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Research Article

Evaluation of Oral Health Related Quality of Life in a Group of Dental Students enrolled in Cairo University: A Cross Sectional Study

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Abstract

Introduction: The oral health affects every person's emotional and social experience and physical functioning; therefore, even on the level of the undergraduate students those with better dental appearance and proper dental function have higher self-esteem and social acceptance than those with dental and/ or oral problems.

Aim: This study aims to evaluate the Oral Health Related Quality of Life among a group of undergraduate dental students using the Oral Health Impact Profile (OHIP-14) questionnaire.

Methods: The short form of the Oral Health Impact Profile-14 questionnaire (OHIP-14) was used to evaluate Oral Health Quality of Life on dental students. Oral and dental diseases' experienced were also evaluated across the perceived quality of life to find out whether a correlation existed. Statistical analysis was performed with IBM® SPSS® Statistics Version 26 for Windows. Categorical data were presented as frequencies and percentages and were analyzed using Fisher's exact test.

Results: Among the 346 participants 237 (68.5%) were females, and 109 (31.5%) were males. Their mean age was (20.83±1.83), and most of them were Egyptians 255 (73.7%). The mean of total OHIP-14 score for the studied sample was 12.95±9.80. The highest scores were found with physical pain (3.25±2.04), psychological discomfort (3.03±2.36) and psychological disability (2.04±2.00).

Conclusion: The mean OHIP-14 total score is considered relatively higher than other populations. The most prevalent impact was reported in both the physical pain and psychological discomfort domains.

Keywords Oral Health Related Quality of Life. Dental students. Oral Health Impact Profile-14.

INTRODUCTION

Oral health is crucial to general health, and it can no longer be considered a separate entity or an isolated part of the human body. Oral health has powerful impact on individuals by causing pain to the extent of changing one's diet or avoiding social interaction. It is fair to say that oral health can seriously impact quality of life. Moreover, it has a direct effect on chronic diseases like diabetes. However, there is an insufficient inclusion of oral health issues and their determinants into general health promotion therefore, populations still suffer from pain, loss of function and even compromised social life and quality of life [1].

The very first introduction of the concept of quality of life took place around 450 BC by Herodotus during his visit to Egypt. The Greeks applied different approaches of treatment which were more holistic. They used to play drama and comedy plays at hospitals theatres; such model was beneficial as it alleviated and distracted the patients from their symptoms and physicians were able to carry out their investigations [2]. The WHO definition of quality of life included "Perceptions of people's position in life in the context of culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns" [3]. Definitions varied from the simplest to more rigorous forms. The United States Surgeon General's report defined OHRQOL as "A multidimensional construct that reflects (among other things) people's comfort when eating, sleeping, and engaging in social interaction; their self-esteem; and their satisfaction with respect to their oral health" [4].

The OHIP-14 is considered a short-questionnaire; however, it is shown to be reliable [5]; has adequate cross-cultural consistency [6], and sensitive to changes [7,8]. It is considered to be one of the most internationally spread OHRQoL indicators, available in several languages. OHIP-14 is considered a good indicator to measure perceptions of the individuals regarding their own oral health and their expectations from treatments and services. It has been used by many researchers and is one of the most widespread self-assessment questionnaires of oral health due to its ease of use, practicality, validity, and reduced number of questions [9].

Evaluation of OHRQoL among dental undergraduate students was a point of interest for many researchers and dental

educational institutions. In 2011 a study was conducted aiming to assess the OHRQoL among dental students and to know whether students in different stages of their dental education had any difference in the impact of their oral health on their daily performance. A total of (36.6%) and (12.9%) of the dental students confirmed difficulties in eating and enjoying contact with other people [10].

In Sudan a study was conducted to assess the impact of orthodontic treatment needs in relation to dental health on the oral health-related quality of life of dental students as measured by the OHIP. They concluded that the overall oral health- related quality of life was good. Those with definitive need for treatment showed higher impacts on oral health in relation to functional limitation and physical pain, than those who had borderline need, little need, or no need for treatment [11].

Middle East countries has limited number of published papers in this field as compared to those of the United States, United Kingdom, Australia or Canada. This indicates that this area of health has not received enough attention in the region. The perception of quality of life has a subjective component and could definitely vary from one culture to another. Tackling this issue is a necessity because it defines the important issues in that culture [12].

Objective

Limited number of studies assessed the OHRQoL among Egyptian dental students which led to the development of the idea of this work. Therefore, the current study aims to evaluate the Oral Health Related Quality of Life among a group of undergraduate dental students enrolled in Faculty of Dentistry, Cairo University using the Oral Health Impact Profile (OHIP-14) questionnaire. The study also aims to determine whether there is a difference in the impact of the experienced oral problems on the OHRQoL.

SUBJECTS AND METHODS

Approval

The methodology of this study was primarily revised and approved by Head of Department of Pediatric Dentistry and Dental Public Health, Faculty of Dentistry Cairo University. Approval of online access and questionnaire distribution via the students' platform were granted by the Vice-Dean of Student Affairs, Faculty of Dentistry, Cairo University.

Informed Consent

This study was based on a self-perception questionnaire. The first question introduced the aim of the study and asked whether the student approved to participate in the study or not. Only when the students approve then the rest of the questions appeared. When the student declined, he\she was thanked, and the questionnaire was terminated.

Setting and Location

The study was based on an online platform of Faculty of Dentistry, Cairo University, therefore it was accessible to all students at this public dental school. The platform allowed them to use a link in order to reach the google form where the questions were structured. As previously mentioned, the questions appeared once the student approved to participate in the study by answering the first question with "Yes" to provide informed consent.

Population

The study targeted a convenience purposeful sample of all undergraduate students enrolled in Faculty of Dentistry, Cairo University. The questionnaire was available on the students' platform from 29th of April 2020 till the 15th of June 2020 giving the students more than a 45-day window to answer the questionnaire and participate in the study. By mid-June, the form documented 357 responses.

Eligibility Criteria

Inclusion Criteria

Any of the Undergraduate students enrolled in Faculty of Dentistry, Cairo University had a chance to participate in the study. Students participating in the study could be of any Nationality and any level of dental education (freshmen till senior year dental students).

Exclusion Criteria

Postgraduate students enrolled in Faculty of Dentistry, Cairo University.

Scoring of Oral Health Quality of Life

Participants were asked about their nationalities, school year, gender, and age before evaluating oral health related quality of life.

This study selected the short form (English version) of the Oral Health Impact Profile questionnaire (OHIP-14) to evaluate Oral Health Quality of Life on dental students. The OHIP-14 is composed of 14 items that assess seven different dimensions, evaluating their impact as oral conditions on the perception of the individuals regarding their own quality of life. The dimensions include physical, psychological and social well-being in the last six months [5].

Each of the 14 OHIP items or questions has a set of possible answers distributed on a Likert scale (4 = very often, 3 = fairly often, 2 = occasionally, 1 = hardly ever and 0 = never), which represents the frequency that the individual perceives the impact of oral health on seven dimensions: functional limitation (evaluated by items 1 and 2), physical pain (evaluated by items 3 and 4), psychological discomfort (evaluated by items 5 and 6), physical disability (evaluated by items 7 and 8), psychological disability (evaluated by items 9 and 10), social disability (evaluated by items 11 and 12) and handicap (evaluated by items 13 and 14) [5].

In order to calculate OHIP-14, total scores can range from 0 to 56 calculated by summing the ordinal values for the 14 items. The domain or each dimension scores can range from 0 to 8. The higher the OHIP-14 scores the worse the OHRQoL and the lower the OHIP scores the better the OHRQoL [13].

After the evaluation of oral health related quality of life using the OHIP-14, the students were asked about their previous oral diseases experience. Then structure of the question allowed them to select multiple answers in case they suffered from more than one dental disease.

Statistical Analysis

Statistical analysis was performed with IBM® SPSS® Statistics Version 26 for Windows. Categorical data were presented as frequencies and percentages and were analyzed using Fisher's exact test. Numerical data were presented as mean and standard deviation (SD) values. Ordinal data were analyzed using Kruskal-wallis test followed by pairwise comparisons utilizing Mann Whitney U test. The significance level was set at $p \leq 0.05$ within all tests and p values adjustment for multiple comparisons was done using bonferroni correction.

RESULTS

In This study the Oral health quality of life of dental students was calculated and descriptive data was presented as mean

and standard deviation (SD) of the total of the OHIP-14 questionnaire in addition to each domain on its own.

Among the 357 responses only 346 approved participating in the study and the remaining 11 were excluded as they did not answer the questionnaire. Among the 346 participants 237 (68.5%) were females, and 109 (31.5%) were males. Their mean age was (20.83±1.83), and most of them were Egyptians 255 (73.7%) Table (1).

Most the questions were answered by "Never" except for (OHIP-3) "Have you been feeling pain in your mouth or teeth because of problems with your teeth or mouth?" and (OHIP-5) "Have you been feeling worried because of problems with your teeth or mouth?" to which the majority answered "Occasionally". Also, the question "Have you been feeling discomfort while eating because of problems with your teeth or mouth?" most of the participants 103(29.77%) answered "Hardly ever" Table (2).

The mean of total OHIP-14 score for the studied sample was (12.95±9.80). There was a significant difference between the scores of different domains ($p<0.001$). The highest scores were found with physical pain (3.25±2.04), psychological discomfort (3.03±2.36) and psychological disability (2.04±2.00), while the lowest score was found with handicap (0.87±1.59) Fig. (1).

Majority of the respondents 171(49.42%) cited "Treated dental caries" as their dental problem, lower percentages chose "Untreated dental caries" 45(13.01%) and "Gingival problems" 34(9.83%) while dental trauma 9(2.6%) and periodontal problems 3(0.87%) were the least common Fig. (2). There was a significant difference between the scores corresponding to different types of dental problems Fig. (3), with scores of respondents choosing "Others" being significantly lower than those who chose treated and untreated dental caries and gingival problems ($p<0.001$).

Table (1): Demographic Data

Demographic data			
Age	**Mean±SD**		20.83±1.83
Gender	**Male**	**n (%)**	109 (31.5%)
	Female	**n (%)**	237 (68.5%)
Academic year	**First**	**n (%)**	78 (22.5%)
	Second	**n (%)**	78 (22.5%)
	Third	**n (%)**	82 (23.7%)
	Fourth	**n (%)**	60 (17.3%)
	Fifth	**n (%)**	48 (13.9%)
Nationality	**Egyptian**	**n (%)**	255 (73.7%)
	Other nationalities	**n (%)**	91 (26.3%)

Table (2): Distribution of responses

Domains	Questions	Responses n(%)					Mean±SD
		Never	Hardly ever	Occasionally	Fairly often	Very often	
Functional Limitation	**1-Have you been having problems to say a word because of problems with your teeth or mouth?**	209(60.4%)^{A}	64(18.5%)^{B}	46(13.29%)^{B}	22(6.36%)^{C}	5(1.45%)^{D}	0.70±1.02
	2-Have you been feeling that the taste of food has gotten worse because of problems with your teeth or mouth?	225(65.03%)^{A}	82(23.7%)^{B}	25(7.23%)^{C}	9(2.6%)^{D}	5(1.45%)^{D}	0.52±0.85
Physical pain	**3-Have you been feeling pain in your mouth or teeth because of problems with your teeth or mouth?**	59(17.05%)^{AB}	71(20.52%)^{A}	146(42.2%)^{C}	40(11.56%)^{BD}	30(8.67%)^{D}	1.74±1.13
	4-Have you been feeling discomfort while eating because	78(22.54%)^{A}	103(29.77%)^{A}	96(27.75%)^{A}	48(13.87%)^{B}	21(6.07%)^{C}	1.51±1.16

Domains	Questions	Responses n(%)					Mean±SD
		Never	Hardly ever	Occasionally	Fairly often	Very often	
	of problems with your teeth or mouth?						
Psychological discomfort	5-Have you been feeling worried because of problems with your teeth or mouth?	82(23.7%)^{A}	74(21.39%)^{A}	101(29.19%)^{A}	45(13.01%)^{B}	44(12.72%)^{B}	1.70±1.31
	6-Have you been feeling stressed because of problems with your teeth or mouth?	121(34.97%)^{A}	80(23.12%)^{B}	81(23.41%)^{B}	35(10.12%)^{C}	29(8.38%)^{C}	1.34±1.28
Physical disability	7-Has your eating been impaired lately because of problems with your teeth or mouth?	195(56.36%)^{A}	76(21.97%)^{B}	42(12.14%)^{C}	20(5.78%)^{D}	13(3.76%)^{D}	0.79±1.10
	8- Have you had to stop your meals because of problems with your teeth or mouth?	213(61.56%)^{A}	79(22.83%)^{B}	35(10.12%)^{C}	14(4.05%)^{D}	5(1.45%)^{D}	0.61±0.93
Psychological disability	9-Have you been finding it difficult to relax because of problems with your teeth or mouth?	165(47.69%)^{A}	82(23.7%)^{B}	65(18.79%)^{B}	22(6.36%)^{C}	12(3.47%)^{C}	0.94±1.11
	10-Have you been feeling embarrassed because of problems with your teeth or mouth?	155(44.8%)^{A}	83(23.99%)^{B}	55(15.9%)^{C}	25(7.23%)^{D}	28(8.09%)^{D}	1.10±1.27
Social disability	11-Have you been getting angry with other people because of problems with your teeth or mouth?	233(67.34%)^{A}	61(17.63%)^{B}	26(7.51%)^{C}	14(4.05%)^{CD}	12(3.47%)^{D}	0.59±1.03
	12-Have you been having difficulties to perform your daily activities because of problems with your teeth or mouth?	229(66.18%)^{A}	69(19.94%)^{B}	28(8.09%)^{C}	13(3.76%)^{D}	7(2.02%)^{D}	0.55±0.94
Handicap	13-Have you been feeling that your life, in general, got worse because of problems with your teeth or mouth?	250(72.25%)^{A}	51(14.74%)^{B}	26(7.51%)^{C}	7(2.02%)^{D}	12(3.47%)^{D}	0.50±0.97
	14-Have you been feeling completely unable to perform your daily activities because of problems with your teeth or mouth?	265(76.59%)^{A}	53(15.32%)^{B}	14(4.05%)^{C}	8(2.31%)^{C}	6(1.73%)^{C}	0.37±0.81

Different superscript letters indicate a statistically significant difference within the same horizontal row

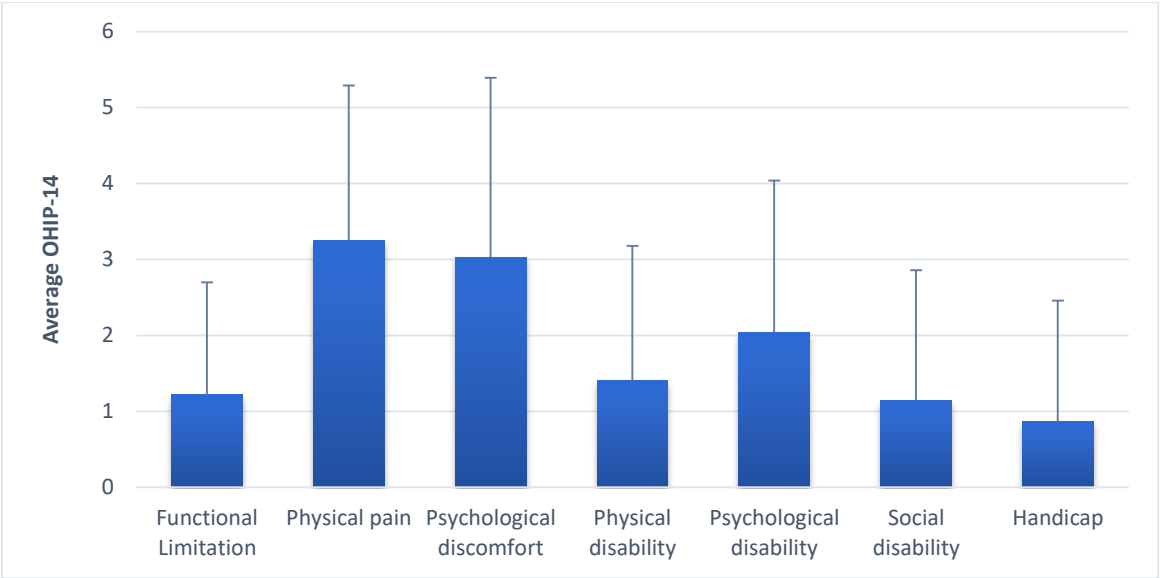

Figure (1): Bar chart showing average OHIP scores for different domains

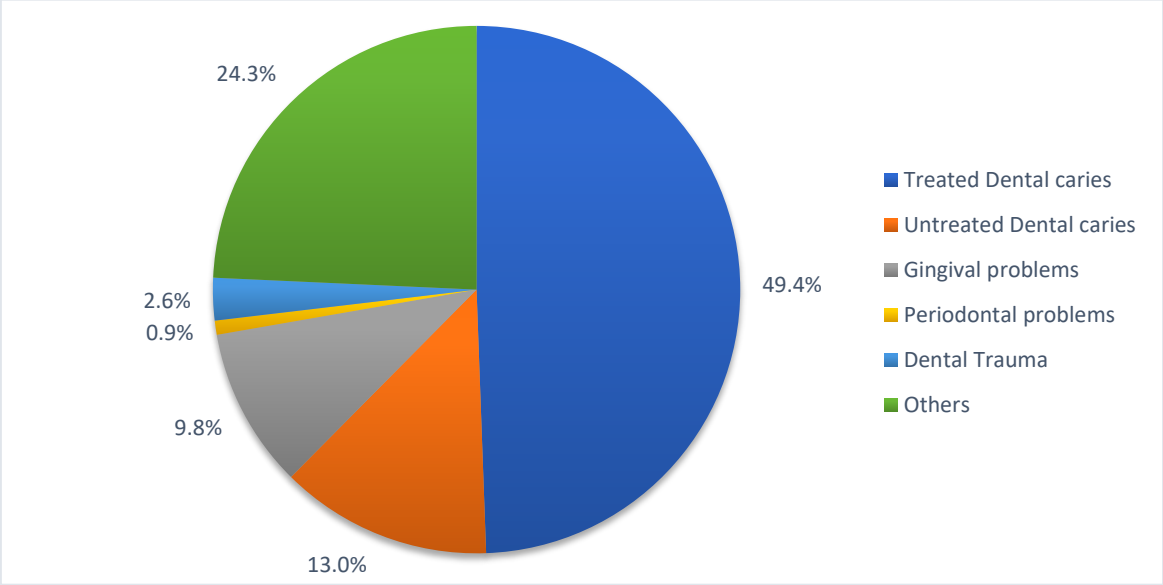

Figure (2): Pie chart showing percentage of dental problem in the studied sample

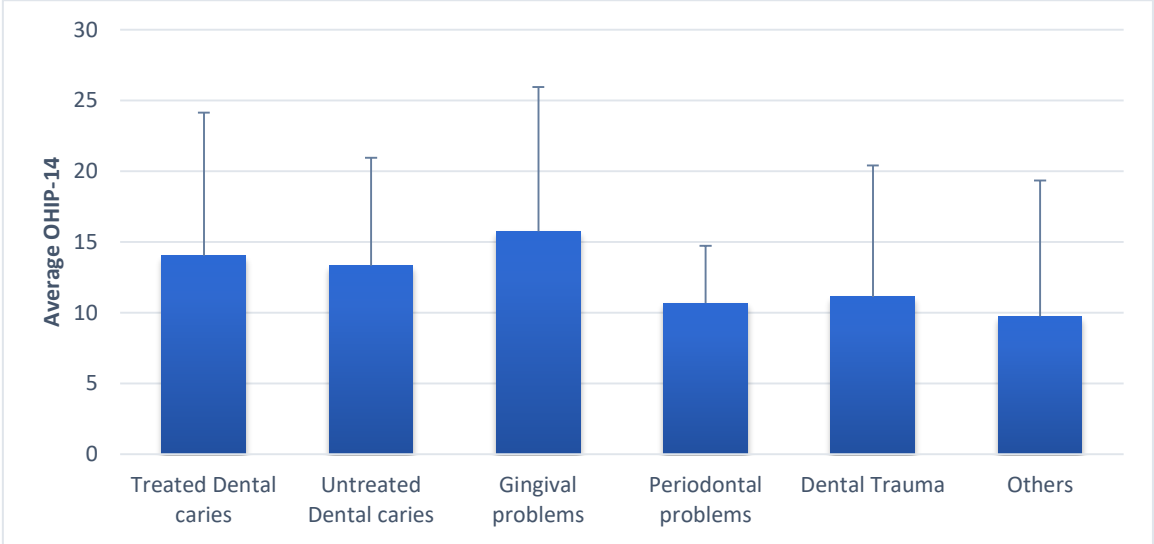

Figure (3): Bar chart showing relation between OHIP score and type of dental problem

DISCUSSION

This study was conducted through an online platform as it took place during the lockdown period due to the COVID 19 pandemic. Dental students were reachable through their online learning platform. Postgraduate students were excluded in order to standardize the dental knowledge as much as possible because undergraduates have less working experience which could be a confounding factor when answering this self-perception questionnaire.

Scoring of OHRQoL was done using the OHIP-14. The nature of questions used in OHIP gives it many advantages as an assessment tool as it depends on variable dimensions covering all quality of life-affecting circumstances of different individuals and belonging to various society levels [14]. The choice of questionnaire was because it is considered a short questionnaire; however, it is shown to be reliable [5]; has adequate cross-cultural consistency [6], and sensitive to changes [7,8]. It has been used in similar studies before; in Brazil [15], Sudan [11], and Russia [16].

The demographic data in this study revealed that female students' participation was more than that of male students while the mean age of the participants was (20.83±1.83). This is consistent with the Brazilian study where the mean age of the participants was (21 ± 2.5) years and most of the respondents were females (70.6 %) [15]. The results also agree with the Chinese study where the participants were 171 men and 272 women while the average age of the participants was (21.28) years. The study considered that the unbalanced sex distribution could be considered as a potential limitation of the study [17].

The mean score of OHIP in the studied sample is (12.95±9.80) which is more than twice that of (Gonzales-Sullcahuamán et al. 2013) and (Drachev et al. 2018) (4.5) and (4.62) respectively [15,16]. On the other hand, the results were less than that reported by (Elmahgoub and Abuaffan 2015) in the Sudanese study [15] and consistent with an Indian study that found the mean OHIP-14 score of (13.4) and (10.7) among dental students in their first and fourth year of education respectively [18]. The variation in these results could be explained by the variation in the individual's expectations and experiences which are important factors in OHRQoL evaluation. These factors vary according to social, psychological, socioeconomic, demographic, and other cultural factors [19].

(OHIP-3) "Have you been feeling pain in your mouth or teeth because of problems with your teeth or mouth?" and (OHIP-5) "Have you been feeling worried because of problems with your teeth or mouth?" were of the highest prevalence of impact on OHRQoL. This is consistent with (Gonzales-Sullcahuamán et al. 2013) where they reported that the impact is most prevalent among the physical pain and psychological discomfort domains [15]. This agrees with our study as we reported that among the OHIP-14 domains, the highest scores were found with physical pain (3.25±2.04) and psychological discomfort (3.03±2.36). These results agree with (Acharya et al. 2008) [20].

Physical pain is considered one of the most important aspects when analyzing OHRQoL with the OHIP-14 as the situations associated with pain are easier to remember [21]. Psychological discomfort could be associated with the level of concern among the participants of the studied sample as they were dental students who are always attentive to the appearance of their teeth and mouth, since they are encouraged to perceive and value their oral health status. Moreover, their training may also affect their emotional control not to allow the psychological discomfort caused by oral conditions to interfere in their social relations, which explains the lower scores on the social disability and social handicap domains [15].

There was a significant difference between OHIP-14 scores corresponding to different types of dental problems. Gingival problems were corresponding to the highest mean of OHIP-14 score followed by treated caries and untreated caries (15.6), [14], and (13.3) respectively. Regarding the caries experience the results come in contrast with a Swedish study which did not find any differences in OHRQoL between young adults at high risk or low risk of caries [22]. However, our results agree with (Drachev et al. 2018) that reported a higher DMFT index was associated with low OHRQoL [16].

Moreover, the self-reported gingival problems being associated with a higher mean of OHP-14 and a lower OHRQoL is consistent with (Acharya et al. 2008; Gonzales-Sullcahuamán et al. 2013; Lu et al. 2015; Yamane et al. 2016; and Drachev et al. 2018) where all these studies reported that the strongest factors associated with low OHRQoL were poor self-reported oral hygiene characteristics [15,16,18,20,23]. This could be simply explained by the concept of OHRQoL being based on outcome measures from the patients' perspective, rather than from a dental professional's point of view [24].

CONCLUSION

Within the limitation of the study, we conclude that within the studied sample the mean OHIP-14 total score is considered relatively higher than other populations. The most prevalent impact was reported in both the physical pain and psychological discomfort domains. In addition to this further research is needed to investigate the true effect of oral hygiene and gingival status on the perceived oral health related quality of life.

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