Journal of Advanced Medical and Dental Sciences Research
@Society of Scientific Research and Studies

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr ICV 2018= 82.06

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Relationship between Oral Health Related Quality of Life and Dental Anxiety among 11 to 14 year old children

Shweta Chandak [1], Sneha Khekade [2], Milind Wasnik[3], Manveen Lamba[2], Miranda George[2], Niharika Gahlod[2]

[1]Professor and HOD, [2]Post graduate Student, [3]Senior Lecturer

Department of Pedodontics and Preventive Dentistry, Swargiya Dadasaheb Kalmegh Smruti Dental College and Hospital, Nagpur, Maharashtra, India

***ABSTRACT*:**
Aim and Objectives: 1) To evaluate dental fear and oral health-related quality of life (OHRQoL) in middle school children. 2) To evaluate the relationship between dental fear and previous dental experience and oral health-related quality of life (OHRQoL) among middle school children. **Materials and Method**: - A cross sectional study is being conducted using a multi –stage stratified sampling in middle school children. Information on oral health related quality of life is being collected from the children using Oral Health Impact Profile (OHIP-14/Slade 1997) and dental fear is documented using Corah's Dental Anxiety Scale, Revised (DAS-R). Information on past dental experience and socio-demographic data is being collected from parents using self- administered questionnaire. Dental examinations are being performed to assess caries experience. **Statistical analysis:** Chi-square test. **Result: -** Bivariate analysis between Dental anxiety and Oral health related quality of life identified a significant association with p=0.002. An odds ratio of 2.50 showed that subjects with high dental anxiety were more likely to be among patient group with a reduced oral health related quality of life. **Conclusion: -** This study demonstrates that Dental fear is associated with the impact that oral health has on quality of life.

Keywords: Oral health has on quality of life, Dental fear, The Oral Health Impact Profile, The Dental Anxiety Scale (DAS) by Corah.

Received: 12 April, 2019 Revised: 24 June 2019 Accepted: 26 June 2019

Corresponding author: Dr. Sneha Khekade- Post graduate student, Postal address: Room no203, I wing, Phase 2, Pioneer woods, Wanadongri, Hingna Nagpur

This article may be cited as: Chandak S, Khekade S, Wasnik M, Lamba M, George M, Gahlod N. Relationship between Oral Health Related Quality of Life and Dental Anxiety among 11 to 14 year old children. J Adv Med Dent Scie Res 2019;7(7): 53-57.

INTRODUCTION

Dental anxiety in children has been recognized as a public health dilemma that can lead to avoidance behaviors, resulting in lack of regular dental care and delay in seeking necessary treatment. It is also widely assumed that avoidance behavioral patterns of dental care and treatment have a detrimental effect on dental health.[1]

Dental anxiety is a major obstacle to dental treatments and prolonged dental avoidance may lead to severe general health problems such as pneumonia, urinary tract infections, fever, septicemia, mediastinitis, intracranial extension of periapical abscess, facial osteomyelitis, sinusitis and sepsis.[2]

The WHO defines quality of life as "individual's perception of their position in life in the context of culture value system, in which they live and in relation to their goal, standards, and concerns.[3] In his daily practice, the dentist has to face the problem of dental anxiety (DA).

Anxiety associated with dental treatment has been ranked fifth among common fears in a general population. Gisler and Bassetti in a cross sectional study showed that younger people are more afraid of dental treatment than older ones. Oral health, on the other hand, deteriorates with age. Then again, the relationship between DA and oral health becomes complex when assuming that impaired Oral health related quality of life may cause higher levels of anxiety.[4]

A better understanding of OHRQoL and its influences on dental and clinical factors in pre-adolescent children is necessary to provide them with optimum oral health care and treatment to improvise their oral health.[5] Few studies have investigated the association between the OHRQoL and dental fear. Thus, the main aim of the study was to evaluate OHRQoL and the relationship between dental fear and OHRQoL among 11 to 14 year old children.

MATERIAL AND METHODS

The current cross-sectional analytical study was conducted in the schools attached to the Department of Pedodontics and Preventive Dentistry, Swargiya Dadasaheb Kalmegh Smruti Dental College, Nagpur. A sample size was 358 children with a significance level of 0.05 of the students aged 11-14 year were determined. Student aged 11-14 year old were randomly selected from schools were included in the study. Ethical clearance was obtained from the Institutional Ethical Committee and Permission to conduct the study was taken from schools principals. Parental consent and child ascent was obtained and were required to fill in a questionnaires. Out of the 400 questionnaires distributed to children, only 392 were returned and 18 were rejected due to in completed answers.

QUESTIONAIRE

To assess the Dental anxiety and Oral health related quality of life, a single answer form was prepared which included two validated questionnaire, one related to Dental anxiety and other to Oral health related quality of life.

The Dental Anxiety Scale (DAS) by Corah (1960) was used as a measure of dental fear as it has demonstrated good reliability and validity. It comprises four questions and a 5-scale answer to each question between 1 (no anxiety) and 5 (extreme anxiety), resulting in a range for the total score between 4 (no fear) and 20 (high fear).[4] The reliability and validity of the DAS has been demonstrated in several previous studies. It was translated literally into a version in local language from the original scale and validated.

The Oral Health Impact Profile (OHIP) is the most widely used instrument today to measure OHRQoL. A region and language-adjusted version was used in this study, namely the short OHIP with 14 items (OHIPG14). Therein, five answers, graded from 'never' (0 points) to 'very often' (4 points), are attributed to each question, resulting in a possible total score between 0 and 56 points where a high score means a low OHRQoL. OHIP-G14 expresses the extent to which the patient's oral health condition influences his or her well-being in the past month.[4]

Students were given adequate time in a quite classroom to complete all questions. Teacher and Dental staff were instructed to provide help with the answer form if sought and needed. The correct completion of two individual parts of the answer form was checked after participants returned them.

STATISTICAL ANALYSIS:

For comparison, subgroups were formed, i.e. the answers were analyzed in relation to gender and age. Three age groups were established, 11-12, 12-13 and 13-14. The four levels of anxiety were determined, namely 'mild/no anxiety 'at 4-8 points, 'moderate anxiety' at 9-12 points, 'high anxiety' at 13-14 points and severe anxiety at 15-30 points, according to DAS-R criteria for statistical analysis. Additionally a distinction between not highly anxious (DAS-R score 4-12) and highly anxious participants (DAS-R score 13-20) was made.

OHRQoL was rated as 'good' if the OHIP-14 score was below median of 14 and poor otherwise. The two parts of the answer form were compared in subgroups. The correlations between the questionnaires and Odds ratios, relative risk and binary logistic regression analysis were calculated to compare the dependence between DA and OHRQoL. Chi-square test was applied to calculate p-values (significance level $\alpha < 0.05$). The computer software SPSS 21 and MEDCALC were used for statistical analysis of data.

RESULTS:

374 students of age group 11-14 were included in the study to compare relationship between OHRQoL and dental anxiety.

Table I: Distribution of students according to age and gender.

Age	Male	Female
Mean age	12.51 (± 1.49)	12.70 (± 1.30)
11—12	66	58
12—13	64	57
13—14	69	60
Total	199	175

Out of total 374 students, 199 (53.2%) were males and 175 (46.8%) were females. The mean age was 12.51 (+_1. 49) for the males and 12.70 (+_1.30) for females.

Table II: Level of Dental Anxiety by Scale and Gender in total sample

Dental Anxiety Scale- Revised (DAS-R)	Male (%)	Female (%)	Total (%)	p – value
Score 4 – 8 (Mild / no anxiety)	28.6	25.7	27.3	0.17
Score 9 –12 (Moderate anxiety)	42.2	40.6	41.4	(NS)
Score 13 – 14 (High anxiety)	13.6	13.1	13.4	
Score 15 – 20 (Severe anxiety)	15.6	20.6	17.9	
	53.2	46.8	100	

Table II depicts the level of anxiety by DAS-R in both male and female students. It shows boys reported higher moderate high Dental anxiety than female but severe anxiety was more in females as compared to male students. Moderate anxiety was reported higher among both sexes.

Table III:- Gender distribution of mean score of OHIP-14 items

OHIP subscale and item	Mean item score		Total	p- value
	Male	Female		0.35(NS)
Functional limitation				
Had trouble pronouncing words	0.19	0.15	0.17	
Felt that sense of taste had worsened	0.27	0.23	0.25	
Physical pain				
Had painful aching in mouth	0.47	0.38	0.42	
Was uncomfortable eating foods	0.58	0.50	0.54	
Psychological discomfort				
Has been feeling self-conscious	0.60	0.42	0.51	
Has felt tense	0.30	0.34	0.32	
Physical disability				
Diet has been unsatisfactory	0.33	0.31	0.32	
Has had to interrupt meals	0.23	0.27	0.25	
Psychological disability				
Finds it difficult to relax	0.26	0.35	0.30	
has been a bit embarrassed	0.21	0.27	0.24	
Social disability				
Has been irritable with other people	0.27	0.31	0.29	
Has had difficulty doing usual jobs	0.16	0.19	0.17	
Handicap				
Has found life less satisfying	0.19	0.12	0.15	
Has been totally unable to function	0.12	0.08	0.10	

The OHIP-14 items most commonly found in both genders were physical pain and psychological discomfort subscales. Uncomfortable eating food, filling self conscious and Painful aching in mouth were more frequently reported in both sexes. In tern of mean item score, Functional limitation like had trouble pronouncing words, felt that sense of taste had worsened and Handicap subscale like has found life less satisfying, has been totally unable to function were less common in both genders. However these differences were not found statistically significant.

Table IV: Classification of sample into highly anxious and not highly anxious with good or poor OHRQoL (top table) and binary logistic regression analysis of numbers (bottom table)

Classification	OHRQoL			
	Poor (OHIP-14 above median of 14)	Good (OHIP-14 and below median of 14)	Total	p - value
Not highly anxious (DAS 4-12)	102	155	257	0.01 (S)
Highly anxious (DAS 13-20)	73	44	117	0.03 (S)
Total	175	199	374	

Regression analysis	Poor OHRQoL (1= no below median. 0= yes median and above)			
	Regression coefficient (r)	Standard error	Odds ratio	p-value
Highly anxious 0 = no, DAS 13-14 1 = yes, DAS 15-20	**1.30**	**0.226**	**2.50**	**0.02 (S)**

DAS-Dental Anxiety Scale; OHIP-Oral Health Impact Profile; OHRQoL-Oral Health Related Quality of Life.

The relationship between OHRQoL and Dental anxiety is illustrated in Table III. Dental anxiety scale was divided into two subclasses according to the score i.e. Not highly anxious (Score 4-12) and Highly anxious students (score 13-20). Likewise the OHIP-14 score also divided into two subclasses i.e. Poor (OHIP-14 above median 14) and Good (OHIP-14 and below median 14). A Binary logistic regression analysis of the data shows significant interdependence between two scales with p = 0.02. The regression coefficient was r = 1.30 and the odds ratio was calculated 2.50, which show that highly anxious patients had reduced OHRQoL.

DISCUSSION

Fear or anxiety is very common pertaining to Dental treatment and has been recognized as a problem area in clinical dentistry. The Dental anxiety scale (DAS) by Corah (1960) is a well validated, reproducible focused on dental fear, fast and simple. It has been used in both adults and children showing a high internal consistency and test retest reliability and predictive accuracy.[6] Prevalence estimate of dental anxiety in general population exhibits a wide variation. The estimated prevalence of dental fear and anxiety among 11-14 year old children in the study population of rural Nagpur was found to be 31.28%. A prevalence of 22.6% was reported by a study conducted in costal Andhra, India. [7] Studies conducted in Russia and Netherland reported dental fear prevalence of 18%, 12.6% and 6% among adolescent respectively.[8, 9]

Fear about the dental treatment is very common. Fearful or anxious patient avoid dental treatment and avoiding dental treatment exacerbates problems related to patient's oral health. Further treating anxious patients tends to be both more difficult and more time consuming.

Severe dental anxiety disrupts the process of dental treatment and can continue into adulthood.[10] In attempts to solve these problems, studies examining causes, prevalence and its impact on intra-oral and extra- oral environment are needed. Factors that could potentially impact dental anxiety are oral health education, dental experience of parents, past experiences with the dentists and poor oral health status. Boys reported higher dental anxiety than Girls clinically though not statistically significant whereas in other studies dental fear was more frequently seen in girls (Hagglin C et al 1999, Vanessa G et al 2012 and Locker et al 2009).

Oral health impact profile is a patient centered, gives a greater weight to psychological and behavioral outcomes. Scale is better at detecting psychological impacts among individuals and groups and meets the main criteria for the measurement of OHRQoL.[11] OHIP-14 items least commonly reported involved functional limitation and handicap. Oral health impact profile (OHIP-14) items most commonly reported in the current study involved physical pain, psychological discomfort, physical and psychological disability. This pattern was observed in the survey followed in the Canada by Locker et al (2009).[12] It was also observed that dental fear (DA) was associated with poor oral health related quality of life (OHRQoL).[5] This result corroborated with Gisler et al. (2012)[4] and Carlsson V et al. (2015).[8] It can be stated that both dental anxiety (DA) and poor OHRQoL reflect psychological characteristics of the group and thus their related negative attitude.

This association could be explained by known risk factors that are associated with dental fear, such as irregular dental visits and high number of caries. A survey conducted among Swedish adult and Saudi Arabia children found that dental anxiety was associated with irregular dental care, previous dental history and low OHRQoL. [5, 13] Therefore children with dental fear should be identified, guided and treated early avoid deterioration of their oral health related quality of life (OHRQoL). This study analyzed the interdependency or correlated Dental anxiety and OHRQoL.

CONCLUSION

This study demonstrates that Dental fear is associated with the impact that oral health has on quality of life. This result of the study indicate the need for preventive health education and intervention programmes in India to prevent and reduce dental fear and associated impact on quality of life. Longitudinal studies are also needed to study the cause and effect of different variables on oral health related quality of life (OHRQoL). The Oral health impact profile (OHIP-14) is a self- reported survey, so no clinical data were collected, which is a limitation of the study design.

REFERENCES

1. Almoznino D, Zini A, Aframian DJ, Kaufman E, Lvovsky A, Hadad A, Levin L. Oral Health Related Quality of Life in Young Individuals with Dental Anxiety and Exaggerated Gag Reflex Oral Health Prev Dent 2015;13:435-440.

2. Mehrstedt M, John MT, To¨nnies S, Micheelis W. Oral health-related quality of life in patients with dental anxiety. Community Dent Oral Epidemiol 2007; 35:357–363.
3. Singh A, Dhawan P, Gaurav V, Rastogi P, Singh S.Assessment of oral health-related quality of life in 9-15 year old children with visual impairment in Uttarakhand, India. Dent Res J 2017; 14:43-9.
4. Gisler V and Bassetti R. A cross-sectional analysis of the prevalence of dental anxiety and its relation to the oral health-related quality of life in patients with dental treatment needs at a university clinic in Switzerland. Gerodontology Soc 2012; 29:290-96.
5. Carlsson V, Hakeberg M, Wide BU. Associations between dental anxiety, sense of coherence, oral health-related quality of life and health behavior–a national Swedish cross-sectional survey. BMC Oral Health. 2015;15:100.
6. Merdad L and Azza A. Do children's previous dental experience and fear affect their perceived oral health related quality of life (OHRQoL)?.2017; 17:2-9.
7. Mohammed RB, Lalithamma T, Varma DM, Sudhakar KV, Srinivas B, Krishnamraju PV. Prevalence of dental anxiety and its relation to age and gender in coastal Andhra (Visakhapatnam) population, India. J Nat Sci Biol Med. 2014;5(2):409-14.
8. Bergius M, Berggren U, Bogdanov O, Kakeberg M. Dental anxiety among adolescents in St. Petersburg, Russia. Eur J Oral Sci 1997: 105: 117-122.
9. Ten Berge M, Veerkamp JSJ, Hoogstraten J, Prins PJM. Childhood dental fear in the Netherlands: prevalence and normative data. Community Dent Oral Epidemiol 2002;30:101–7.
10. Popescu SM, Ascalu IT, Scrieciu M, Mercut C, Moraru I, Ţuculina M. Dental Anxiety and its association with behavioral factors in children Current Health Sciences Journal 2014;40(4):261-64.
11. Corah NL. Development of a dental anxiety scale. J Dent Res 1969; 48: 596.
12. Locker D, Quinozen C. Functional and psychological impacts of oral disorders in Canadian adults: A national population survey. JCDA 2009; 75(7):521a-521e.
13. Rodakowska. Quality of life measured by OHIP-14 and GOHAI in elderly people from Bialystok, north-east Poland. BMC Oral Health 2014 14:106.