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## Evaluation of Health-Related Quality of Life among General Dentists

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### ABSTRACT

This study was carried out to evaluate health-related quality of life (HRQOL) among general dentists. HRQOL was measured using the Persian version of the 36-item Short Form Health Survey (SF-36). This cross-sectional study was conducted on general dentists in Kermanshah, 2014. Data were analyzed by SPSS-17, using *t*-test ( $P < 0.05$ ). The response rate was reported to be 91.6% (186/203). A total of 186 general dentists, 135 males (72.6%) and 51 females (27.4%) with mean age of  $41.5 \pm 7.8$  years participated in the study. The findings showed that the general dentists had a high quality life ( $69.6 \pm 14.7$ ). The scores of physical and mental health component summaries were  $70.1 \pm 18.3$  and  $63.1 \pm 16.9$ , respectively. The scores of domains varied from  $86.5 \pm 16.3$  for physical functioning to  $51.1 \pm 19.7$  for public health. Higher HRQOL scores were significantly associated with younger age, single, lower work experience, and general health condition ( $P < 0.05$ ). However gender displayed no significant effect on HRQOL ( $P = 0.822$ ). General dentists showed an appropriate health-related quality of life. However, dentists with systemic diseases had low HRQOL. Accordingly, coping strategies are required to be implemented in order to achieve a better HRQOL.

**Keywords:** General Dentists, SF-36, Health Related Quality of Life,

### INTRODUCTION

Dentists are exposed to many occupational risk factors such as systemic infections (HIV, hepatitis B and C), eye injuries, vibration, skin injuries, radiation, dental materials and noise pollution [1,2,3]. Musculoskeletal pain among dentists (61%) has been reported to be significantly higher compared with surgeons (37%), physicians (20%) [2] and pharmacists (26%) [3]. Dentists are exposed to a wide range of stressors in work environment, such as long working hours, treatment of restless children, and the need for high concentration were identified as the most common factors [4,5]. Constant work pressure and associated physical disorders may have negative effects on dentist's personal and professional behavior, mental and emotional performance, and general health [6] and finally can affect their quality of life.

Given a continuous interaction between dentists and their patients, healthy dentists are particularly important for successful dental practice and the well-being of patients. [7]

Health related quality of life (HRQOL), is quality of life relative to one's health or disease status. [8].SF-36 is a standardized and generic questionnaire used to measure HRQOL[9].

The aim of this study was to evaluate HRQOL by using Persian version of SF-36 questionnaire among general dentists in Kermanshah city in 2014.

### MATERIALS AND METHODS

In this cross-sectional study, the general dentists working in Kermanshah in 2014 were studied. The sample size was calculated based on a pilot study. According to the indicators of quality of life, including  $S = 22$  (standard deviation),  $\alpha = 0.05$  (confidence) and  $d = 3.3$  (accuracy), the minimum sample size was 183 patients who were selected through simple random sampling.

$$n = \frac{Z_{1-\frac{\alpha}{2}}^2 S^2}{d^2} = 182.89$$

The researcher referred to the office and clinic of dentistry. This study was approved by the Medical Ethics Committee of Kermanshah University of Medical Sciences. The objectives and procedures of the study were explained to the dentists. If they were satisfied to take part in the study, signed informed consent form. For ethical considerations the questionnaires were completed anonymously. The instrument for data collection in this study consisted of the SF-36 questionnaire and demographic information section (age, gender, marital status, work experience and history of systemic and chronic diseases such as: musculoskeletal disorders, diabetes mellitus, hypertension, hypersensitivity, psychological disorders...). The validity and reliability of the Persian version of the Short Form SF-36 questionnaire, as a HRQOL questionnaire, were approved by the Research Center of Tehran University of Jihad [10].

The SF-36 questionnaire consists of 36 questions in 8 domains. Mean Physical health score includes: physical functioning, role of limitation due to physical function, bodily pain and general health domains, and mean mental health score includes: role limitation due to emotional function, energy / fatigue or vitality, emotional wellbeing and social functioning domains. Based on the number of options for each question, the scores were determined; 2-choice questions (scores of zero and 100), 3-choice questions (scores of zero, 50 and 100), 5-choice questions (scores of zero, 25, 50, 75 and 100) and 6-choice questions (scores of zero, 20, 40, 60, 80 and 100). The score of each domain was calculated by the sum of scores of questions divided by the number of questions relating to the domain. Mean Physical and Mental health score were computed by the sum of scores of four domains divided by four. Total score was calculated by the sum of score of all questions divided by 36, So each scores ranging from 0 to 100, 0 showed the worst and 100 the best condition. Data were analyzed using SPSS software (version 17). T-test was used to assess the impact of demographic variables on the quality of life. In this study,  $P < 0.05$  was considered significant.

### RESULTS

From 203 questionnaires that were distributed among general dentists, 186 dentists completed the questionnaires (Response rate: 91.6%). Table 1 shows demographic information of participants (age, gender, marital status, work experience and history of systemic diseases). All participants included 135 males (72.6%) and 51 females (27.4) with the age range of 24 to 65 and mean age of  $41.5 \pm 7.8$  years. 35 (18.8%) of dentists were singles, 151 (81.2%) were married. 59 (31.7%) had work experience  $\leq 10$  years and 127 (68.3%) had work experience  $> 10$  years. 127 (68.3%) were without systemic disease and 59 (31.7%) had systemic disease (Table 1).

Total scores of health related quality of life and mean physical and mental scores based on demographic variables of dentists are shown in Table 2.

Total quality of life of dentists and physical and mental dimension of it were higher among dentists aged of  $40 >$ , single, work experience  $10 >$  and without systematic disease. But any difference between genders was not seen.

Table 3 consist the mean quality of life in eight domains scores. The score of eight domains varied from a maximum of  $86.5 \pm 16.3$  (physical functioning) to a minimum of  $51.3 \pm 19.7$  (public health).

The quality of life score in the eight domains was not significantly different between the male and female dentists (0.05 <P)(Table 4).Except for the domains of “role disruption-emotional”, that not affected by age, marital status and history of systemic disease, the scores of other domains in the dentists aged ≤40 years, single dentists and dentists with no systemic diseases were significantly higher than those of the dentists aged>40 years, married dentists and dentists with systemic diseases, respectively (p<0.05)(Table 5, 6, 7).

The dentists with work experience of ≤10 years obtained higher scores than the dentists with >10 years experience in the eight domains (p<0.05) (Table 8).

**Table1. Distribution of frequency of dentists participating in study according to demographic variable**

Variable	Number	%
Gender:		
Man	135	72.6
Woman	51	27.4
Age group(years):		
40>	82	44.1
40<	104	55.9
Marital status:		
Single	35	18.8
Married	151	81.2
Work experience(years):		
10>	59	31.7
10<	127	68.3
Systemic disease:		
Yes	127	68.3
No	59	31.7

**Table2. Comparison of the total quality of life and mean physical and mental scores based on demographic variables of dentists**

Variable	Number(%)	Total score	P	mental score	P	physical score	P
Gender:							
Man	(72.6%)135	69.4±15.2	0.822	69.8±18.7	0.781	63.7±17.4	0.445
Woman	(27.4%)51	70.0±13.5		70.6±17.4		61.59±15.7	
Age group(years):							
40>	(44.1%)82	76.7±9.9	<0.001	80.1±10.1	<0.001	66.6±16.0	0.013
40<	(55.9%)104	63.9±15.5		62.0±19.4		60.4±17.3	
Marital status:							
Single	(18.8%)35	78.7±9.7	<0.001	82.7±10.1	<0.001	69.2±15.1	0.017
Married	(81.2%)151	67.4±14.9		67.1±18.5		61.7±17.1	
Work experience(years):							
10>	(31.7%)59	78.6±8.6	<0.001	82.0±9.1	<0.001	69.3±14.9	0.001
10<	(68.3%)127	65.4±15.1		64.5±18.9		60.2±17.1	
Systemic disease:							
Yes	(68.3%)127	75.2±10.3	<0.001	77.8±11.5	<0.001	66.2±15.9	<0.001
No	(31.7%)59	57.4±15.5		53.3±19.1		56.3±18.1	

**Table 3. Mean quality of life scores of dentists in Kermanshahin2014**

Quality of Life	Score Mean±SD
Total Quality of Life	14.7 ±69.6
Mean Physical Score	18.3 ±70.1
Mean Mental Score	16.9 ±63.1
Physical functioning	16.3 ±86.5
Limitation due to physical function	32.5 ± 76.6
Pain	20.9 ± 65.7
General health	19.7 ± 51.3
limitation due to emotional function	39.0 ± 61.1
Energy/fatigue	59.1±14.7
Emotional well being	68.3±16.3
Social functioning	63.9±17.7

**Table 4. Comparison of HRQOL of dentists according to sex**

Quality of life	Quality of life score(mean±SD)		P value*
	Male	Female	
Quality of life(total)	69/4±15/2	70/0±13/5	0/822
Mean Physical Score	69/8±18/7	70/6±17/4	0/781
Mean Mental Score	63/7±17/4	61/59±15/7	0/445
Physical functioning	85/9±17/3	87/9±13/3	0/463
Limitation due to physical	75/9±32/6	78/4±32/4	0/641
Pain	65/8±21/2	65/6±20/3	0/959
General health	51/6±20/4	50/6±17/9	0/773
limitation due to emotional	63/2±39/5	55/5±37/5	0/234
Energy/fatigue	58/9±15/7	59/6±11/9	0/780
Emotional well being	67/4±14/4	70/9±10/6	0/120
Social functioning	65/3±17/8	60/2±17/0	0/081

T-test analysis

**Table 5. Comparison of HRQOL of dentists according to age**

Quality of life	Quality of life score(mean±SD)		P value*
	≤40	>40	
Quality of life(total)	76/7± 9/9	63/9 ± 15/5	<0/001
Mean Physical Score	80/1 ± 10/1	62/0 ± 19/4	<0/001
Mean Mental Score	66/6 ± 16/0	60/4 ± 17/3	<0/013
Physical functioning	94/8 ± 7/7	79/9 ± 18/2	<0/001
Limitation due to physical	90/2 ± 19/9	65/8 ± 36/3	<0/001
Pain	75/6 ± 14/6	58/0 ± 21/9	<0/001
General health	60/0 ± 15/8	44/5 ± 19/9	<0/001
limitation due to emotional	62/6 ± 38/9	59/9 ± 39/2	0/645
Energy/fatigue	62/9 ± 12/7	56/0 ±15/6	0/001
Emotional well being	72/5 ± 12/5	65/1 ± 13/6	<0/001
Social functioning	68/2 ± 16/2	60/5 ± 18/1	0/003

T- test analysis

**Table6. Comparison of HRQOL of dentists according to marital status**

Quality of life	Quality of life score(mean±SD)		Pvalue
	Single	Married	
Quality of life(total)	78/7 ± 9/7	67/4 ± 14/9	<0/001
Mean Physical Score	82/7 ± 10/1	67/1 ± 18/5	<0/001
Mean Mental Score	69/2 ± 15/1	61/7± 17/1	0/017
Physical functioning	95/5 ± 8/6	84/4 ± 16/9	<0/001
Limitation due to physical	96/4 ± 12/3	72/0± 34/0	<0/001
Pain	80/4± 15/9	62/3± 20/5	<0/001
General health	58/7± 15/7	49/6± 20/2	0/014
Limitation due to emotional	68/5± 40/3	59/3±38/6	0/211
Energy/fatigue	64/8± 12/3	57/7± 15/0	0/010
Emotional well being	73/3± 11/6	67/2± 13/8	0/017
Social functioning	70/3± 13/9	62/4± 18/1	0/018

T-test analysis

**Table 7. Comparison of HRQOL of dentists according to systemic disease**

Quality of life	Quality of life score(mean±SD)		Pvalue
	No	Yes	
Quality of life(total)	75/2 ± 10/3	57/4 ± 15/5	<0/001
Mean Physical Score	77/8 ± 11/5	53/3 ± 19/1	<0/001
Mean Mental Score	66/2± 15/5	56/3± 18/1	<0/001
Physical functioning	92/6 ±10/5	73/2 ±18/5	<0/001
Limitation due to physical function	88/3± 21/7	51/2±37/2	<0/001
Pain	71/7± 18/0	52/9±21/1	<0/001
General health	58/5± 17/0	35/8± 16/1	<0/001
limitation due to emotional function	64/8±38/3	53/1±39/6	0/056
Energy/fatigue	61/6 ± 13/4	53/6±16/1	<0/001
Emotional well being	71/1±12/7	62/5± 13/6	<0/001
Social functioning	67/5±15/7	56/2±19/3	<0/001

T-test analysis

**Table 8. Comparison of HRQOL of dentists according to work experience**

Quality of life	Quality of life score(mean±SD)		P value
	≤10	>10	
Quality of life(total)	78/6 ± 8/6	65/4 ± 15/1	<0/001
Mean Physical Score	82/0 ± 9/1	64/5 ± 18/9	<0/001
Mean Mental Score	69/3 ± 14/9	60/2 ± 17/1	0/001
Physical functioning	95/9 ± 6/9	82/1 ± 17/5	<0/001
Limitation due to physical function	93/2 ± 15/2	68/8 ± 35/4	<0/001
Pain	78/1 ± 14/0	60/0 ± 21/1	<0/001
General health	60/7 ± 15/2	47/0 ± 20/1	<0/001
Limitation due to emotional function	70/0 ± 38/0	56/9 ± 38/9	0/033
Energy/fatigue	63/5 ± 12/1	57/0 ± 15/4	0/005
Emotional well being	72/7 ± 13/0	66/3 ± 13/4	0/003
Social functioning	71/1 ± 15/9	60/6 ± 17/5	<0/001

*T-test analysis*

## DISCUSSION

Some studies have demonstrated negative impact of health-related professions on quality of life [10-13]. Dentists are exposed to a variety of harmful occupational factors that could have an adverse effect on their various aspects of their life, including physical and mental health and social functioning. [14]

In other hand a healthy dentist is one of the most important components in a successful dental practice. [15] So HRQOL of dentists can affect the professional practice.

Therefore, this study constitutes the first attempt to assess health related quality of life of general dentists by using SF36 questioner.

In the present study, the participation rate was 91.6%, this high percentage of participants in the present study can be indicative of the status of quality of life among the whole population of general dentists in Kermanshah city.

Unfortunately the existing literature on HRQOL among dentists is not rich. Most studies found assessing the health status of dentists have used other generic health instruments (mostly General Health Questionnaire and Self-Reporting Questionnaire) and therefore a direct comparison between their findings and the results of the present study could not be made. So in the current study, we compare HRQOL of dentists with HRQOL of healthy working population such as nurses, doctors and a sample of general population in IRAN (elderly people) and quality of life in dentists by using other instruments.

Total score of quality of life in general dentists was 69.6±14.7, the mean physical score was 70.1±18.3 and the mean mental score was 63.1±16.9. Klersy et al evaluated HRQOL in nurses and doctors working in hemodialysis centers by using SF-36 questionnaire and reported the physical and mental dimension scores of 50±7.2 and 49.1± 9.7 among nurses and scores of 53.3±5.8 and 49±8.6 among doctors [16].

In this study, the maximum and minimum scores in the eight domains were 86.5±16.3 (physical functioning) and 51.3 ± 19.7 (public health), respectively. In contrast to these findings, Aghamolaei et al examined a sample of people in Bandar Abass (IRAN) and reported the maximum and minimum scores of 92.9±17.9 and 67.4± 20 for the eight domains, respectively [17], which is a much higher quality of life index than that of the present study.

Based on these findings, there was no significant difference between the male and female dentists in any of the cases of total quality of life, two dimensions and the eight domains. In contrast to this finding, Hopman et al in a study of Canadian population reported gender differences in terms of quality of life and showed the quality of life was higher in men than in women [18]. Tountas et al also investigated the patients admitted to hospitals in Greece and found that men obtained higher scores in total quality of life and all eight domains compared to women [19]. Moreover, in their study Aghamolaei et al found that men's quality of life was better than women [17]. In the present study, there was no difference between male and female dentists in terms of quality of life, which can be attributed to women's employment. It has been shown that job is the most important factor affecting the women's quality of life. In fact, education level and employment status effectively improve the quality of life [20]. The findings of the current study

showed that younger dentists (<40 years) had a better quality of life than older age groups. Only in the domain of "role disruption-emotional, there was no significant difference between <40 and >40 age groups.

In line with this finding, Aghamolaei et al examined a sample of general population in Bandar Abbas and found that quality of life scores reduced gradually between the ages of 15 and 64 years, followed by a drastic reduction in quality of life after the age of 65 years (17). In contradiction with the findings of the present study, Tountas et al showed that people over 50 years old had the highest level of quality of life, while the most adverse quality of life was reported for the age group of 40-20 years [19].

Based on these findings, single dentists showed a higher level of quality of life than married dentists except for the domains of "role disruption-emotional" that there wasn't significant difference between single and married people. The high score of the quality of life in single dentists can be attributed to their lower age and lower incidence of systemic diseases.

The study showed that dentists with less than 10 years of experience in dental profession had better quality of life than dentists with over 10 years of experience. Various factors, including a higher incidence of disease in the older age groups and hard working conditions over the years can reduce the quality of life in this age group. It has been shown that stress, career fatigue (burnout syndrome), job strain, stress and lack of rest can reduce the quality of life of the people working in the health professions [21]. According to this study, the quality of life in dentists without systemic diseases ( $75.2 \pm 10.3$ ) was considerably higher than those with systemic diseases ( $57.4 \pm 15.5$ ). Only in the category of "role disruption-emotional, there was no significant difference between the dentists with and without systemic diseases. Poor quality of life has been shown to be associated with a variety of systemic diseases such as diabetes [22], heart disease [23], muscular – skeletal diseases [24], and ischemic strokes [25], kidney disease [26,27,28].

### CONCLUSION

The results of the present study showed that the quality of life of examined general dentists was at an acceptable level (QOL score of 50). The quality of life was considerably better in dentists with lower age and work experience, single dentists and dentists with good general health. Gender did not have a significant impact on the dentists' quality of life. Since dentists with systemic diseases had lower levels of quality of life, it is necessary to implement compatible training programs to improve their quality of life.

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### REFERENCES

- [1] Hodacova L, Sustova Z, Cermakova E, Kapitan M, Smejkalova J. *Ind Health* **2015**; 53(1): 48-55.
- [2] Rambabu T, Suneetha K. *Ann Med Health Sci Res* **2014**; 4(4): 578-82.
- [3] Aminian O, Alemohammad Z B, Hosseini M H. Neck and upper extremity symptoms among male dentists and pharmacists. *Work* **2014** Nov [Epub ahead of print]
- [4] PozosRadillo BE, TórrrezLópez TM, Aguilera Velasco Mde L, AcostaFernández M, González Perez GJ. *Braz Oral Res* **2008**; 22(3): 223-8.
- [5] Ayers KM, Thomson WM, Newton JT, Rich AM. *Occup Med (Lond)* **2008**; 58(4): 275-81.
- [6] Rada RE, Johnson-Leong C. *J Am Dent Assoc* **2004**; 135(6): 788-94.
- [7] Puriene A, Janulyte V, Musteikyte M, Bendinskaite R. *Baltic Dental and Maxillofacial J* **2007**; 9:10-20
- [8] Tamilyn Bakas, Susan M McLennon, Janet S Carpenter, Janice M Buelow, Julie L Otte, Kathleen M Hanna, et al. *Health and Quality of Life Outcomes* **2012**; 10:134
- [9] Azman AB, Sararaks S, Rugayah B, Low LL, Azian AA, Geeta S, Tiew CT. *Med J Malaysia* **2003**; 58(5): 694-711.
- [10] Montazeri A, Goshtasebi A, Vahdaninia M, Gandek B. *Qual Life Res* **2005**; 14(3): 875-82.
- [11] Mosadeghrad AM, Ferlie E, Rosenberg D. *Health Serv Manage Res* **2011**; 24(4): 170-81.
- [12] Sehlen S, Vordermark D, Schäfer C, Herschbach P, Bayerl A, Pigorsch S, Rittweger J, et al. *Radiat Oncol* **2009**; 4: 6.
- [13] Makabe S, Takagai J, Asanuma Y, Ohtomo K, Kimura Y. Impact of work-life imbalance on job satisfaction and quality of life among hospital nurses in Japan. *Ind Health* **2014** Dec 3. [Epub ahead of print]

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- [14] Doshi D, Jain A, Vinaya K, Kotian S. *Indian J Dent Res* **2011**; 22(4): 552-5.
- [15] Fortney L, Luchterhand C, Zakletskaia L, Zgierska A, Rakel D. *Ann Fam Med* **2013**; 11(5): 412-20.
- [16] Klersy C, Callegari A, Martinelli V, Vizzardi V, Navino C, Malberti F, et al. *Nephrol Dial Transplant* **2007**; 22(8): 2283-90.
- [17] Aghamolaei T, Tavafian SS, Zare S. *Iran J Public Health* **2011**; 40(3): 128-35.
- [18] Hopman WM, Towheed T, Anastassiades T, Tenenhouse A, Poliquin S, Berger C, et al. *CMAJ* **2000**; 163(3): 265-71.
- [19] Tountas Y, Demakakos PT, Yfantopoulos Y, Aga J, Houliara L, Pavi E. *Health Qual Life Outcomes* 2003; 1: 61.
- [20] Saravi FK, Navidian A, Rigi SN, Montazeri A. *BMC Womens Health* **2012**; 12: 41.
- [21] Hettiarachchi M, Fonseka CL, Gunasekara P, Jayasinghe P, Maduranga D. *Med Educ Online* **2014**; 19: 22772
- [22] Chittleborough CR, Baldock KL, Taylor AW, Phillips PJ. *Qual Life Res* **2006**; 15(4): 687-94.
- [23] Jenkinson C, Jenkinson D, Shepperd S, Layte R, Petersen S. *Age Ageing* **1997**; 26(1): 7-13.
- [24] Picavet HS, Hoeymans N. *Ann Rheum Dis* **2004**; 63(6): 723-9.
- [25] Kranciukaite D, Rastenyte D. *Medicina (Kaunas)* **2006**; 42(9): 709-16.
- [26] Pakpour AH1, Saffari M, Yekaninejad MS, Panahi D, Harrison AP, Molsted S. Health-related quality
- [27] Abedi Gh, Rostami F. *Health MED.* **2012**; 6(1): 24-28.
- [28] Abedi, Gh, Mohammadi, A., Mohammadi, F, Alizadeh, A, Hosseini, H, Rostami, F. *International Journal of Collaborative Research on Internal Medicine and Public Health.* June **2012**;4(6): 330-1336.