Oral Health-Related Quality of Life: A Cross-Sectional Survey among Adult Patients in Mashhad, Iran

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Abstract

Introduction: Quality of life is defined as the sense of well-being and satisfaction with daily performances influenced by dental and oral conditions. Oral diseases are very common and have impacts on different aspects of individual's life and can change their performances. In other word, they can change the quality of life. The real impact of health and disease on daily performances is considered as Health-Related Quality of Life. The aim of this study was to evaluate the impacts of oral diseases on quality of life in patients referred to Mashhad Faculty of Dentistry and Jahad Dental Clinic. **Methods:** This cross-sectional study was performed using non randomized sampling method. For this study, 500 patients referred to Mashhad Faculty of Dentistry and Jahad Dental Clinic with age >15 years were recruited. An educated interviewer asked the questions of the Persian version of OIDP questionnaire, which was valid and reliable for Iranian population. In this index the frequency and severity of each impact were recorded. Finally, each was attributed to specific oral conditions, as indicated by the respondents. The OIDP score is expressed as the sum of the different performance scores divided by the maximum possible score. **Results:** According to the results of this study, 84% of patients had negative impacts on their quality of life. Gender and job had significant associations with OIDP score. There was not any significant association between OIDP score and general health. The most and the least commonly affected daily performances were eating and going out, respectively. **Conclusion:** The most and the least effective oral diseases were toothache and tooth size and shape, respectively so the most treatment need is root canal therapy and tooth repair and to relieve pain.

Key words: Quality of life, OIDP, oral impacts, adult patients.

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Introduction

Oral diseases are among the most common diseases of human being. They are associated with economic, social, and psychological impacts that impinge on oral function, appearance, and social interactions, leading to the disruption of the daily routines (1). For example, tooth loss can disrupt the performance of normal oral functions, such as mastication, speaking, and smiling. For many individuals, the impacts of oral condition on physical appearance and social interactions are more important than oral functions such as mastication. Appearance can in turn affect the self-confidence of an individual, and might be the prime reason for seeking treatment for an oral condition (2-5). Therefore, it is important to consider the impact of oral conditions on quality of life when assessing the treatment needs of a community.

Different oral health related quality of life indices have been developed to assist with measuring the impact of oral conditions of daily life and treatment needs. Majority of these indices use frequency of oral impacts to measure treatment needs. These instruments may be questioned for their tendency to overestimate oral health needs and inability to reflect the emotional effects (e.g., pain or discomfort) of oral concerns (6,7). The Oral Impacts on Daily Performances (OIDP) index is a survey-based instrument that assesses oral conditions that adversely affect the daily activities of living (8).

OIDP index takes into account the severity as well as frequency of oral impacts when measuring treatment needs. It focuses on the assessment of the impacts caused by oral conditions on the person's abilities to perform activities and behaviors of daily life (9). The OIDP has been used in different studies of adult populations in Great Britain and Greece (8,10), Thailand (11), Tanzania (12), Uganda (13), and Norway (14). The measure has proved to be reliable and valid in cross-sectional population-based studies as well as in studies of patients with specific oral disorders, such as traumatic injuries and malocclusion (15,16).

Dorri et al. (17) evaluated the validity and reliability of a Persian version of the OIDP index in a sample of 285 working Iranian adults, and concluded that the index is valid and reliable for use in 20- to 50-year-old working adult Iranians.

The present study was performed to assess the oral health related quality of life of Iranian patients in Mashhad.

Materials and Methods

This cross-sectional study employed a convenient sampling method. Based on Dorri et al. (17) study, with $\alpha = 0.05$ and $\beta = 0.2$, sample size was calculated equal to 500 patients. All the samples were recruited from patients visiting Mashhad Faculty of Dentistry and Jahad Clinic. Mashhad Faculty of Dentistry is the only dental school in Mashhad and patients with different range of oral health problems receive treatments provided by undergraduate and postgraduate students. The Jahad Clinic is a private specialist health care centre and patients with complex oral health problems referred by their general dental practitioners attend this centre. After explaining the purpose and evaluation method of the study, each participant provided written informed consent. Personal information, including age, gender, education, occupation, and place of residence, were recorded. Trained and calibrated interviewers administered the Persian language version of the OIDP questionnaire.

Each participant verbally answered all of the OIDP questions within 20 minutes. The items addressed various aspects of a typical daily routine, including eating, speaking, denture or tooth cleaning, light activities, going out, sleeping, smiling, emotional stability, enjoying social contacts, and performing occupational tasks. For each item, the frequency and severity of impact and its value were recorded. Interviewers associated each of the recorded data with a particular oral condition. This information was used for condition specific analysis. Performance score for each function was calculated as follows:

Performance score = Severity score × Frequency score

The OIDP percentage was calculated by dividing the Performance score by the maximum possible score.

Each patient was asked about his/her general and oral health, the correlation between them, and any experience of pain during the past 6 months. The general health status was recorded according to personal statements. The oral condition of each patient was examined clinically with an explorer, mouth mirror, and periodontal probe (Hu-Freiday, Michigan, USA) while he/she was sitting on a standard dental unit in a dental clinic .Since the Kolmogorov-Smirnov test showed that the distribution of data was normal, the Chi-square test, analysis of variance (ANOVA), and *t*-test were used for statistical analysis.

Results

A total of 500 patients (204 male, 296 female; mean age: 34.1 ± 11.3 years; range: 15-87 years) who visited Mashhad Faculty of Dentistry and Jahad Clinic in Mashhad during 2009 between January to December, were invited to take part in the study.

There was no significant difference in age between the included males and females. Table 1 shows the demographic characteristics of interviewed patients. Eating was the most commonly affected activity (66.8%), while going out (8%) and working (8.8%) were the least affected. No significant differences in impacts were observed between males and females. Impacts of oral health on emotional status and sleeping were seen more frequently among females than among males (Table 2).

Toothache was the most common oral complaint among participants citing difficulties in eating (48.8%), speaking (20%), cleaning teeth (33.5%), physical activity (52%), going out (45%), sleeping (63.2%), relaxing (65.1%), emotional status (51.8%), and working (52.2%). Smiling was most associated with complaints of broken teeth and tooth color (16.3% each). Bad breath (24.3%) was most cited as affecting social contacts.

Mean OIDP scores of the 500 study participants was 9.17 (±11.48). Differences in OIDP values were observed between male and female participants, with female participants displaying a higher OIDP score (lower quality of life) than males (Table 3). The OIDP scores also depended on occupation (Table 4) and education level (Table 5). Persons who were unemployed or housewives had higher OIDP scores and participants with only an elementary school education level displayed greater OIDP scores than participants with more than an elementary school education. Poor oral health was associated with a high OIDP compared to other oral health–related groups (Table 6). However, no significant differences in OIDP scores were observed between the various groups in terms of general health (Table 7).

Table 1. Baseline characteristics of subjects

Characteristic		Male N (%)	Female N (%)	Total Number (%)
Occupation	Unemployed or housewife	8 (4%)	148 (56.5%)	156 (31.2%)
	Student	35 (17.7%)	54 (20.6%)	89 (17.8%)
	Employee	155 (78.3%)	60 (22.9%)	215 (43%)
Education	Elementary	22 (10.8%)	44 (14.9%)	66 (13.2%)
	Less than high school	32 (15.7%)	53 (18%)	85 (17%)
	High school	65 (31.9%)	106 (35.9%)	171 (34.2%)
	Diploma	23 (11.3%)	27 (9.2%)	50 (10%)
	BA	48 (23.5%)	57 (19.3%)	105 (21%)
	MA	5 (2.5%)	1 (0.3%)	6 (1.2%)
	PhD	9 (4.4%)	7 (2.4%)	16 (3.2%)
General Health	Excellent	71 (34.8%)	90 (30.4%)	161 (32.2%)
	Very good	26 (12.7%)	56 (18.9%)	82 (16.4%)
	Good	91 (44.6%)	108 (36.5%)	199 (39.8%)
	Fair	13 (6.4%)	38 (12.8%)	51 (10.2%)
	Poor	3 (1.5%)	4 (1.4%)	7 (1.4%)
Oral Health	Excellent	20 (9.8%)	24 (8.1%)	44 (8.8%)
	Very good	23 (11.3%)	45 (15.2%)	68 (13.6%)
	Good	74 (36.3%)	91 (30.7%)	165 (33%)
	Fair	58 (28.4%)	101 (34.1%)	159 (31.8%)
	Poor	29 (14.2%)	35 (11.8%)	64 (12.8%)
Tooth brushing (per day)	>3 times	7 (3.4%)	19 (6.4%)	26 (5.2%)
	Twice	44 (21.6%)	101 (34.1%)	145 (29%)
	Once	88 (43.1%)	126 (42.6%)	214 (42.8%)
	<1 time	54 (26.5%)	42 (14.2%)	96 (19.2%)
	None	11 (5.4%)	8 (2.7%)	19 (3.8%)
Flossing (per day)	>3 times	2 (1%)	8 (2.7%)	10 (2%)
	Twice	17 (8.3%)	29 (9.8%)	46 (9.2%)
	Once	40 (19.6%)	80 (27%)	120 (24%)
	<1 time	38 (18.6%)	60 (20.3%)	8 (19.6%)
	None	107 (52.5%)	119 (40.2%)	226 (45.2%)
Mouth rinse (per day)	>3 times	1 (0.5%)	2 (0.7%)	3 (0.6%)
	Twice	7 (3.4%)	9 (3%)	16 (3.2%)
	Once	24 (11.8%)	33 (11.1%)	57 (11.4%)
	<1 time	14 (6.9%)	41 (13.9%)	55 (11%)
	None	158 (77.5%)	211 (71.3%)	369 (73.5%)

Table 2. Functional impacts of oral health among participants

Daily routines	No impact		With impact		Total with no impact	Total With impact
	male	female	male	female		
	% Affected (N)	% Affected (N)	% Affected (N)	% Affected (N)	% Affected (N)	% Affected (N)
Eating	0.8	0.5	99.2	99.5	0.4	66.8
	(1)	(1)	(120)	(214)	(2)	(334)
Speaking	4.3	1.7	95.7	98.3	0.4	16
	(1)	(1)	(22)	(58)	(2)	(80)
Cleaning teeth	1.9	1.1	98.1	98.9	0.4	28.6
	(1)	(1)	(52)	(91)	(2)	(143)
Physical activities	6.7	0	93.3	100	0.2	10
	(1)	(0)	(14)	(36)	(1)	(50)
Going out	5.3	4.3	94.7	95.7	0.4	8
	(1)	(1)	(18)	(22)	(2)	(40)
Sleeping	2.1	0	97.9	100	0.2	21.2
	(1)	(0)	(47)	(59)	(1)	(106)
Relaxing	0	2.6	100	97.4	0.2	13.2
	(0)	(1)	(29)	(37)	(1)	(66)
Smiling	2.4	1.4	97.6	98.6	0.4	22
	(1)	(1)	(40)	(70)	(2)	(110)
Emotional status	0	0	100	100	0.0	21.6
	(0)	(0)	(41)	(67)	(0)	(108)
Social contacts	2.8	2.5	97.2	97.5	0.4	14.8
	(1)	(1)	(35)	(39)	(2)	(74)
Working	4	4.8	96	95.2	0.4	8.8
	(1)	(1)	(24)	(20)	(2)	(44)

Table 3. Association of OIDP score with gender

Gender	Number	Mean	T	Pv
Female	296	12.55 ± 10.51	3.343-	0.001
Male	204	9.43 ± 7.22		

Table 4. Association of OIDP score with occupation

Occupation	Number	Mean	Standard Deviation	ANOVA test result
Unemployed or housewives	156	12.51	14.92	F=11.520 P=0.000
Student	89	5.75	6.62	
Employee	215	8.18	9.87	

Table 5. Association of OIDP score with education level

Education	Number	Mean	Standard Deviation	ANOVA test result
Elementary	66	12.92	18.75	F=2.222 P=0.040
Junior high school	85	9.34	10.20	
High school	171	9.62	11.16	
Diploma	50	8.36	7.58	
BA	105	7.11	8.51	
MA	6	6.96	10.81	
PhD	16	5.11	4.78	

Table 6. Association of OIDP score with reported oral health

Oral health status	Number	Mean	Standard Deviation	ANOVA test result
Excellent	44	6.65	9.41	F=0.838 P=0.000
Very good	68	5.78	8.62	
Good	165	7.96	9.41	
Fair	159	10.79	13.41	
Poor	64	13.59	13.29	

Table 7. Association of OIDP score with reported general health

General health status	Number	Mean	Standard deviation	ANOVA test result
Excellent	161	8.93	10.50	F= 1.107 P=0.353
Very good	82	7.43	9.77	
Good	199	9.40	12.71	
Fair	51	11.41	10.75	
Poor	7	12.09	18.66	

Discussion

In this study, 500 patients visiting Mashhad Faculty of Dentistry and a private dental clinic (Jahad Clinic) were recruited to evaluate their OHRQoL. The results showed that oral conditions have multiple impacts on health and function among adults living in Mashhad, with 84% of the patients reporting negative impacts of their oral health on their quality of life. This rate is higher than those reported in various other studies throughout the world (11,13,18-24) and even in Mashhad among distinct target populations (64.9%) (17). Such variations could be attributed to diversities in age, culture, place of residence, and disease levels. For example, Dorri et al. (17) chose subjects among people of Mashhad visiting the Imam Reza Shrine, rather than among patients visiting dental clinics. Our reported rate is similar to results obtained in some studies in South America and Thailand (24-26).

The gender, occupation, and education level of the patient significantly affected the OIDP score. The quality of life of women was more affected than that of men. Housewives and unemployed participants reported more complaints, and subjects with lower (elementary school) education levels had more oral health impacts on their quality of life. This occupational and educational distinction could be explained by the fact that most women were housewives and predominantly had a lower education. These findings are consistent with various previous studies assessing the effects of gender or sociodemographic aspects on quality of life. For example, Montero et al. (27) reported that women reported more dysfunctions and dissatisfaction with their quality of life. Two other studies (12,13) found that young students and women were affected more than other groups, indicating that age and gender affect the quality of life. Hugo et al. (28) and Bernabe et al. (29) concluded that occupation and income most affect quality of life, while another study (30) found that race and educational status had prominent effects.

We also observed a relationship between the stated general condition of health and the quality of life. Poor general health conditions trended with a poorer quality of life, although the difference was not significant between the various groups. This finding is consistent with the results of Dorri et al. (17) and Jung et al. (18). The OIDP score displayed a significant relationship with oral health, with higher OIDP scores being attributed to inappropriate oral conditions. Sheiham et al. (8) likewise found that the OIDP score was significantly associated with clinical variables of oral health, such as loose teeth, loss of gingival fibers, and loss of anterior or posterior teeth. Yusuf et al. (20) found that the OIDP score was significantly related to oral health and oral health satisfaction.

Difficulty eating was the most common impact (66.8%) and was predominantly caused by toothache, while going out and shopping were the least affected activities. This result is consistent with the numerous previous studies that have likewise identified eating as the predominant activity impacted by negative oral conditions (8,13,17,18,20,24,31,32). Other highly affected activities in the literature include tooth cleaning (13,20,31,32) and emotional problems (24). Least affected activities in the literature include relaxing, speaking, emotional status, sleeping, social contacts, smiling, and showing teeth (8,13,17,18).

Based on our results, the primary oral needs of most patients are tooth repairing and root canal treatment to relieve patient's pain. Consideration of this fact could be extremely useful for organizing health policies and insurances.

Conclusions

1. Among the patients examined at Mashhad Faculty of Dentistry and Jahad Clinic, most of them reported that oral and dental disorders impacted their quality of life.
2. Oral conditions most frequently impacted "eating" and least frequently impacted "going out".
3. The most frequent factor impinging upon daily functions was toothache, and the least common factors were tooth shape and size and orthodontic appliance use.
4. Gender (male vs. female), occupation, and education were significantly associated with quality of life.
5. Dental insurances should be taken into consideration to facilitate accountability of dental services to general population.
6. Oral health educations should be considered in general health promotion programs for men and women. Oral health promotion will certainly improve the quality of life of attendees in these programs.

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