffering from oral health issues. We measure the glucose level both before fasting and after fasting. For this purpose 5cc blood of patients were drawn for CBC analysis. The economic and health status describe the level of awareness regarding disease. The collected data were analyzed using SPSS software (version 17). The results are presented as a mean with 95% confidence interval limits or standard deviations. The significant value for $P < .05$ was accepted as statistically significant.

RESULTS

In our data most of the respondents are female. The reason is that because female suffering more from obesity and diabetes. As compared to this male respondents has more normal values of glucose (Table 01).

Table 01: Distribution of patients based on gender

Sr.No	Gender	
01	Male	20
02	Female	180

Table 02 represents the level of blood glucose in patients. It shows that values of glucose become high diabetic patients as compared to normal values. IFG factor shows that diabetic people suffer more from oral health problems as compared to others.

Table 02: Level of glucose in obese and diabetic patients

	Normal	Diabetes	IFG	IGT
Fasting Plasma Glucose	<10	≥126	100-125	
Normal glucose		≥200 plus symptoms of diabetes		
Plasma glucose	<14	≥200		140-199

Table 03 shows the demographic history of patients. It clearly indicated that people who suffer from all above mentioned problems also suffer from high blood pressure and some other problems. Because people have less awareness of health issues.

Table 03: Demographic characteristics and history of patients

Variables	Co-efficient	SE
Blood pressure	0.048	0.35
Healthy eating index (HEI)	−0.059	0.05
Smoker	0.060	0.80
Food security	0.106	0.12
Drinker	-0.343	0.08
Belong to city area	0.057	0.01
Belong to rural area	0.59	0.70
BMI	0.5460.24	

Indicate significance at the 99, 95, and 90% level.

DISCUSSION

This study focuses on the investigating the linkage between diabetes, diet-health behavior, and health outcomes that are frequently discussed in the context of diabetes management, public health, and diet quality and BMI. It is realized that carbohydrates are the supplements that most influence blood glucose levels.[8] Be that as it may, up to now there is no agreement prove about the perfect measure of carbohydrate intake for individuals with diabetes. Truth be told, in the present investigation, the carbohydrate utilization did not vary between the unhealthy and healthy gathering.[9]

Body weight adjusted for stature (Body Mass Index) has been commonly used in large-scale population surveys as a surrogate for body fat content. Body mass index (BMI), also known as Quetelet's Index, is the most commonly used tool, the ratio defined as body weight (kg) divided by height squared (m2). BMI has been shown to have strong correlation with body fatness, and weak correlation with height.[10]

Some studies have suggested a relationship between marital status and obesity, although the relationship is not well established. Higher BMI has been associated with married subjects than subjects living alone. Other studies suggest that no such link exists.[11]

Studies on diet and obesity have reported inconsistent results, compromised by factors such as weaknesses in study design, methodological errors in estimating energy and nutrient intakes, and confounding factors. Obesity has been suggested in association with a large number of various dietary factors but conclusive evidence is still lacking to prove than one diet would promote obesity more than another.[12]

Importantly, all dental hygienists should lobby to prioritize obesity as a public health risk factor responsible for multiple diseases. Without awareness of the relationship obesity has on periodontal disease, dental hygienists may not realize the potential role they may serve. With enhanced knowledge, dental hygienists can educate patients on oral and systemic implications associated with obesity, identify patients with a higher risk of developing periodontal disease, and recognize important treatment outcomes associated with obese patients. Conclusions People who are obese are likely to have periodontal diseases.[12]The literature reveals no direct evidence of a cause and effect relationship between obesity and periodontal disease; although most studies reviewed, revealed a possible

relationship between periodontal disease and obesity. In addition, periodontal bacteria may cause a systemic inflammatory response and coupled with the inflammatory response associated with obesity, increases inflammatory markers leading to periodontal breakdown. Because no studies established a direct relationship between the two diseases, further research is needed to explore the relationships between oral diseases and pathogenesis of obesity. To determine whether obesity causes periodontitis experimental animal studies that initiate and monitor periodontal disease and obesity and longitudinal, prospective clinical studies measuring periodontal status, obesity, and inflammatory mediators are needed.[13] As long as some studies show that obesity and specific periodontal bacteria and inflammatory mediators are associated, there is an important role for dental hygienists in prevention, early detection and prompt treatment of periodontitis. Dental hygienists should be competent in the management of patients with obesity and be able to convey current research on the link between periodontitis and obesity. Obese patients could benefit through referrals to weight loss centers for weight reduction interventions such as behavioral therapies, surgical options and diet control. Learning to communicate effectively with overweight patients about their disease risk may facilitate improved oral health for the patient. Continuing education courses for current practitioners and curricula in dental hygiene programs are suggested to facilitate communication and counseling with patients on this often sensitive subject.[14]

CONCLUSION AND RECOMMENDATIONS

Obesity for many is a sensitive subject and may not be easy to bring up. Hence the need for more education. The demand for dental hygienists who specialize in treating patients with obesity may increase as the condition itself is increasing and the link with inflammatory diseases is relevant. Understanding obesity may help the dental hygienist provide quality comprehensive care to those in need.

AUTHOR'S CONTRIBUTION

All the authors contributed equally. Dr. Bilal conceived of the presented idea and do all the lab work and carried out the experiment with other co-authors. Dr. Sharazdeveloped the theory and performed the computations. Dr. Ushnasupervised the findings of this work and Dr. Bilal and Dr. Ushna developed the theoretical formalism, performed the analytic calculations and performed the numerical simulations. All the authors contributed to the final version of the manuscript.

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