



INFLUENCE OF DENTAL ANXIETY ON ORAL HEALTH OF TYPE 2 DIABETIC PATIENTS SYSTEMATIC REVIEW

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ABSTRACT

Introduction: Dental anxiety is a condition that has a major impact on oral health, people with uncontrolled diabetes are at a higher risk for a variety of oral health issues, including periodontal disease (gum disease).

Material And Methods: An electronic data search (Pub Med and Google Scholar) is used to study articles that meet the inclusion criteria from 2010 hitherward.

Result & Conclusion: Diabetes regulation is also affected by periodontal disease. To avoid and treat oral health issues, good oral hygiene and routine dental visits are recommended. Several studies have been performed to evaluate the oral health knowledge, attitudes, and habits of people with diabetes, but there is yet to be a comprehensive study of the results. The aim of this systematic review was to synthesize current evidence on the knowledge, attitudes and practices of people with diabetes in relation to their oral health care. People with diabetes, on the whole, have low oral health knowledge and poor oral health habits. As a result, it's critical to inform patients about their increased risk of oral health issues, encourage them to practice healthy oral hygiene habits, and make dental care more available.

KEYWORDS : Dental Anxiety, Oral Health, Type 2 Diabetic

INTRODUCTION

Dental anxiety is a condition that has a major impact on oral health, obstructing both patient management during dental care and subsequent treatment adherence. Dental anxiety is an important factor to consider if you want to improve the consistency of the patient's oral health, with prevalence rates varying from 4% to 23%. Xerostomia, tooth loss, gingivitis, periodontitis, odontogenic abscesses, caries, and soft tissue lesions of the tongues & mucosa are some of the oral health problems linked to diabetes that dental practitioners may experience. Diabetes is the 6th leading cause of death in the United States, costing an estimated \$20.4 billion in medical expenses and lost productivity per year. [1]

Botulinum toxin, a neurotoxin developed by the Gram-positive aerobic bacterium *Clostridium botulinum*, has been shown to be useful for a wide range of medical pathologies and is used both for therapeutic and aesthetic purposes. Botulinum toxin type A (BTX-A) is a biological variant of botulinum toxin that inhibits skeletal muscle temporarily by inhibiting acetylcholine output and inactivating calcium channels in nerve endings. The use of this medication to regulate the behavior of bruxism has become more common in recent years. [2]. In a sample of 144 patients (70 diabetics and 74 non-diabetics), Arrieta-Blanco et al. discovered no substantial difference in mean caries between the two classes. Carious lesions were seen in 7.39 percent of diabetic patients and 6.91 percent of non-diabetics. [3] A greater awareness of the effects of periodontal disease and treatment on patients' views and how their oral health impacts their everyday lives will aid in the preparation and assessment of periodontal care and treatment and ensure that patients' wishes and interests are properly addressed. In dentistry, the use of patient-centered measures is on the rise. A variety of instruments with promising psychometric properties have appeared. [4]

In Germany, the prevalence of poor oral health-related quality of life (OHRQoL) is unclear. The aim was to establish the population's OHRQoL distribution and extract population-based norms. The German version of the Oral Health Impact Profile (OHIPG, 53 items) was used to assess OHRQoL in a personal interview with 2050 people aged 16 to 79 years old (response proportion: 60%). [5] While much research has suggested a correlation between psychosocial influences and oral health, the degree of the effects of physical oral ill health on these psychological structures remains unclear. As a result, the aim of this study was to see how dental health (decayed and missing teeth), dental anxiety, and oral-health-related quality of life (OHRQoL) influenced homeless people's depression. The aim of this research is to find factors in oral health, as well as diabetes-related and socioeconomic factors, that may be linked to the subject's health-related quality of life (HRQL). One hundred and two people were chosen at random. [6]

India

The oral hygiene of Indians with type 2 diabetes was found to be subpar. Our results indicate that better understanding of periodontal disease and the implementation of preventive oral hygiene practices are critical for diabetics' oral health. Since certain diabetics do not seek routine dental treatment, all health care providers should be encouraged to promote efforts to improve oral health, which is an important part of overall health. To compensate for their increased risk of oral diseases, diabetics must improve their oral health behavior. Periodontitis is the second most common health issue [7] and advanced periodontal disease affects 10 to 15% of the population worldwide. [8] It is India's most common oral infection, with a prevalence rate of 66.2 percent among 15-year-olds and 89.2 percent among adults aged 35 to 44. [9]

Periodontitis was found to be prevalent in 25.3 percent of people with diabetes in this study. The findings of this research show that diabetics have a greater risk of periodontal disorder than people who do not have diabetes. The growing body of evidence linking oral and systemic health would force dentists, doctors, and other healthcare professionals to recognize the value of collaboration. This is particularly critical in the early detection of people with diabetes who haven't been diagnosed and in the co-management of oral and physical health of diabetic patients. According to the World Health Organization (2007), [10] tobacco smoking is a risk factor for the development of periodontal disease. Tobacco use was linked to periodontitis in the current research ($P < 0.001$). This result supports previous research that shows tobacco alters clinical gingival characteristics and is a risk factor for periodontitis. [11] Smokers with diabetes are 1.71 times more likely than non-smokers to have periodontal disease, according to research.

Periodontitis was found to have a statistically significant connection with those who had not seen a dentist in the previous year in the current report ($P < 0.001$). In India, dental care for diabetics is lacking because access to dental services is limited to a small percentage of the population and there are no particular priorities for any special classes. Despite having one of the highest populations of dentists in the world, it is estimated that 40% of Indians have never visited a dental office. Although the Indian public healthcare system is important in terms of access to dental facilities, it only plays a minor role when it comes to the Indian population's oral health needs [12]

MATERIAL AND METHODS:

Search Strategy

This investigation of the forming utilized the favored outline point for Systematic Reviews and Meta-Analysis (PRISMA) reasoning for the survey of articles to legitimize the subject. Meta-examination was unrealistic because of incredibly heterogeneous information from the investigations included, with the arrangement of both the results and

exploratory factors varying between the examinations. Articles gathered and examined between June 2020 and March 2021. As indicated by the norms of Cochrane joint effort and the bolstered ordering things for significant diagram. Looked from PubMed, a mix of free content and list terms had been utilized to expand the recovery of conceivably applicable examinations. Hand-looked through reference arrangements of perceived articles. As "Oral Health proficiency and dental anxiety" on type 2 diabetic patints isn't a Mesh expression, it was utilized as a catchphrase to look in all the fields.

Selection Strategy

The determination regulations for incorporation in the wake of surveying the article utilized approved dental anxiety influence knowledge and oral health instruments to evaluate information and works on with respect to oral wellbeing in grown-ups(adults) The examination assessed the impact of Dental Anxiety and oral wellbeing proficiency on pay, economy, occupation, training level, socioeconomic, dental wellbeing education of the diabetic parental figures, family unit swarming, number of kin, family structure, and some other related qualities on adolescents. Dental Anxiety", "Influence on Oral Health "and where the words occur "in the title of the articles". Each of the articles/paper chosen for the study was selected based on the use of key terms that were directly related to the topic. The key terms used were Dental Anxiety, oral health and Type 2 Diabetic. Selection was carried out by two authors, with the paper selection based on the abstracts and title. The decisions about the eligibility was done by an independent reviewer. The reports that were irrelevant to the title (Dental Anxiety Influence on Oral Health), study designs and outcome were excluded. Articles of full text were considered and if the information relevant for analysis was not in the abstract, the full text was seen.

Data Collection:

The primary search gave rise to twenty-nine thousand one hundred articles and three thousand six hundred duplicates removed. out of which twenty-five thousand two hundred nineties were discarded as they were not pertinent to the topic and so on. That is either related to oral health literacy, knowledge of oral health, dental anxiety and oral health policies on the states but not the influence of dental anxiety on type 2 diabetic patients. A total of six articles which were related to the title were used in descriptive table and were retained and thoroughly inspected and final analysis was carried out on this articles.

Data Extraction And Analysis

After the search was completed, the articles selected were further collated and summarized in a descriptive format in a qualitative screening based on the articles topic relevance, year of study, study location, participants, exposure, method (study design), sampling techniques, sample-size and outcome result. Outcome measurements based on dental anxiety, influence of dental anxiety on oral health diabetic participants and oral health. The articles selection was further categorized and indexed in the PRISMA selection process below in Figure 1.

INCLUSION CRITERIA & EXCLUSION CRITERIA

Patients were included if they were hospitalized on any of three general medicine wards within the hospital, were >18 years of age, and carried a diagnosis of type 2 diabetes within the hospital's electronic health record (EHR) system (Epic Systems, Verona, Wisc.). Exclusion criteria included meeting indications for antibiotic prophylaxis for the prevention of infectious endocarditis per American Dental Association/American Heart Association guidelines [13], anticoagulation to an internal normalized ratio >2.5 (21,22), a platelet count of <100,000, a history of prosthetic joint replacement in the past 2 years [14], or altered mental status. Patients' medical team or nurse could also decline to enroll a patient in the study. Patients who were fully edentulous were asked if they had their dentures with them in the hospital but were otherwise excluded from subsequent data collection.

Literature Review Table¹⁵⁻²¹

Author and year of publication	Country or origin	Aim and objectives	Study population and sample size	Methodology	Key findings
Lisa E. Simon,2019	Boston, Mass	To improve oral health and access to dental care for this vulnerable population.	All patients meeting inclusion criteria on the general medicine service of a tertiary care hospital were invited to	Cross sectional	Rates of missing teeth, removable prostheses, and periodonal inflammation were high among hospitalized patients with diabetes, but patients did not perceive

An electronic data search (Pub Med and Google Scholar) is used to study articles that meet the inclusion criteria from 2010 hitherward.

Results And Analyze:

Figure 1 illustrates the details of both the selected and excluded studies. The database search retrieved a total of 29100 titles (from google scholar and from PubMed, after removing duplicates 3600 titles remained,3390 was excluded based on their abstract. 210 titles were considered for abstract screening. 189 articles were considered for full-text review of which 20 match the inclusion criteria and from them 6 which was too related to the title and was used for descriptive analysis. For the articles excluded, one was in Portuguese, one was a survey, thirteen didn't break down the impact of recorded qualities on grown-ups(adults), six assessed the impact of socio-segment attributes of members on dental anxiety and its influence on type 2 diabetics, one was not led on grown-ups or young people, two didn't gather information on attributes, eleven broke down the impact of dental tension on oral wellbeing education that were legitimately identified with grown-ups. Three articles were avoided dependent on more than one prohibition rule and so on for other excluded articles.

And for the articles included in the review were between the years (1999-2020), And among them three articles were from Germany, two articles of them from Thailand, two articles of them from Hong Kong, three articles of them from Ital, one article of them from Madrid, one article of them from Boston, one article of them from Philippines, one article of them from Brazil, one articles of them from Birmingham and one article of them from India were included in review from which six was too related to our title and used in descriptive table.

Discoveries from most of the investigations propose that Lack of satisfactory dental wellbeing training may bring about a significant level of dental uneasiness and anxiety among grown-up's populace. On normal wellbeing proficiency levels were lower among specific gatherings (men, more established grown-ups, those in neediness, the individuals who got publically financed protection, those with lower levels of instruction and the individuals who neglected to complete secondary school. Besides; the report expressed that a large portion of the grown-ups with more elevated levels of wellbeing proficiency got their wellbeing data from the web contrasted with those with lower levels, who depended principally on "magazines and papers." Moreover, those with the most reduced levels were to the least extent liable to utilize the web and got most of their wellbeing data by radio or TV instead of print media.

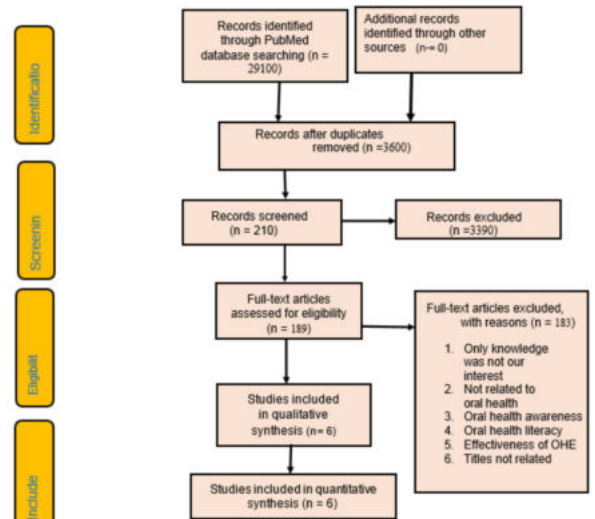


Fig1: PRISMA Flow Diagram

			participate. Subjects were asked about their access to dental care and perceptions of their oral health. A dental hygienist conducted examinations, including decayed, missing, and filled teeth (DMFT) and periodontal screening and recording (PSR) indices on a subset of subjects. 105 subjects had a mean age		their oral health to be poor. Health care providers should be aware of the oral health risks of patients with diabetes during hospitalization, and dentists should consider screening patients with diabetes for recent hospitalization
Preeetha P. Kanjirath,2011	University of Michigan, in Ann Arbor, Michigan	1. diagnosed with diabetes have poorer oral health than patients not diagnosed with this disease 2. To investigate the differences in oral health-related behavior between these 2 groups of patients 3. To analyze whether there are differences in the oral health of patients with diabetes who engage in good oral hygiene efforts versus patients with diabetes with poor oral self care behaviors	Survey and chart review data were collected from 448 patients (52% male, 48% female, average age: 57 years) of which 77 were diagnosed with diabetes (17%).	Cross sectional study	Educating patients with diabetes about the importance of good oral self-care needs to become a priority for their oral health care providers.
Prakash Poudel,2018	PRISMA statement	The aim of this systematic review was to synthesize current evidence on the knowledge, attitudes and practices of people with diabetes in relation to their oral health care	A total of 28 studies met the inclusion criteria. The studies included a total of 27,894 people with diabetes and were conducted in 14 countries. The review found that people with diabetes have inadequate oral health knowledge, poor oral health attitudes, and fewer dental visits. They rarely receive oral health education and dental referrals from their care providers. Provision of oral health education by diabetes care providers and referral to dentists when required, was associated with improved oral health behaviours among patients.	systematic search	Overall, people with diabetes have limited oral health knowledge and poor oral health behaviours. It is therefore, essential to educate patients about their increased risk for oral health problems, motivate them for good oral health behaviours and facilitate access to dental care.
Gabriele Cervino,2019	PRISMA guidelines accessing the NCBI PubMed database.	About 5% of the world's population is affected by diabetes;	The study evaluated only papers with specific inclusion	Systematic Review	The studies taken into consideration evaluated different factors, such as

		these patients must be further treated during medical and surgical treatments. These patients, due to the glycemic conditions, realize during their life multi-organ changes, in different body districts. Moreover, this condition obliges them to undertake hypoglycemic therapies. Diabetes is a risk factor for many diseases, including those concerning the oral district with immunological implications.	criteria regarding oral health. The works initially taken into consideration were 782; subsequently applying the inclusion and exclusion criteria, there were 42 works. After a careful analysis of the work obtained by two academics who have worked separately, there have been 17 studies. All data from the studies were compared and many of these confirmed alteration in the oral district.		OHRQoL, QoL, and oral alterations, involving soft tissue, dental structures, and post rehabilitative complications, as well as immunological alterations. We can affirm, in conclusion, that this study has brought to light those that are complications due to diabetic pathology, from different points of view. The psychological and psychosocial alterations, certainly present in these patients, are probably due to local and systemic alterations; this is confirmed by the correlation between oral health and quality of life reported by the patients.
Edmund Julian L.,2014	Metro Manila, Philippines.	The purpose of this study was to determine the factors that prevented type 1 diabetic patients from seeking dental treatment in Metro Manila, Philippines.	total of 78 patients completed the survey form. Despite having a high prevalence of caries (at least 80% on all age groups above five years old) and periodontitis (32.1%), type 1 diabetics were reluctant to seek dental treatment. 10% of the population had their first dental visit while participating in POHJD despite having ages between six and 18. Almost 70 % knew what a dental floss is but only 15 % use it daily.	Cross-Sectional Study	The most common reasons given by type 1 diabetic patients for their reluctance to seek dental treatment are financial insufficiency, fear, and the lack of dentists who are willing to treat diabetic patients.
Zehra Yone,2020	studies reporting the identification of NDH	aims to synthesize the existing literature supporting dental teams' identification of individuals at an increased risk of or suffering from undiagnosed NDH or T2DM in dental specialist care settings.	Screening of returned articles and data extraction were completed by two independent reviewers (RJ, ZY). A descriptive synthesis of the included articles was undertaken. Due to heterogeneity of the literature, a meta-analysis could not be performed. The search yielded 52 eligible studies, of which 12 focused primarily on stakeholder opinions. Opinions of patients, dentists, dental hygienists, dental students and physicians on case	Systematic Reviews and Meta-Analyses”	This review demonstrates that there may be benefit in engaging the dental workforce to identify cases of NDH and undiagnosed T2DM and that such a care pathway has the support of multiple stakeholders. Further high-quality research is required to assess both the clinical and cost-effectiveness of such practice in order to optimize protocols and patient care pathways. Studies should include a comparison of methods, health economic analyses and protocols to ensure those identified as high-risk go on to receive appropriate follow-up care.

			identification of T2DM by oral health professionals were generally positive		
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DISCUSSION

Despite their overall poor oral health, the majority of participants stated that they did not think their oral health was especially bad or that it was a disadvantage for them. This is in line with previous research that has discovered a connection between the two. There isn't a connection between oral health and OHRQoL in patients suffering from severe systemic illnesses it's possible that the subjects in our sample were overburdened. Due to a medical condition that stopped them from concentrating on their work Even if their oral health was bad, they were concerned about it. Furthermore; participants could not have been humiliated by the experiment. When in the hospital, the condition of their mouth and teeth. They were unable to do so because they were too sick. Patients' oral health can be improved in a variety of ways when they are in the hospital. First, nursing staff should be advised to help patients with oral hygiene and the removal of dental prostheses before bedtime. In intensive care units, nursing leadership on oral hygiene has already become the standard of care, suggesting that it could be expanded to less acute environments. Another possible model for better oral health care is the use of dentists as consultants in hospitals. Finally, the discharge process, during which patients frequently have specialty appointments scheduled, may be an opportunity to link patients with community-based dental services in addition to other medical needs.

CONCLUSION

Young adult patients are often neglected in the literature, tend not to be taken into account in the field of pain. It will be important to provide to these patients a special dental health care because at age 18 that the first wisdom teeth emerge from the oral cavity and cause pain and many discomforts during mastication. This is why dentists should be close to them and explain to them this physiological process, in order to reassure them. Also, why not set up dental clinics specializing in anxiety, specially thought and designed for anxious diabetic patients. Clinic not using conscious sedation with nitrous oxide, but using soft methods with dentists and psychologists, combining their qualifications, competences, and experience in their own area, working together.

The result showed that relaxation oriented therapy reduces the dental anxiety. Thus, patients would not need to resort to heavy means of intervention such as general anesthesia in the Hospital. Moreover, the hospital, general anesthesia release often, even more anxiety for patients, used as a last resort, and can cause many complications and higher costs. As a lower literacy could tend to have more complications with chronic diseases. Prevention strategies, prophylaxis, prevention programs should be put in place as soon as possible. Consider for families of or to diabetic patient to take their diabetic patients to the dentist as soon as possible, from the appearance of the first dental anxiety symptom to avoid transmitting their own fear to their environment, even if there is no treatment to do. Only to do a check-up thus diabetic patient can get used to the dental office setting, the smell, the disposition, and they will not feel insecure in the future.

For dentists, it could be good at the end of the consultation to ask their patients how they feel, what they thought about the treatment perception, communication skills, and what could they do to be better. Even for students in dentistry why not offer them the possibility of psychology courses about these themes to the principal student concerned. All students in the health sector should be informed. Educated students will be able to make an emotional diagnosis and able to interact in the best way possible with anxious patients.

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Availability Of Data And Materials

Not applicable

Declarations

Ethics Approval And Consent To Participate

There's no need for ethical approval for this systematic review since no patient data will be collected.

Competing Interests

There are no potential conflicts of interest.

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