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Evaluation of oral health related quality of life among Indian expatriate workers in Al Zulfi, Saudi Arabia: A cross sectional study

Dr. Hidayathulla Shaikh[1*], Dr. Asiya Fatima[2], Dr. Abdulrahman A Al-Atram[3], Dr. Kailash Asawa[4], Dr. Karthiga Kannan[5], Dr. Ruchi Arora[6]

[1] Research Scholar, Pacific Academy of Higher Education and Research University (PAHER), Udaipur, Rajasthan, India
[2] Assistant Professor, Department of Orthodontics, Al Badar Dental College and Hospital, Gulbarga, Karnataka, India
[3] Associate Professor, Department of Psychiatry, College of Medicine, Majmaah University, Kingdom of Saudi Arabia
[4] Professor and Head, Department of Public Health Dentistry, Pacific Dental College and Hospital, Paher, Udaipur, Rajasthan, India
[5] Professor, Department of Maxillofacial Diagnostic Sciences, College of Dentistry, Majmaah University, Al Zulfi, , Kingdom of Saudi Arabia
[6] Professor and Head, Department of Pedodontics, Darshan Dental College and Hospital, Udaipur, Rajasthan, India

Abstract
Background: The Indian Expat Workers (foreign workers) having different languages, cultures and tradition come to work in Kingdom of Saudi Arabia (KSA), here they adopt to local customs, traditions and work ethics, in this new environment how they perceive their Oral Health Related Quality of Life (OHRQoL) is important for healthcare provider for understanding and planning in patient management.
Methods: A cross sectional study was conducted on adult Indian expat working population in Zulfi, KSA. The study sample comprised of 157 adult expats, OHRQoL was analyzed by using Oral Health Impact Profile (OHIP-14) questionnaire as instrument, clinical examination for oral health status was done using DMFT and OHI-S indices. One-way ANOVA was used to compare data using SPSS version 20 software, having significance at $p \leq 0.05$.
Results: The age of the sample population ranged from 19-60 years. The mean OHI-S, DMFT, and OHIP-14 values were 1.2 SD 0.5, 7.2 SD 4.9 and 6.6 SD 6.1 respectively, Age was significantly related to OHRQoL as well as oral health status. Occupation did not have any significant impact on OHRQoL or oral health status, Education was significantly related only to DMFT status of study sample.
Conclusion: overall the impact of OHRQoL was less among Indian working expat population in Zulfi, physical pain was the common dimension seen among all age groups, Psychological discomfort, Psychological disability, social disability and handicap of OHIP-14 were significant among study sample.

Keywords: Indian expats, OHIP-14, KSA, OHRQoL, oral health

Introduction

Any disease will definitely will have an effect on the individual's quality of life and oral diseases are one among them. The oral diseases considerably affect the physical, functional, psychological and social aspects of life, therefore the terminology Oral Health Related Quality of Life (OHRQoL) is derived from many investigations [1].

The health assessments related to oral cavity and its outcomes are very important in designing programs related to oral health care, hence oral health researchers and policy makers considered OHRQoL as prime importance [2, 3].

OHRQoL is defined as "the absence of negative impacts of oral conditions on social life and a positive sense of dentofacial self-confidence" [4]. There are many factors which can affect oral health like personal, social, economical, cultural and local, even inside a country with different regions will have differences in oral health [5].

And the data obtained from these measures are significant when planning health care to different groups. The Oral Health Impact Profile (OHIP-14) is one measure developed by Slade and Spencer, derived from Locker D and suggested by WHO to assess OHRQoL [6].

The influence of oral conditions on one's quality of life must be a part of assessment of oral health [7]. As only the clinical checkup will not completely answer the symptoms, requirements and abilities of patients to do their daily activities [8, 11].

According to Saudi Arabia's Central Department of Statistics & Information, Saudi Arabia's total population as of January 2016 was approximately 30 million, in which the expatriate (foreign) population accounts one third of the total population that is around 10 million. Majority of the expatriates (foreign workers) are from India as well, who comprise 1.4 million around 14% [27].

Kingdom of Saudi Arabia (KSA) has become an important destination for many Indian expatriate workers and data regarding their oral health related quality of life is meagre, hence a research is planned to assess their oral health related quality of life.

Material and Method

A descriptive cross-sectional study was conducted in the Zulfi town of Kingdom of Saudi Arabia, among Indian expatriate working population sample of 157 which were collected through non probabilistic sampling technique. Ethical clearance was obtained from the Ethics and Review

committee, College of Dentistry, Majmaah University, Zulfi.

All the subjects were informed about the purpose of the study and signed informed consent was obtained from all the participants who agreed to participate in the study.

The study was conducted to assess the OHRQoL among expatriate population in Zulfi, during November 2017 to January 2018 in the clinic of Dental College, Majmaah University. The study had questionnaire and the clinical examination, the questionnaire used OHIP-14 as an instrument along with demographic details, in this the English version of OHIP-14 was used and this version is reliable and validated before [26].

The OHIP-14 is a self-filled questionnaire and has 7 dimensions of impact that is Functional limitation, Physical Pain, Psychological discomfort, Physical disability, Psychological disability, Social disability and Handicap. The subjects were asked to answer based on the frequency of impact on a 5 point Likert scale (0-never, 1-hardly ever, 2-occasianally, 3- fairly often, 4-very often) with the scores ranging from 0 to 56, where 0 being no problem to higher scores being impaired oral health, the participant who were illiterate were interviewed by the investigator.

Clinical examination of all subjects was done by a single trained investigator, the subjects were clinically examined for dental caries by using Decayed Missing Filled(DMFT) index, Klein and Palmer (1938) and oral hygiene status by Oral Hygiene Index simplified (OHI-S) given by John C Green and Jack R Vermillion (1964).One-way Analysis of Variance (ANOVA) was used to compare mean scores of oral health status (DMFT, OHI-S), various variables and different impacts of OHIP-14, Data was analyzed using SPSS version 20 with significance at $p \leq 0.05$.

Results

This study comprised 157 adult expatriate populations. The age ranged from 19 years to 60 years in which 19-28 years' age group were 26.8%, 29-38 years were 35%, 39-49 yearswere 23.6%, 49-58 years were 13.4% and above 58 years old were 1.3%. as shown in Table 1.

Table 1: Age wise distribution

Age (Years)	Frequency	Percent
19-28	42	26.8
29-38	55	35.0
39-48	37	23.6
49-58	21	13.4
>58	2	1.3
Total	157	100.0

The education status of subjects was shown in Table 2. The sample had 5.1% illiterates, 17.8% with primary school education, 24.8% with middle school education, 35.7% with high school education, 14% with college level education and 2.5% were graduates.

Table 2: education wise distribution

Education	Frequency	Percent
Illiterate	8	5.1
Primary	28	17.8
Middle	39	24.8
High	56	35.7
College	22	14.0
Graduate	4	2.5
Total	157	100.0

Table 3 shows the comparison between mean values of different parameters like oral hygiene status, Decayed Missing Filled status and OHRQoL against various age groups. All the 3 parameters were statistically significant to different age groups. The worst oral hygiene within the groups was for above 58 years' age group, and the best oral hygiene in this group was of 29-38 years' age group. The mean DMFT score was lowest in 19-28 years' age group and was highest in 49-58 years' age group. The mean scores of OHRQoL gradually increased with the increases of age, presenting lesser mean score in 19-28 years' age group and highest mean score in above 58 years' age group.

Table 3: Comparison between various age groups and different parameters like OHI-S, DMFT and OHRQoL

Parameters	Age (Years)	19-28	29-38	39-48	49-58	>58	Total
OHI-S	N	42	55	37	21	2	157
	Mean	1.2857	1.1273	1.2432	1.5714	2.0000	1.2675
	Std. Deviation	.59615	.51116	.64141	.50709	.00000	.58158
	p-value	0.014 (Sig.)					
DMFT							
	Mean	5.1190	7.1455	7.8649	11.0476	7.5000	7.2994
	Std. Deviation	4.07373	4.53961	5.07807	5.55406	.70711	4.96586
	p-value	0.001 (Sig.)					
OHRQoL							
	Mean	4.9286	6.0909	7.7778	8.4500	20.0000	6.6516
	Std. Deviation	6.00566	5.90754	6.10438	5.58640	2.82843	6.17767
	p-value	0.002 (Sig.)					

Table 4 shows the comparison between mean values of parameters like oral hygiene status, Decayed Missing Filled status and OHRQoL against different education levels. We found the oral hygiene status and OHRQoL was not statistically significant when compared with different levels of education but the DMFT was, the mean DMFT score was less among graduate group and the highest mean score was seen in primary school education group. When oral hygiene was compared within the group it was graduate group having the best oral hygiene and illiterate group having the worst oral hygiene. The OHRQoL results also presented with similar finding showing graduate group having the lesser impact and illiterate group having the highest impact within the group.

Table 4: Comparison between various Education levels and different parameters like OHI-S, DMFT and OHRQoL

Parameters	Education	Illiterate	Primary	Middle	High	College	Graduate	Total
OHI-S	N	8	28	39	56	22	4	157
	Mean	1.6250	1.4286	1.2308	1.1964	1.2273	1.0000	1.2675
	Std. Deviation	.51755	.63413	.62667	.51943	.52841	.81650	.58158
	p-value	0.212 (NS)						
DMFT								
	Mean	9.1250	9.8929	5.2308	7.4643	7.0455	4.7500	7.2994
	Std. Deviation	5.71808	5.03572	3.97665	4.85411	5.40262	2.06155	4.96586
	p-value	0.004 (Sig.)						
OHRQoL								
	Mean	8.6250	7.0370	7.6154	5.7455	6.5000	4.0000	6.6516
	Std. Deviation	6.54517	7.15478	6.69491	5.12517	6.12372	8.00000	6.17767
	p-value	0.584 (NS)						

Table 5 shows the comparison of various age groups with different dimensions of OHIP-14. We found statistically significant difference in four dimensions like Psychological discomfort, Psychological disability, social disability and handicap with different age groups. The impact of all these 4 dimensions was lowest in the youngest group with the mean of 0.6 SD 1.0, 0.73 SD 1.1, 0.59 SD 1.08, and 0.52 SD 1.1 and highest in the oldest age group with the mean of 2.5 SD 0.7, 3.0 SD 0.0, 4.0 SD 1.4 and 5.0 SD 0.0 for Psychological discomfort, Psychological discomfort disability, social disability and handicap respectively.

Table 5: Comparison between various age groups and different dimensions of OHIP-14

Parameters	Age (Years)	19-28	29-38	39-48	49-58	>58	Total
Functional Limitation	N	42	55	37	21	2	157
	Mean	.4762	.6000	.6216	1.0000	2.0000	.6433
	Std. Deviation	.70670	.97373	.75834	1.26491	1.41421	.92690
	p-value	0.061 (NS)					
Physical Pain							
	Mean	1.1429	1.4727	1.5946	1.9048	2.5000	1.4841
	Std. Deviation	1.31727	1.33131	1.03975	1.54612	2.12132	1.31366
	p-value	0.167 (NS)					
Psychological Discomfort							
	Mean	.6667	.7636	1.2973	1.2857	2.5000	.9554
	Std. Deviation	1.00406	1.12157	1.10214	1.05560	.70711	1.11139
	p-value	0.007 (Sig.)					
Physical Disability							
	Mean	.7857	1.0545	1.0556	1.4500	3.0000	1.0581
	Std. Deviation	1.11608	1.26810	1.24084	1.46808	1.41421	1.27023
	p-value	0.072 (NS)					
Psychological Disability							
	Mean	.7381	.9273	1.2973	1.6667	3.0000	1.0892
	Std. Deviation	1.10563	.99730	1.17532	1.42595	.00000	1.17874
	p-value	0.002 (Sig.)					
Social Disability							
	Mean	.5952	.7091	1.1081	.9048	4.0000	.8408
	Std. Deviation	1.08334	1.01238	1.21983	1.04426	1.41421	1.15197
	p-value	0.001 (Sig.)					
Handicapped							
	Mean	.5238	.5636	1.0811	.7143	3.0000	.7261
	Std. Deviation	1.13133	.99561	1.32032	.95618	.00000	1.14697
	p-value	0.007 (Sig.)					

Discussion

OHRQoL is a multidimensional measure that shows the case of an individual when engaged in the daily activities of the life [12]. Evaluation of OHRQoL allows to understand the choices of the people related to their emotional, social, psychological and functional requirements, which can help the health care providers to plan suitable treatment and have the desired goals in patient management [13].

Hence keeping in mind a study was designed to assess the OHRQoL of Indian expatriate working population in Zulfi, Kingdom of Saudi Arabia (KSA), as they come from different country with different languages, traditions and culture, working in KSA adapting to local customs and work environment, how they perceive their quality of life related to oral health is of prime importance.

In this study there were no female expat workers, the reason being non availability of Indian female expat workers in this particular region.

The study [14, 15] showed that the demographic details like age and education had negligible effect on OHRQoL in contrast to this our study had significant effects of demographic variable like age on OHRQoL. The study [16] presented that around 57% of his study population felt tensed in last one year for their oral problems, 89.2% were unable to function, pain in 37%, uncomfortable eating in 32.3%, self-conscious in 48.8%. our study showed 39.5% of

expat population felt tensed, in contrast 73.2% reported that they were never unable to function, 62% reported with pain aching, 56.1% had uncomfortable eating and 39.5% felt self-conscious.

We observed in our study that the severity of oral diseases had a negative impact on OHRQoL, these results were similar to the results presented in the study [17]. Among the seven dimensions of OHIP-14, the highest impact of dimension we got in our study population was physical pain, the studies [18, 20, 23, 24] also showed the similar finding where their study population having physical pain as the highest dimension OHIP-14.

The study [20] also proved education having an impact on OHRQoL with the primary level education holders having the highest impact, this finding was in contrast with our study showing education did not have any significant role in OHRQoL.

The impact of age on OHRQoL in our study showed that increasing age will adversely affect OHRQoL which were in accordance with the study [21, 22]. Though in some dimensions of OHIP-14 we found 49-58 years' group having lesser impact than 39-48 years' age group. There are many variables like age, gender, education, income which can have an impact on OHRQoL. The study [25] proved area can also have an impact on OHRQoL, the study showed rural areas have more adverse impact on OHRQoL than the urban areas.

The expat sample in this study were from various jobs like barbers, drivers, farmers, odd job workers, masons, municipality workers, salesman, laundry workers, mechanics, plumbers, electricians, professionals and restaurant workers and we did not find any statistically significant results pertaining to the oral health status as well as different dimensions of OHIP-14 compared with various occupations, but of course the age had a significant role, the age was also responsible for having an impact on OHRQoL dimensions resulting in younger age group in leaser impact and older age group with higher impact on OHRQoL.

There was an unequal distribution of expats representing various occupation, expats from some jobs were more and some jobs very less, and there was no female representation as well, which could be out limitations, but this was the expat sample available in that particular region, the non-probabilistic sampling could be another limitation, because many expat workers like personal drivers, maids masons, electricians, salesmen's and many more like wise were available during holidays and only for a limited period of time. This was our initial step towards analyzing the quality of life related to oral health of Indian expatriate working population in Zulfi. We recommend further investigations in this field.

Conclusion

Overall, the Indian expat working population in this study showed a lesser impact on OHRQoL. Some of the dimension of OHIP-14 like Psychological discomfort, Psychological disability, social disability and Handicap showed significant differences among them, physical pain was the most common dimension seen across the sample. The parameters like age had a significant influence on both the oral health status and OHRQoL, but education had significant influence on DMFT status only. Various occupationswere not significantly related tooral health status or OHRQoL.

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