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Influence of dental status on nutritional status of geriatric patients

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***Abstract*---**Man's number one goal has always been to be in perfect health. In addition to the patient's socioeconomic status and eating habits, the patient's age is a major factor in the development of a number of medical illnesses and diseases that have a nutritional component. The goal of this study is to put together what has been learned about the relationship between food and oral health in older people from other studies. A cross-sectional study needs to gather clinical data. Six months at the RAK College of Dental Sciences' outpatient center. The data for the study came from the older people who went to the RAK outpatient center. Patients are chosen for samples based on their health and culture, which is separated by

gender. There may be a total of 40 people, with about 20 men and 20 women. Patients of both sexes are put into groups based on their habits and health problems. The patients will be given a piece of paper with a list of questions on it. Most patients, regardless of age or gender, were labeled with cardiovascular and endocrine diseases. As a result, they were given medicines like galvex, metformin, and aspirin, and they changed their diets to include less sugar and sodium. In this study, the two most common oral diseases were tooth loss and tooth decay. Tooth loss and tooth decay were the most common oral problems among the older people who were tested. Tooth pain and ulcers were only slightly less common. Their limited diet choices, which may be due to things like their socioeconomic position and level of education, were shown by the fact that they ate more carbs even though they ate less sugar and sodium. This meant that they didn't eat well. Changes in what older people eat can have a big effect on their mouth health. Caries, gum disease, and tooth loss are more common in older people, which makes their oral health worse. Due to these possible side effects of dental care, a dentist should tell their patients how to best deal with them through diet.

***Keywords*---**Diet, Geriatrics, Nutritional analysis, Dental status may influence food intake.

Introduction

The oral cells in your mouth need the right food to grow and stay healthy. If the tissues of an older person are in good shape, prosthodontic treatment is more likely to work. Prosthetic therapy may be needed to keep or restore masticatory function in people who have lost some or all of their teeth. This is in addition to things like diet and socioeconomic status, which have a big impact on the foods these people choose to eat. Each case is unique since each patient has different dental needs. It is very important to have a good knowledge of how oral tissues change as people age. Assessments of the risk of malnutrition, like the Mini-Nutritional Assessment (MNA), have been used in a small number of studies to see if oral health problems can be used to predict the nutritional status of older people living in the community (Bandodkar, 2006).

Only if you know enough about the elderly can you give them the right care and treatment at the right time. Every day, the average senior takes more than one over-the-counter drug. Many widely used drugs have side effects like anorexia, vomiting, stomach pain, dry mouth, loss of taste, and less absorption and use of nutrients. Malnutrition, being weak, and being tired are all things that can happen as a result of these illnesses. Lack of teeth is another thing that can cause hunger in older people. Moynihan (2004) says that healthy teeth are needed for proper eating, which in turn affects what people eat and how healthy they are as a whole.

When dental prostheses are not used to recover the ability to chew, the problem of edentulism gets much worse. Research shows that you need at least twenty

teeth that can help you chew your food well. Having them in pairs that work against each other is the most important thing. People rarely talk about how dry mouth is becoming a more common health problem. It has been shown that xerostomia and low salivary gland function affect older people more than they do younger people.

Scientists have found a clear link between how healthy your mouth is and how healthy you are generally. Theoretically, better tooth health would make it less likely that someone would have trouble chewing or swallowing, which could lead to nutritional problems. Aging makes it harder for tissues to heal because of things like nutritional lag, glandular fluids, and less flexibility. There is a close link between how well you chew, how many teeth you have, and how well you eat. The way things are now, a large number of old people are missing teeth, which makes it harder for them to chew and, as a result, makes them less interested in the food they should eat. So, when they change what they eat, it has a big effect on their health and should be carefully looked at (Palmer, 2003).

Because dentures can affect a person's oral health and looks, they can also affect their sense of self-worth. A healthy food is very important to the general health and dental health of older people. Only when there is enough saliva does chewing and drinking work the way they should. Saliva is a very important part of chewing because it helps keep food from going into the lungs by holding food bits together. Many teeth break because they don't have enough vitamins and minerals. Emami et al. (2013) say that because they can't eat, they have a wide range of physical and mental problems.

It could also help them deal with the learning process better. Psychological tests and therapy should also be a part of the treatment plan. 75% of people who answered the survey and were missing teeth said they would recommend a full denture treatment plan that included nutrition advice and research. It has been shown (Kazemi et al., 2011) that this group is more likely to have problems like not getting enough vitamins, not being able to absorb food, being dehydrated, and having stomach acidity.

Dentition is very important for breaking down food so that it can be digested. More research is needed to find out how dental health is related to eating habits, nutritional state, and malnutrition in older people. (Chauncey et al., 2014) say that oral diseases like tooth loss, pain, and suffering caused by caries, periodontal disease, and dentures that don't fit well can lead to a lack of nutrients.

For soft tissues to heal after surgery and from training, they need nutritional help, which must be given briefly. Nutritional therapy could be harder if you have to figure out how to read things that are unique to the denture age group. If you lose teeth, you might not be able to chew your food well or receive nutrients as well. Griep et al. (2016) say that because the person's ability to chew is less, they may not choose meals that are high in fiber and protein.

Factors Affecting Diet and Nutritional Status

The likelihood that an elderly person may adopt dentures is affected by a wide variety of circumstances. If the denture doesn't fit properly, it might cause severe sores and cause the wearer to give up on using it altogether. Issues with dentures have been linked to both psychological distress and physical illness. It takes older adults with dentures longer to chew their meal before swallowing it whole. It's possible that mastication efficiency as a whole will drop to 80%. As the upper palate is hidden by the dentures, seniors with complete sets lose some of their sense of taste and smell. Both the enjoyment and the benefits of eating are diminished as a result. This is seen more often in people who use full dentures than in those who use partials. It's crucial to work with trustworthy dental professionals. Dentures should be taken out every night to prevent plaque buildup and to give the gums a chance to rest (Gil et al., 2015).

Factors Affecting Nutritional Status of Elderly

Oral factors like xerostomia and the ability to taste and smell can affect a person's diet and nutritional state. Dentures can change a senior's sense of taste, ability to swallow, diet, food choices, and overall health. Protein loss from getting older is a normal cause of muscle mass loss in the skeleton. Proteins are very important for people with false teeth. Everyone knows that taking care of your teeth and gums has an effect on your general health as you get older. When teeth are lost, the mouth tissues and the rest of the body take a big health hit. This is because losing teeth makes people change what they eat and how they live. For the health of the community as a whole, it is important to know what factors most affect the nutritional status of seniors. The effects and connections between changes in eating habits, food intake, dental health, and overall nutritional state are complicated and hotly contested. Singh et al. (2018) say that dietary changes in old age can be caused by being alone, having a low income, being less mobile, having teeth problems, not being able to taste as well, food fads, and having chronic diseases.

Materials and Methods

This study is a cross-sectional look at the older people who go to the dental center. This study took about six months to finish. The university's ethics board (RAK.REC.REF 24-2016-UG) approved the plan for the study.

Patients Groups

Forty elderly patients (20 males and 20 females) took part in the study. All of the people who took part signed consent forms that had surveys attached. Consent was gotten from the legal guardians of people who couldn't read or didn't read well. People who couldn't take part in the data collection because of their own physical or mental problems were left out of the study. For example, people who were bedridden, had lost limbs, or had trouble understanding the measures used were left out. People under 70 were put in the Young Senior Group (YSG), and people over 70 were put in the Elderly Senior Group (ESG). The Data collecting procedure was in the following process:

- History taking,
- Questionnaires, to collect information on socioeconomic status, eating habits, physical activity and health habits,

- A physical check and an analysis of x-rays. The score for Decayed, Missing, and Filled Teeth (DMFT) was used to measure the oral health. As part of the review of oral health, decayed, missing, and filled teeth, as well as prostheses, were looked for.
- The chi test results were used to figure out how the different factors affected the oral health of the groups that took part. For comparing and analyzing the data, the cut-off values were those from the Oral Health Survey of 2022 for the 65–74-year-old age group in Pakistan. The average DMFT for this area was 28.61 6.44, which means that dental health was satisfactory, which is described as DMFT 22.17 and poor as DMFT > 22.17. By changing the DMFT index into Decayed (D), Missing (M), and Filled (F), the cut-off point was the average found in Pakistan, where oral health state was good when D>0.60, M>27.05, and F=0.91, and bad when D>0.60, M>27.05, and F>0.91.
- The Kappa test was used to make the data more reliable. The value of k was =0.9129, and the p-value was less than 0.01%. This test is important because it shows that K's value was significantly different from zero. This means that the relationship is "excellent." Other information about the state of oral health was gathered by asking people directly what kinds of foods they ate and how they felt about the quality of tooth prostheses.
- The information gathered was shown as a mean, a standard deviation, and a number. We used Student's t-test for independent samples or the Mann-Whitney test to compare continuous factors between the two groups. We used Pearson's correlation test to look at the links between continuous factors.

Results

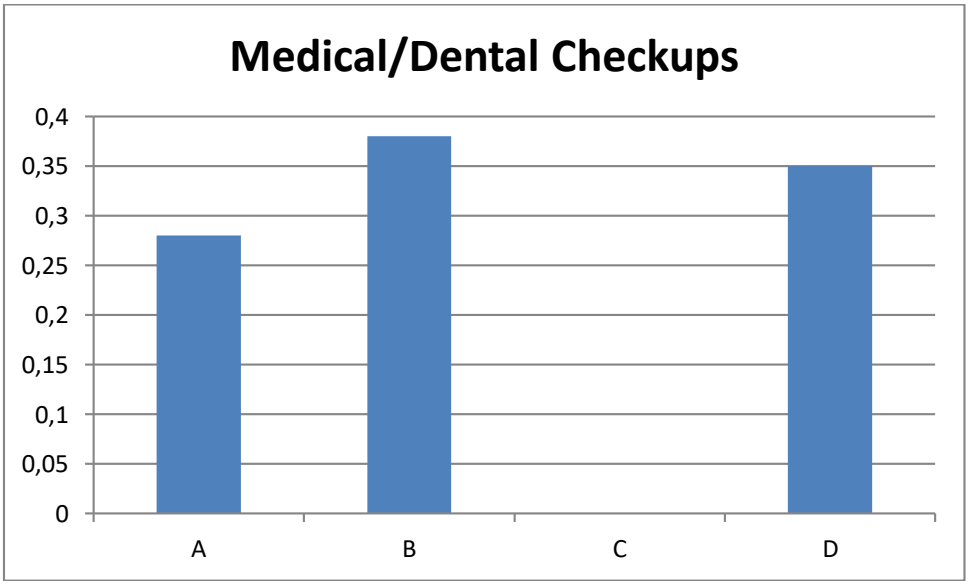

Figure 1: Results according to the medical and dental checkups

Table 1: P value of C

P-value	0.0004
Significance	**

The question was Do you maintain regular visits with your physician and dentist?

A. Yes, I maintain regular visits with my physician and dentist.
B. No, I only maintain regular visit with my physician.
C. No, I only maintain regular visit with my dentist.
D. No, I don't maintain regular visit with either.

70% from the patients have chooses answer B (0.41%) and D (0.32%) but the significance is in answer C to not able to maintain regular visits with the dentist (0.51%). So, P-value was C significant answers (0.0004) (Figure 1 and Table 1).

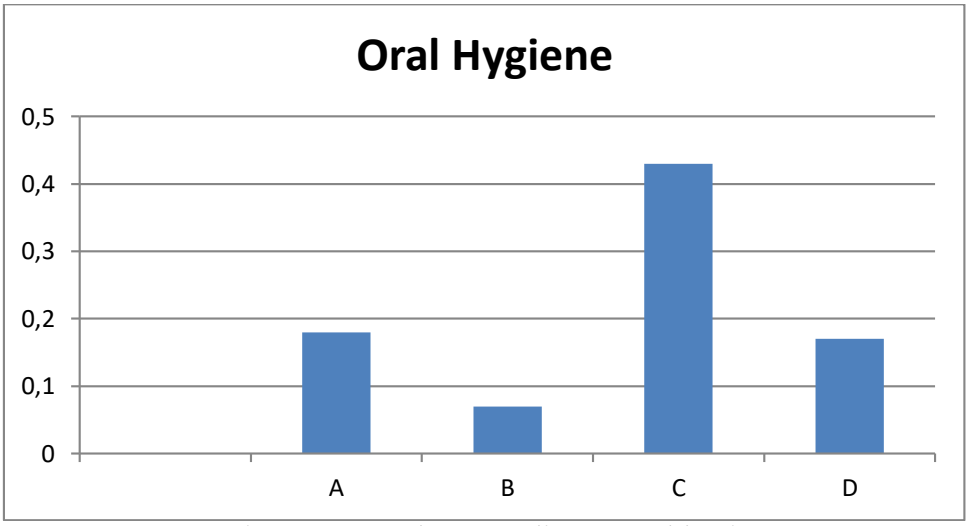

Figure 2: Results according to oral hygiene

Table 2: P value of C

P-value	0.0009
Significance	**

The question was Do you brush and floss your teeth or use mouthwash?

A. Yes, I brush and floss daily and use mouth wash.
B. Yes, I brush my teeth and floss but i don't use mouthwash.
C. Yes, I only brush my teeth but not daily.
D. No, I don't do anything to my teeth.

Majority answered C (0.57%), and according to the oral hygiene scale majority had fair scale (P-Value 0.0009) (Figure 2 and Table 2).
They increase in prevalence of cardiovascular disease and endocrine disease, out of 40 samples 21% had endocrine and 15% had cardiovascular conditions. There

is a minor significant in neurological disease and its prevalence in geriatric population, only 3% of the population had neurologic conditions (Table 3).

Table 3: P-value of the significances according to the systemic disease

Conditions	CV	END	NEU	ORA
P-value	0.0002	0.000	0.011	0.004
Significance	***	***	*	**

Table 4: P-value of the significances according to the oral conditions.

Conditions	T/M	T/D	T/A	ULC	T/G
P-value	0	0.00009	0.02	0.021	0.011
Significance	***	***	**	*	*

Majority of samples had missing teeth and tooth decay regardless of gender, while none of the samples had any tooth aches which showed a significance, and minor significance in patients with grinding teeth habit and tooth ulcer (Table 4).
There is increase in prevalence and significance with patients taking galvax and metformin and aspirin in the geriatric population (Table 5).
According to the graph (no significance has been found). 99.0% of the geriatric sample includes carbohydrates and caffeine and dairy and protein in their diet, nevertheless 57% include sugar and 71% include sodium in their diet, which reveals change in diet according to the systemic diseases.

Table 5: P-value of significance according to the medications

Medications	Gal	Metaf	Aspirin
P-value	0.0002	0	0
Significance	***	***	***

Discussion

The goal of this study is to find out how the diets of older people affect the health of their teeth and gums. A lot of study shows that good oral health is linked to overall health. Oral health has been said to play a part in both nutrition and, indirectly, the treatment of a number of short-term and long-term illnesses. This study shows that what you eat can affect your mouth health and that what you eat can affect your oral health. Getting out in the person's food choices People who have lost a lot of teeth may be less likely to eat foods with a thick texture, even though these foods are a main source of vitamins, minerals, fiber, and protein for this group. Even though dental health does play a role in what people eat, (Hutton et al., 2002) so do other things like personal taste, access to food, dietary patterns, and even psychological and financial constraints.

Theoretically, better tooth health would make it less likely that someone would have trouble chewing or swallowing, which would make it less likely that they would not get enough nutrients. Bad mastication can be caused by tooth loss, low saliva production, not enough masticatory force, or a misaligned jaw. Agrawal et

al. (2017) found that people who have trouble chewing are more likely to eat more sugar and fat than is recommended. This makes them more likely to get heart disease and metabolic syndrome than people who don't have trouble chewing. This is because they avoid hard, chewy foods like fresh fruits and veggies, "well-done" meat, and even bread in favor of soft, easy-to-chew foods. When it comes to how well older people chew, the amount and quality of saliva and the number of natural enemy teeth are both important. When it comes to the possible effects on diet, there are two schools of thought. The first way to look at things is to think that the mouth is aging normally, without problems like tooth decay or dry mouth. The maximum force of a person's bite decreases with age, and Masticatory muscle tissue changes are common in this group. The ability to chew is not affected by these changes because these people can still make a bolus of food small enough to swallow with only minor changes.

The second point of view looks at how the condition of their mouths can affect their ability to digest food or their nutritional situation as they get older. Also, people who wear teeth have a hard time getting used to the different textures and hardnesses of food. A recent review of the data for nutritional exposures in the etiology of periodontitis (Saletti et al., 2000) found that low levels of vitamin D and calcium may be linked to periodontal disease and that nutritional intervention may help. This study found that most of the people who answered it ate dairy and protein, which was linked to low rates of gum disease. Recent study has shown that tooth decay in older people is a sign that they don't eat well [16]. Because of bad tooth health, older people often have to change what they eat because their mouths can't do as much. Since soft foods are often high in fat and contain chemicals (Wayler, 2013), these changes usually aren't enough to keep the body healthy as a whole.

Conclusions

Overall, the elderly have poor oral health, as evidenced by a higher prevalence of caries, periodontal disease, and tooth loss. These are the root causes of mastication problems, the instability of chronic diseases, and the decline in oral quality of life, all of which have spillover consequences on a person's overall health and happiness. Dentists, dental hygienists, geriatricians, and careers all have a role to play in keeping an eye on the oral health of the elderly and working to improve it.

The majority of systemic disease patients, regardless of age or gender, had cardiovascular or endocrine diseases, requiring treatment with drugs like gal vex, metformin, and aspirin, as well as dietary adjustments like cutting back on sugar and sodium. For the elderly population studied, tooth loss and decay were the most significant oral disorders, whereas tooth pain and ulcers were only slightly less common.

Their limited diet options, which may be the result of factors like socioeconomic status and level of education, were reflected in an increase in carbohydrate intake despite a decrease in sugar and sodium intake. This indicated unhealthy diet selection. It can be inferred from the sample size of this pilot study that 60.7% of patients had a good DMFT index. The fact that so many older people have

dentures that don't fit properly (45.5% of them) or prosthesis that make it hard to chew (51.5% of them) indicates that tooth loss is a major problem for this demographic.

Recommendations

The important recommendation is to change the regularity of the diet by cutting out certain meals, which will lower the chance of nutritional deficiencies. The Oral Health Care Team's suggestions for a healthy, well-balanced diet are based on the idea that tooth loss is more likely to affect the food needs of older people who need nursing care.

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