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Evaluation of oral health-related quality of life among Engineering Students using DMFT and Gingival index: An Observational Study

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Abstract

Aim: Aim of the study was to evaluate the OHRQoL among Engineering Students using OHIP-14, DMFT and GI

Material and Method: The study was conducted among engineering students. The study conducted in two parts. 1st part included the OHIP-14 questionnaire which was distributed to students and in 2nd part clinical examination were done using DMFT and GI.

Results: It was observed that OHIP-14 had a weak negative correlation with DMFTit showed a significant negative correlation with the gingival index score.

Conclusion: The oral health related quality of life among engineering students is good inspite of their busy schedule and heavy working hours.

Keywords: Caries activity, OHIP-14, Gingival index

Introduction

Term health is defined as the overall 'well-being' of an individual. For people and populations to be physically, mentally, socially, and economically healthy, oral health

is essential. The oral cavity and its supporting tissues are vital components that are necessary for the everyday operations and have a significant impact on people's general health.[1]. Poor oral health has a major impact on our daily wellbeing and the quality of life. Oral pain has devastating effects on children like sleep loss, poor growth, behavioural problems and poor learning. Developmentally crucial processes of communication, socialization and self-esteem are also affected [2]. Oral hygiene practices, such as brushing regularly, using fluoridated tooth paste, using aids, such as floss to clean interdental spaces, avoiding in-between meals, changing toothbrush at regular intervals, visiting the dentist regularly, and avoiding tobacco products holistically assist in accomplishing proper oral health. Despite a decline in dental caries in developing countries, there is still a high prevalence of oral diseases. There is a dramatic change in the prevalence of dental caries in adolescents. Professional students come across a great challenges in their day to day life [3]for maintaining good oral hygiene with their busy schedules and ultimately affects their overall health. Oral health status is directly proportional to a person's oral health behavior. Since adolescence is a critical time of transition and personal responsibility for preventing oral disease begins at this age, assessment of the OHRQOL status of young adults becomes imperative. The OHIP-49 was developed by Slade and Spencer in 1994 as a self-rating patient-centered instrument designed to assess the priorities of care by documenting social impact among individuals and groups, understand oral health behaviors, evaluate dental treatment, and provide information for planning for oral health. The OHIP-49 captures seven dimensions: Functional Limitation, Physical Pain, Psychological Discomfort, Physical Disability, Psychological Disability, Social Disability, and Handicap. In our country even after being with high education, many of the professional college students are neglecting their general health as well as oral health, due to lack of knowledge on general health, oral health, and quality of life [2].Hence in order to address the oral health problem, this study was conducted with an aim to evaluate the OHRQoL among Engineering Students using OHIP-14.

Material and Methodology

Study Design:

The Present study was an Observational Study.

Study Setting: The study was conducted in Engineering College.

Study Population: The present study was conducted among Engineering Students of age 18-24yrs.

Sampling technique: The present study has employed the convenience sampling technique in order to select participants eligible for study.

Method of selection of study subjects: Subjects were selected based on the following inclusion and exclusion criteria.

Inclusion criteria

1. Subjects who gave informend consent to participate in study.
2. Engineering Students of age 18-24yrs.

Exclusion criteria

1. Subjects who were no willing to participate in the study.

Obtaining Ethical Clearance from Institutional Ethics Committee: Before the start of the study, a protocol of the intended study was presented to the Institutional Ethics Committee and ethical clearance was obtained **(EC/NEW/INST/2022/2959/2022/033).**

Reliability and Validity of the questionnaire: The questionnaire used for the study was OHIP 14 questionarie. It measures people's perception of the

social impact of oral disorders on their well-being. OHIP 14 was showed satisfactory validity and reliability, subsiding its use in studies that assess the self-perception of oral health for this population.

Calibration of the examiner: Before commencing the study, calibration was done. Before the start of the study, the examiner was trained and calibrated at the department of Public Health Dentistry, under the guidance of the subject expert. The calibration was done on 30 subjects but these subjects were not included in the present study. To determine intra-examiner variability, the questionnaire was administered to 30 randomly selected subjects and repeated on different dates. The results so obtained were subjected to Kappa statistics. The coefficient was found to be 0.91 which is acceptable.

Structure of Questionnaire: The research instrument was OHIP questionnaire with demographic details of participants. An OHIP-14 questionnaire written in English was used to rate the impact of their oral health on 14 key areas of OHRQOL. It consisted of 14 items organised in seven sub-scales (Functional Limitation, Physical pain, Psychological Discomfort, Physical Disability, Psychological disability, Social Handicap, Handicap), with participants being asked to respond according to frequency of impact on a 6- point Likert scale coded always (score 1), very frequently (score 2), occasionally (score 3), rarely (score 4) and very rarely (score 5). Never (score 6).

Clinical Examination: DMFT and GI was recorded of all the students under standard aseptic conditions in natural daylight using Mouth mirror and Explorer.

Data compilation and presentation: The data obtained was compiled systematically, transformed from the proforma to a computer, and the master table was prepared in MS-Excel sheet.

Statistical Analysis: Statistical analysis was done using a computer with aid of a statistical package for social sciences (SPSS), version 20 (IBM Armonk, NY, United States of America). Data were analyzed using descriptive statistics. Frequency and percentages were calculated.

Results

The present study was conducted to evaluate the oral health related quality of life among engineering students. Total 144 students were examined out of which 77 were male and 67 were female. The mean age of all the students was 19.83. The mean DMFT score was found out to be 1.72 and 95% students were showing no signs of gingival inflammation.

Table 1 shows distribution of OHIP scores according to questions- 59.0% had rarely faced difficulty in chewing food because of problem with their teeth and 4.2% had painful aching in their mouth. 3.5%occasionally found it difficult to communicate with people because of problem with their teeth. 71.5 had never trouble pronouncing any words because of problem with their teeth. 3.5% had always felt that their sense of taste has worsened because of problem with their teeth. 6.3% had been self – conscious because of their teeth. 61.8% had never felt tensed or depressed because of problem with their teeth. 62.5% had never interrupted meals because of problem with their teeth. 0.7% had always found difficulty in sleeping because of problem their your teeth. 11.8% had rarely been a bit embarrassed because of problem with their teeth. 1.4% had always been bit irritable with other people because of problem with their teeth. 22.9%had rarely faced difficulty doing their routine activities because of problem with their teeth. 0.7% had never felt that life in general was less satisfying because of problems with their teeth. 77.1% had never been totally unable to

function because of problem with their teeth. Oral health impact profile according to the seven domain**(Table 2)** showed that the **Handicap affected the students more with scores** 5.63 ± 0.71. then with **Social disability scores** 5.52 ± 0.68 followed by **Physical pain**5.47 ± 0.76, **Psychological disability** 5.38 ± 0.83, **Functional limitation** 5.33 ± 0.85, **Physical disability** 5.31 ± 0.88 and **Psychological discomfort with scores** 5.07 ± 1.08.

Graph 1 shows comparison of OHIP-14 scores among male and female subjects

Statistical analysis was performed using Mann Whitney test. There was no statistical difference in mean OHIP score between male and female students except for Functional limitations. There was a significant difference in the functional limitation domain score of male and female subjects with female subjects reporting less functional limitations as compared to the male subjects.

Table 3 shows correlation of OHIP-14 with DMFT and Gingival Index

The correlation of OHIP-14 with DMFT and the Gingival Indexwas performed using pearson correlation coefficient and spearman rank correlation coefficient and it was observed that OHIP-14 had a weak negative correlation with DMFT; however, it showed a significant negative correlation with the gingival index score i.e. less gingival problems were correlated with less impact on oral health.

Table 1 Distribution of OHIP-14 scores

Question	Always %	Very frequently %	Occasionally %	Rarely %	Very rarely %	Never %
Q1	0.7	0.7	4.9	16.7	18.1	59.0
Q2	0	0.7	4.2	13.2	19.4	62.5
Q3	0	0	3.5	13.9	15.3	67.4
Q4	1.4	0.7	4.2	9.0	13.2	71.5
Q5	3.5	0.7	6.9	11.8	12.5	64.6
Q6	6.3	3.5	7.6	12.5	15.3	54.9
Q7	1.4	0.7	9.0	10.4	16.7	61.8
Q8	0	2.1	3.5	12.5	19.4	62.5
Q9	0.7	0	4.2	11.1	18.1	66.0
Q10	0	2.1	4.2	11.8	22.9	59.0
Q11	1.4	0.7	0.7	11.8	19.4	66.0
Q12	0.7	0	2.1	4.2	22.9	70.1
Q13	0.7	0	2.8	4.9	18.1	73.6
Q14	0	0	2.8	6.3	13.9	77.1

Table 2 Descriptive details of Oral Health Impact Profile

Question	Mean ± SD	Domain	Mean ± SD
Q1	5.28 ± 1.03	Functional limitation	5.33 ± 0.85
Q2	5.39 ± 0.92		
Q3	5.47 ± 0.86	Physical pain	5.47 ± 0.76

Q4	5.47 ± 1.02		
Q5	5.23 ± 1.27	Psychological discomfort	5.07 ± 1.08
Q6	4.92 ± 1.52		
Q7	5.26 ± 1.15	Physical disability	5.31 ± 0.88
Q8	5.37 ± 0.97		
Q9	5.44 ± 0.93	Psychological disability	5.38 ± 0.83
Q10	5.33 ± 0.98		
Q11	5.45 ± 0.95	Social disability	5.52 ± 0.68
Q12	5.59 ± 0.77		
Q13	5.6 ± 0.80	Handicap	5.63 ± 0.71
Q14	5.65 ± 0.72		

Graph 1

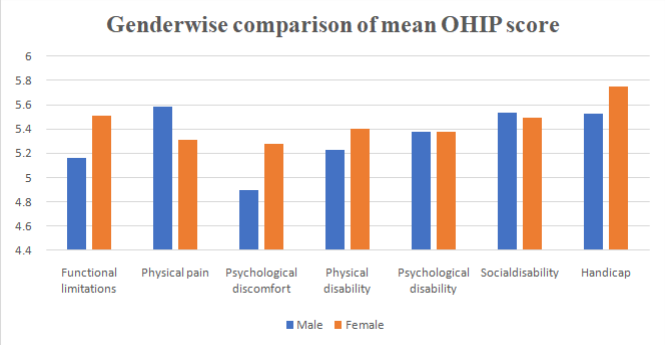

Table 3: Correlation of OHIP-14 with DMFT and Gingival Index

Pair	r-value	p-value
OHIP-14 vs DMFT	-0.107¥	0.143
OHIP-14 vs GI	-0.382#	<0.001*

¥ Pearson correlation coefficient; # Spearman rank correlation coefficient; * indicates a significant correlation at p≤0.05

Discussion

Chauhan A et al conducted a study among engineering students in Puducherry found that more than 59% of the participants had inadequate oral health literacy [4]. The study also revealed that more than 63% of the participants had not visited a dentist in the last 6 months and only 36% brushed their teeth twice a day. Kadam A et al [5] conducted study among engineering students in Nashik with aim to investigate the knowledge about periodontal oral health and the knowledge of the causes of inflammatory periodontal diseases among engineering students. The study found that the students had inadequate knowledge about periodontal diseases and their causes. As it is important to have good knowledge to maintain good oral hygiene. In the present study it was found that 59.0% students had rarely faced difficulty in chewing food because of problem with their teeth and these showed a great knowledge and awareness regarding maintaining good oral hygiene. Mohapatra A et al [6] conducted a study among engineering students in Bhubaneswar found that the knowledge with respect to oral health was adequate regarding using fluoridated toothpaste and flosses, unhealthy snacking habits, over usage of toothbrushes, consumption of alcohol, and practicing tobacco habits showed a lack of oral health knowledge among the students. Sundaram et al. [7] dethrone the myth that physical pain and discomfort are the common factors for which the patient seeks treatment. The younger group of patients seeks treatment for improvement of general health, oral health, personality. Also in the present study the mean of physical pain was found to be 5.47. In a study conducted by Jaya Prakash Manapoti et al [2] it was found that

mean score of OHRQOL among engineering students was 3.6 whereas in the present study the mean score was 5.39.

Conclusion

The oral health related quality of life among engineering students is good inspite of their busy schedule and heavy working hours. Also it can be concluded that female subjects are reporting less functional limitations as compared to the male subjects. To maintain good oral and general health, it is important to adopt a healthy lifestyle including regular physical activity, a balanced diet, and avoiding smoking and excessive alcohol consumption. Additionally, regular dental appointments and proper oral hygiene practices such as daily brushing and flossing are essential.

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