EFFECT OF PERIODONTAL HEALTH STATUS ON QUALITY OF LIFE AMONG MINE WORKERS

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ABSTRACT

Objectives

Periodontal disease is a disease that progresses asymptomatically in the first stage, but affects the lives of individuals socially, psychologically and functionally. In order to measure the effect of this disease on quality of life, periodontal conditions of underground mine workers in Zonguldak province were determined and the relationship between periodontal status and quality of life was evaluated.

Material Methods

255 volunteered miners were visited and Community Periodontal Index and Treatment Needs (CPITN), papillary bleeding index and periodontal status were determined. Afterwards, sociodemographic data, oral hygiene habits, bleeding and bad breath findings and Oral Health Impact Profile-14 (OHIP-14) scale were completed.

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Results

According to the results obtained; education level, number of teeth, dental habits, presence of bleeding, bad odor and smoking were found to affect OHIP-14 levels. There was no relationship between CPITN, in which periodontal status was evaluated, and Oral Hygiene Impact Profile-14 (OHIP-14) index.

Conclusions

In conclusion, although some variables such as education, dental health and social habits and number of teeth had an effect on OHIP-14, no significant relationship was found between periodontal status and quality of life.

Key Words: *Mine workers, chronic periodontitis, OHIP-14, quality of life.*

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MADEN İŞÇİLERİNDE PERİODONTAL SAĞLIK DURUMUNUN YAŞAM KALİTESİNE ETKİSİ

ÖZ

AMAÇ

Periodontal hastalık, ilk aşamada asemptomatik seyreden, ancak sosyal, psikolojik ve işlevsel olarak bireylerin yaşamlarını etkileyen bir hastalıktır. Bu hastalığın yaşam kalitesine etkisini ölçmek için Zonguldak ilindeki yeraltı maden işçilerinin periodontal koşulları belirlenmiş ve periodontal durum ile yaşam kalitesi arasındaki ilişki değerlendirilmiştir.

MATERYAL & METOT

255 gönüllü madenci ziyaret edilerek Community Periodontal Index and Treatment Needs (CPITN), papiller kanama indeksi ve periodontal durum belirlendi. Ardından sosyodemografik veriler, ağız hijyeni alışkanlıkları, kanama ve ağız kokusu bulguları ile Ağız Sağlığı Etki Profili-14 (OHIP-14) ölçeği tamamlandı.

BULGULAR

Elde edilen sonuçlara göre; eğitim düzeyi, diş sayısı, diş alışkanlıkları, kanama varlığı, kötü koku ve sigara içmenin OHIP-14 düzeylerini etkilediği bulundu. Periodontal durumun değerlendirildiği CPITN ile Oral Hijyen Etki Profili-14 (OHIP-14) indeksi arasında ilişki yoktu.

SONUÇ

Sonuç olarak eğitim, diş sağlığı, sosyal alışkanlıklar ve diş sayısı gibi bazı değişkenlerin OHIP-14 üzerine etkisi olmasına rağmen, periodontal durum ile yaşam kalitesi arasında anlamlı bir ilişki bulunamamıştır.

***Anahtar Sözcükler:** Maden işçileri, kronik periodontitis, OHIP-14, yaşam kalitesi.*

INTRODUCTION

Periodontal disease is an oral health problem that is widely encountered in the society and it has different severities. Chronic periodontitis, the most common form of periodontal diseases, is a chronic inflammatory disease caused by complex subgingival microbial plaque and characterized by loss of alveolar bone and connective tissue attachment [1].

Chronic periodontitis has been reported as an asymptomatic and generally painless disease in most of the clinical findings [2]. Individuals may not be aware of their periodontal status because there are no symptoms in the initial phases of the disease. [3-5] And they can disregard periodontal treatment recommended by dentists [6]. In the later stages of Chronic periodontitis, symptoms such as mobility, pain, difficulties in eating and speaking, aesthetic loss in the anterior interproximal papillary or discomfort may be observed [7,8]. These symptoms, which can be perceived by individuals, can affect people's daily lives and decrease their quality of life [8].

Quality of life associated with oral health (QLAOH), "Diseases affecting oral health; It is defined as an expression describing how the individual evaluates the well-being of himself

by considering the functional, social and psychological effects" as defined by [9].

There are many different scales that measure QLAOH. The most commonly used scale, Slade and Spencer's proven reliability and validity by an Oral Health Impact Profile (OHIP) is a scale.[10-13] This scale, which is accepted as well in predicting the psychological well-being and life satisfaction more comprehensively, has also been shown to be sensitive to changes. [14]

OHIP - 14 Turkish version is a reliable, valid and understandable scale for measuring QLAOH in Turkish people. [15]

In many studies conducted in various countries, chronic periodontitis has been reported to affect quality of life [8,13]. Periodontal diseases have been shown to affect QLAOH negatively and QLAOH decreases as the severity and degree of the disease increases. [11,16]

Zonguldak, which is one of our richest provinces in terms of stone coal, the majority of the population earns their living by working in mines. Coal mine employees work in shifts underground for 8 hours. Due to underground and shift work, there are many problems such as sleep distruptions, wake cycle, irregular and unhealthy nutrition. Therefore, they may cause irregular and inadequate oral hygiene habits (OHH) along with some physical, social and psychological discomfort. They may increase the odds of mouth problems. Working conditions in mines are stressful due to the high risk of fatal occupational accidents and periodontal diseases, which are closely related to stress, may be expected to be seen at a higher prevalence in mine workers. Harsh conditions in mines have been reported to encourage miners to use cigarettes and alcohol directly

affecting periodontal health.[17] With the effect of these habits, periodontal diseases can be seen more frequently in this profession group.

In accordance with this information in the literature, the aim of this study is to evaluate the periodontal status of the miners and the relationship between QLAOH with the scale of OHIP-14.

MATERIAL METHOD

Type of the Study

The research was held in the Zonguldak, Turkey Hard Coal Enterprises (TTK) Kozlu and Üzülmez business, with working underground miners at 02.01.2015-13.02.2016 dates. Approval was obtained from the Zonguldak TTK General Directorate for screening and from the Bülent Ecevit University Faculty of Medicine Ethics Committee for research (Protocol no: 2014-167-14 / 10).

A total of 261 people were surveyed and dental examinations were performed. 255 questionnaires and clinical examinations, which were filled out from these surveys, were evaluated.

Inclusion criteria

This research in the mine, the criteria for inclusion are: Agrees to participate in the study, being working in the underground mine, 18 years of age or above, to know reading an writing, the absence of any situation to prevent communication with participant.

Collecting data

In the questionnaire forms applied to the patients, age, education level, how many years

they have been working as mining workers, smoking consumption habits were questioned with the questionnaire system.

In order to evaluate oral hygiene habits, patients were asked whether they used oral hygiene (OH) tools (dental floss, interface brush, mouthwash, Water Flosser, oral spray, etc.) used in addition to toothbrush and toothpaste. Patients halitosis and gum bleeding "Do your gums bleed?" And "Is there a bad smell in your mouth?" It was assessed with questions.

In the second form, a 14-question Turkish OHIP-14 test was performed to determine the patient's quality of life related to oral health.

The examination was carried out by a single clinician, in a closed place, in a place that receives more daylight and was illuminated with a flashlight. Periodontal status was recorded using PKI (1975) and CPITN (1982) index. After the examination, patients were informed about OH. An appointment was made to the periodontology department of our faculty to start periodontal treatment for individuals with code 2 and above.

Oral Health Impact Profile-14 (OHIP-14)

Turkish version of OHIP-14, which was created and evaluated by Balcı [15], was used in the measurement of QLAOH of individuals. OHIP-14 scale filling of the participants, evaluating the situation in the past year, were asked to answer questions. Locker's oral health of theoretical model, *functional limitations, physical pain, psychological discomfort, physical disability, psychological disability, social disability and disabled,* total value of

all sub-dimensions of OHIP-14 covering 7 dimensions is specified as OHIP-14T. OHIP-14 questionnaire scores, according to Likert scale, 0-4 scored the choices (never = 0, rarely = 1, sometimes = 2, often = 3, very often = 4) were obtained by collecting and degree of impact was calculated. [14] High scores showed that the quality of life was negatively affected. [24]

Statistical analysis

Statistical analysis of the study was done in SPSS 19.0 package program. Continuous variables in the study, median, minimum and maximum values of categorical variables, frequencies and shown by percentage. Represented by the normal distribution of continuous variables in the study eligibility Shapiro Wilk test.

It was analyzed with Kruskal Wallis test in group comparisons of variables that do not show normal distribution, and Mann Whitney U test in 2 group comparisons. Relationships between continuous variables were analyzed by the Spearman correlation analysis. In all statistical analyzes in the study, p value below 0.05 was considered statistically significant.

RESULTS

It was determined that the 255 mining workers surveyed had an average age of 38.44 ± 6.51 years (range 23 to 60 years). Looking at the educational level of the patients. It was observed that 255 patients, 37% were primary school and 33% were high school graduates. When classified according to smoking habits, 49.4% were reported not to smoke. Frequency of going to the dentist "six-month intervals", "one year intervals" and "When tooth pain"

divided into 3 groups. It was found that 79.4% went to the dentist only when the tooth aches (Table 1).

8 people who brush their teeth 3-4 times a day; 132 people who brush 1-2 times a day; 74 people brushing 2-3 times a week and 24 people brushing once a week. 17 people stated that they never brush their teeth. Participants from 61 people had periodontal therapy before, other participants did not have periodontal therapy before. 133 people answered "yes" and 122 said "no" to the question "Are there any gum bleedings?", Which was asked to evaluate the mouth conditions of the individuals by themselves. Similarly, when asked for the presence of odor in the mouth, 152 people stated that there was a smell in their mouths and 103 people stated that there was no smell. (Table 1)

Clinical Findings

CPITN Index measurement results of the scan performed on the patient, the maximum number of patients, Code 2 and second Code 3 were found (Table 2). PKI mean values of 1.69 ± 74

PKI was found to be statistically higher than individuals who stated that there was no bleeding in the gums (p <0.001). Likewise, individuals who stated that they had bad odors in their mouths were found to be statistically higher than individuals who did not indicate that they had bad odors (p = 0.002)

Reliability of OHIP-14 Scale

In our study, when Cronbach's alpha value was calculated, it was found 0.902. Values for OHIP-14 and its subunits are ideal for survey reliability.

Findings of OHIP-14 and 7 sub-dimensions

The median value of OHIP-14T expressing the total score was calculated as 8.00 (0.00-40.00). The median values for these 7 sub-dimensions in OHIP-14 are shown in a graphic (Figure 1).

The Relationship Between Age, Education Level and Year of Work at the Mine and OHIP-14

No statistically significant relationship was observed between the year of study at the mine and the OHIP-14 values and clinical indexes (p> 0.05).

When looking at the relationship between age and OHIP-14, a statistically significant, negative relationship was found only in *physical pain* size (p = 0.037). It was observed that as the average age increased, physical pain decreased.

As the degree of education increased, the values of OHIP-14T and all its sub-dimensions decreased. In other words, as the level of education increased, the quality of life increased positively. However, this increase was not statistically significant due to the number of people. In the *functional limitation* dimension of OHIP-14, a statistically significant relationship was found with the level of education (Table 3).

There is also a significant relationship between education and CPITN values (p = 0.019).

Relationship Between Gum Bleeding, Bad Breath, Smoking and OH Habits and OHIP-14

The values of OHIP-14T and functional limitation, physical pain and psychological insufficiency sub-units of individuals who stated that they had gingival bleeding were found to be statistically higher than those

of individuals who stated that there was no gingival bleeding. Likewise, individuals who indicated bad odor in their mouths were found to be statistically higher than OHIP-14T and all sub-parameter values than those who did not indicate odor.

Regarding smoking, no statistically significant difference was found between OHIP-14 values of non-smokers and up to 10 smokers per day, while the OHIP-14T value of 11 and more smokers was statistically higher than non-smokers and up to 10 smokers (Table 3).

When we look at the relationship between OHH and OHIP-14 values, OHIP-14T, *"functional limitation" and "psychological unrest"* values of those who have 1-2 days of tooth brushing habit were found to be statistically lower than other groups. The highest OHIP-14T value belongs to the group whose teeth have never received a brush.

Individuals' tooth brushing frequency and a significant positive correlation between the number of teeth (p <0.001).

Relationship Between Periodontal Parameters and OHIP-14

CPITN CODE 0 (healthy); When we grouped them as CODE 1-2 (gingivitis) and CODE 3-4 (periodontitis), there was no difference between the groups (p> 0.05).

A direct proportional relationship was found between PKI and CPITN (r = 0.475; p <0.001). When we examined the relationship between PKI and OHIP-14 results, *a* positive correlation was found in the *psychological disability* dimension (r = 0.138, p = 0.028).

DISCUSSION

There are few studies in the literature evaluating the periodontal status of mine workers. One of them is a study comparing the mouth and dental conditions of the mine and foundry workers in the USA in 1942. [18] Another study, India in the mine working marble, body mass weight and periodontal disease is the relationship between the two studies evaluated. [19] Other studies are cross-sectional studies examining tooth decay, periodontal condition and dental trauma in coal mine and stone mine workers. [20,21] When examining the literature in our country, QLAOH with periodontal disease in miners. The study evaluated the relationship has not been demonstrated.

QLAOH is associated with various health behaviors and demographic factors, and these factors include age, gender, clinical condition, number of teeth, dentist visits, cigarette consumption and socio-economic status. [22-24]

The low level of education affects individuals' occupation and income levels, and lowers their living standards, and accordingly affects their quality of life [11,24]. Boillot et al. [6] reported that low education level was associated with increased periodontal risk in a meta-analysis. Studies have shown that individuals with lower education levels have fewer teeth and more periodontal attachment loss [26]. Çağlayan et al. [27] reported that as the level of education increases, the quality of life also increases. As the level of education increases, increased attention to OH and routine health checks can also improve quality of life [24]. In our study, a positive correlation was found between the level of education and the number of teeth, and a statistically significant relationship was found

in the functional limitation sub-dimension of the OHIP-14 questionnaire.

Differences in behaviors such as tooth brushing habit, dental floss and interface brush use, dentist visit and smoking, which are one of the most important factors affecting gum health, are effective on QLAOH.[28] Thailand ' in between ages 15 and 87, in a study involving 87,134 adults [29], cigarettes and alcohol have been found to have poorer quality of life of the users. In the literature, it has been reported that the troublesome conditions of mining workers push individuals to alcohol and cigarette use [20] In our study, approximately half of the screened patients are smokers, half of them smoke more than 11 cigarettes per day. When we make a comparison according to the information in the literature that one third of the men in the world use cigarettes, we see that the rate of smoking in the miners is high [30]. In the effect of smoking cigarette on the quality of life, the quality of life of those who smoke up to 10 cigarettes a day and those who never use was found to be better than the quality of life of those who smoked 11 or more cigarettes, especially in terms of *physical pain and psychological unrest*. When we look at the literature, we see that the results are similar to our study, and in studies using the OHIP-14 questionnaire, smoking decreased the quality of life [31,32]. This may be due to the damage of cigarettes to periodontal tissues, to bad breath, to coloration in teeth and gums.

The effect of periodontal parameters on the quality of life has been studied in many studies. Ng and Leung [11], reported that periodontal disease had a significant effect on OHIP-14 values. Similarly, Needleman et al. (8) stated that periodontal status is related to the quality of life in patient-oriented evaluations with the OHQoL-UK survey. In another study, it was explained that as the number of teeth with periodontal pocket increases, the quality of life is worse [33].

In our study, no statistically significant correlation was found between the CPITN indexes of the screened individuals and the OHIP-14T and its sub-findings. The highest OHIP-14 scores were found only in individuals who did not need clinical treatment and only showed bleeding findings (Code 1). During the screening, only periodontal conditions of the individuals were determined; Other factors such as existing caries, presence of mobile teeth and intraoral lesions have not been recorded. Even if the patient is periodontally healthy, it may have reflected the decrease in quality of life on the OHIP-14 questionnaire due to other dental problems. In the relationship between CPITN and OHIP-14, the group who did not need treatment (Code 1) had lower quality of life; it may also be because of the lack of statistical significance between the OHIP-14 values of the healthy (Code 0), gingivitis (Code 1-2) and periodontitis (Code 3-4) group. (table 4)

According to the results we obtained from the data, we see that periodontal disease may not always adversely affect the subjective perceptions of the individual. While examining the effect of periodontal status on quality of life, the progression of periodontal disease, individual's expectations, preferences, habits, economic, social and psychological opportunities should be taken into consideration. [34]

Conclusion

In the light of the data obtained in our study and parallel to the existing literature, the sociocultural situation, dental and social habits, the number of teeth affect QLAOH; It was observed that there was no relationship between periodontal status and QLAOH. We think that the relation of *functional limitation* and *physical pain*, which are subgroups of the OHIP-14 questionnaire, with CPITN may be due to periodontal loss.

In future studies in this area, the number of people should be increased and caries and missing teeth, prosthesis use, joint disorders, dry mouth and mouth lesions should also be evaluated. In addition, the use of different scales evaluating QLAOH in the planned studies will contribute to finding the most appropriate scale that can be applied in periodontal treatment.

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Figure Legends

Figure 1: The median value of OHIP-14T expressing the total score was calculated as 8.00 (0.00-40.00). The median values for these 7 sub-dimensions in OHIP-14 are shown in the graphic.