**Original Article**

# Relationship Between Oral Health Related Quality of Life and Dental Condition in Patients Referring to Yazd Dental University and Yazd Khatamolanbia Clinic

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**Abstract**

**Introduction:** Oral health related quality of life - United Kingdom (OHQoL-UK) questionnaire is one of the instrument which measure both positive and negative aspect of Oral Health related Quality of Life (OHQoL) at the same time. The aim of this study is to evaluate OHQoL with remaining teeth and other variable using OHQoL-UK questionnaire.

**Materials & Methods:** This cross-sectional study was done on 150 patients referring to Yazd dental university and Khatamolanbia clinic; they were randomly asked to completeOHQoL-UK questionnaire. Number of teeth, present or absence of dental prosthesis (partial or fixed) was examined by the clinician. Then patients completed the OHQoL-UK questionnaire.

**Results:** Sixty one male and 84 female completed the questionnaire. Male have higher mean quality of life score than female (68.8 in male and 67.9 in female) although it was not statistically significant (p=0.519). Quality of life score tended to decrease with age (p=0.214). Patients with more teeth have higher mean quality of life score (p= 0.002, rs=0.253). Mean quality of life score in patients with partial prosthesis was less than other patients but this relationship was not statistically significant (p=0.563). Patients with fixed prosthesis had higher mean quality of life score than others (p=0.05).

**Conclusion:** According to the effect of dental condition on quality of life and effect of tooth loss on decreasing quality of life, required intervention should be done to improve dental condition and quality of life as a result.

**Key words:** Oral health related quality of life, OHQoL-UK questionnaire, Tooth loss, Dental condition

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## Introduction

Oral Health related quality of life involves part of life quality specially affected by an individual's health. The effect of health on quality of life (QoL) has attracted a lot of attention in medicine and dentistry. Different diseases, including oral disorders affect a person's QoL in different ways. People may get into trouble with various aspects of their performance, appearance, and even relationship between the individuals. Although many oral diseases are not fatal, they can cause significant morbidity in terms of physical, social, and psychological problems that affect a person's QoL[1]. In fact, understanding a patient with dental problems is regarded important in assessing the health needs of the patient.

The findings of a study done by Mack et al revealed that the impact of reducing the number of teeth without replacing them on QoL was as much as cancer and kidney diseases [2]. The results of another study on people who were 85years old, showed that those with more than 20 teeth had better physical health compared with those with less than 19 teeth [3]. In a study by Needleman et al. (2005), a relationship was detected between the number of teeth with pocket depth of ≥5 mm and mean QoL score [4]. The results of Slade and Sanders' study demonstrated that within people having none of the five clinical problems (more than 5 missing teeth, dentures, untreated tooth decay, moderate to severe periodontitis, tooth pain) mean QoL score was weakly associated with age, though in those with more than two clinical problems, an inverse relationship was observed between QoL and aging[5].

Such questionnaires, as Oral Health Impact Profile (OHIP) [6-10], Oral Health-related Quality of Life (OHQoL), Dental Health Index (DHI)) are generally used to assess the effect of oral health on QoL, among which OHQoL-UK questionnaire was used in the present study, since it investigates both positive and negative aspects simultaneously.

In Iran, like other communities, QoL can be affected by the dental status. Since no study has been conducted in this area in Iranian society via OHQoL-UK questionnaire, the present study was conducted to investigate the relationship between oral health-related quality of life and dental status of the patients referring to Dental School and Khatam al-Anbia Clinic in Yazd, as a subset of Iranian community.

## Materials and Methods

In this cross-sectional study, 150 patients referring to Yazd Dental School and Yazd Khatam al-Anbia Clinic were randomly selected and then were asked to complete OHQoL-UK questionnaire. Considering the statistically significant level of $P<0.05$ and 80% statistical test power in order for the statistically significant relationship between



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quality of life score and dental condition to be established, 150samples are required based on the standard questionnaire and δ= 0/3 obtained from previous studies. Initially, number of teeth, presence or absence of dental prostheses such as partial denture and fixed prosthesis were examinedby a clinicianIn this study, the OHQoL-UK questionnaire was used including16 questions on four aspects of QoL. A a matter of fact sincethe Persian version of the questionnaire was not available ,the questionnaire was first translated from English to Persian and then another expert was asked to return the Persian version to English. The translation was compared with the original text and its consistency was confirmed by two periodontology specialists. In order to check the reliability of the Persian version, 30 patients were studied in a pilot study. Questions were classified into symptoms, physical, psychological, and social dimensions. The reliability of questions was evaluated and Cronbach's alpha was reported between 0.60 to 0.77 in regard with different questions. In the main phase of study, a few demographic questions probing for patients' age, marital status, and sex were added to the questionnaire.

Inclusion criteria in the present study consisted of the patient consent as well as patients' lack of a systemic disease. Furthermore, the study method was approved by the Ethics Committee of Yazd Shahid Sadoughi Dental School.

Each question was presented via a 5-likert scale as follows: 1) very bad effect; 2) bad effect; 3) no effect; 4) good effect; 5) very good effect. Scores were summed up being in the range of 16 - 80 which a lower score indicated a worse effect on QoL. The study data were normally distributed and thus were analyzed via SPSS software (ver.18) using t-test, ANOVA and correlation coefficient (Pvalue≤0.05 was considered statistically significant)

## Results

Among 150 completed questionnaires, 5 questionnaires were excluded due to the incomplete information. As it is shown in Table 1, questionnaires were responded by 61 men (42.07%) and 84 women(57.93%) in the age range of 17-70 years. The mean QoL score was reported to be higher within men (68.6) compared to the women (67.9). However, this difference was not proved to be statistically significant (p=0.519).

The mean QoL score of patients decreased with aging which was not observed to be statistically significant (p=0.214), whereas the decrease in the social dimension was statistically significant (p = 0.003) (Table 1). Moreover, no correlation was demonstrated between patients' marital status and mean QoL score (p=0.707)(Table 1)The correlation coefficient was used to compare the relationship between number of teeth and mean QoL score. By increasing the number of teeth, the mean QOL score increased as well (p=0.002, r=0.253), which



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was statistically significant in regard with psychological and social aspects (Psychological: p <0.0001, r = 0.296 - Social: p=0.014, r = 0.200), though, mean QoL score was not statistically significant in symptom and physical aspects (Symptoms: p=0.060, r=0.154 - Physical: p= 0.085, r=0.141)(Table 2).

Within 145 patients participating in this study, 5 patients (3.44%) were reported to have partial denture, 32 patients (22.06%) had a fixed prosthesis, and others revealed no prosthesis. Mean QoL score of patients who had a partial denture was reported lower than that of others, however, this correlation was not statistically significant (p = 0.563). Furthermore, Mean QoL score of patients with fixed prosthesis was higher than others (p= 0.05) (Table 1) .

**Table 1:** The relationship between QoL and patient's demographic data

| Demographic | | Number | Mean | SD | P.value |
|---|---|---|---|---|---|
| **Age** | 20-29 | 29(20%) | 68.2 | 5.96 | p[1]=0.214 |
| | 30-39 | 40(27.6%) | 69.87 | 6.19 | |
| | 40-59 | 71(49%) | 67.47 | 6.57 | |
| | +60 | 5(3.4%) | 65.83 | 8.28 | |
| **Gender** | Female | 84(57.93%) | 67.91 | 6.99 | p[2]=0.519 |
| | Male | 61(42.07%) | 68.6 | 5.69 | |
| **Marriage status** | Single | 17(11.8%) | 68.73 | 6.65 | p[2]=0.707 |
| | Married | 128(88.2%) | 68.13 | 6.45 | |
| **Partial prosthesis** | Present | 5(3.44%) | 66.6 | 7.79 | p[2]=0.563 |
| | Absence | 140(96.56%) | 68.3 | 6.42 | |
| **Fixed prosthesis** | Present | 32(22.06%) | 70.2 | 5.85 | p[2]=0.05* |
| | Absence | 113(77.94%) | 67.7 | 6.54 | |

[1]: ANOVA test

[2]: T test

*: stastitically significant

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**Table 2:** Correlation of number of teeth and quality of life

| Dimension | | Teeth |
|---|---|---|
| **Symptom** | Pearson Correlation | 0.154 |
| | P-value | 0.060 |
| **Physical** | Pearson Correlation | 0.141 |
| | P-value | 0.085 |
| **Psychological** | Pearson Correlation | 0.296* |
| | P-value | 0.000 |
| **Social** | Pearson Correlation | 0.200* |
| | P-value | 0.014 |
| **Total** | Pearson Correlation | 0.253* |
| | P-value | 0.002 |

*: statistically significant

## Discussion

Attention to different aspect of health like social, psychological, physical and patient statisfication impact on quality of life is increasing. Health-related quality of life (HRQoL) describes these aspects well which is utilized in recent studies related to the oral health [7, 11-17].

In the current study, the mean QoL score in men was reported higher than in women, though this difference was not proved to be statistically significant (p=0.519). Studies conducted by Aslund et al (2008) [18] and Kumar et al. in (2008) [19] showed higher score of QoL in men which is in line with the findings of the present study. According to Kumar et al. lower score of QoL is expected in women, which can be related to their higher dental anxiety.

According to t this study results, an increase in age resulted in a decrease of mean QoL score (p=0.214).This relationship was reported to be statistically significant in the social dimension (p=0.003), whereas it was not demonstrated to be significant in regard with other dimensions. Since increasing age can increase occurence of such chronic diseases as caries, periodontal diseases as well as risk of tooth loss, a decrease in QoL score was predictable. The study results were consistent with the findings of other studies as example Steele et al, 2004; Gerritsen et al, 2010; Mc Grath, 2009 [8, 20-22]. In contrary, the results of Aslund et al. 's study in France were in contrast with the findings of the present study, which can be explained by the higher life expectancy[23,24], as well as positive effect of economic situation on life expectancy[25] and as a result on QoL in France.

Since small number of single people participated in this study, no relationship was detected between patients' marital status and QoL score(p=0.707), which confirms ,



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findings of a study carried out by Akifusa et al.(2005), which proposed no relationship between marital status and QoL [3].

In the present study, the mean score of QoL was reported higher within patients who had more teeth (p = 0.002, r = 0.253) (Table 2), which was consistent with the findings of numerous studies conducted within 2002-2010[3, 8, 18, 20, 22, 26-29]. Tooth loss is mainly the result of periodontal disease and caries, and the problems associated with the disease such as pain, swollen gums, bleeding gums, and bad breath can obviously reduce QoL. The consequences of tooth loss such as unpleasant appearance, difficulty in speaking, eating disorders, endangering public health can also reduce the QoL. However, Hassellet al. (2006) did not find any significant relationships between the number of teeth and QoL, whereas only a significant correlation was observed between the number of front teeth and QoL score.

QoL in patients with partial dentures was reported to be lower compared to other patients, though this difference was not proved to be statistically significant (p=0.563) taking small number of patients with partial denture into account in the study sample. Moreover, QoL was significantly observed to be higher (p=0.05) within patients with fixed prosthesis The result of this study in regard with the relationship between QoL and the prosthetic condition was consistent with findings of Aslund study (2008) [18], whereas the study results were in contrast with those of AL-omiri (2010)(32) which demonstrated no relationship between the prosthetic condition and QoL. The reason for this inconsistency can be explained by the fact that the effects of prosthetic condition on QoL depends on patients' satisfaction with their dental prosthesis.

It is worth mentioning that the current study did not assess the relationship between the number of teeth and QoL score based on the location of the missing teeth, performance of teeth, and functional teeth , although all these factors could affect the results of the study. It should be also noted that participants of the study were all patients referring to Yazd Dental School and Yazd Khatam AL-Anbiya Clinic who were dissatisfied with their dental status,as a result, the findings of this study were limited to this group of people. Hence, conducting further studies are recommended t taking the type of teeth into consideration within a larger population.

## Conclusion

The findings of the present study proposed the direct effect of dental condition and loosing teeth on quality of life. Thus any interventions improving the dental status can be effective in enhancing QoL which ultimately can lead to more enjoyment and pleasure in life such as oral health instructions, improvement of individual knowledge, periodic dental visits.



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