ejpmr, 2021,8(1), 478-483

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

THE INFLUENCE OF PARENTAL DENTAL ANXIETY ON ORAL HEALTH RELATED QUALITY OF LIFE OF THEIR CHILDREN

Ashish M. Warhekar[1*], Shilpa Warhekar[2] and Surendra B. Patil[3]

[1]Assistant Professor, Dentistry Section, Department of Plastic, Reconstructive and Maxillofacial Surgery, Government Medical College and Hospital, Nagpur,(M.S). India.

[2]Assistant Professor, Department of Public Health Dentistry, Swargiya Dadasaheb Kalmegh Smruti Dental College and Hospital, Nagpur,(M.S). India.

[3]Professor & Head, Department of Plastic, Reconstructive and Maxillofacial Surgery, Government Medical College and Hospital, Nagpur,(M.S). India.

***Corresponding Author: Ashish M. Warhekar**
Assistant Professor, Dentistry Section, Department of Plastic, Reconstructive and Maxillofacial Surgery, Government Medical College and Hospital, Nagpur,(M.S). India.

Article Received on 01/11/2020 **Article Revised on 21/11/2020** **Article Accepted on 11/12/2020**

ABSTRACT

Introduction: Oral health-related quality of life refers to impact of oral health or disease that has on an individual's daily functions. Child health status is usually measured by proxy reports from the parents or caregivers. Parents and caregivers are often the main decision makers regarding a child's health. **Aim:** Therefore, the present study is carried out with a research hypothesis that parental anxiety would influence the oral health related Quality of life of their children. **Materials and Methods:** A Cross-sectional study was conducted on 442 children aged 6-13 years old and their parents. Stratified random sampling technique was employed. A structured proforma was used to record the demographic data. Modified dental anxiety Scale (MDAS) and Parental Caregivers Perception Questionnaire (P-CPQ) was administered on parents. Non-parametric tests like Mann-whitney U test and Kruskal-Wallis test were employed. Logistic regression and Spearman's Correlation analysis was performed. **Results**: The mean score of parental perception of quality of life score was significantly varying among age groups, income groups and the treatment need groups. Regression analysis showed that oral symptom domain was significantly associated with dental anxiety. Spearman's correlation coefficient analysis showed modified dental anxiety score showed a significant positive correlation with Oral symptoms($r = 0.264$), emotional wellbeing($r = 0.355$) and social wellbeing($r = 0.396$). **Conclusion:** A significant positive correlation was observed with Parental MDAS scores and child's quality of life scores. The children of lower parental dental anxiety exhibited better oral health related quality of life compared to children of higher parental dental anxiety.

KEYWORDS: Parents; Dental anxiety; Oral health; Quality of life, Questionnaire.

INTRODUTION

Oral diseases are the most common of the chronic diseases and are important public health problems because of their prevalence, their impact on individuals and society, and the expense of their treatment.[1] Oral diseases such as dental caries or periodontal disease are highly prevalent and their consequences are not only physical but also economic, social and psychological. They seriously impair quality of life in a large number of individuals and can affect various aspects of life, including oral function, appearance and interpersonal relationships.[2] Oral health affects people physically and psychologically and influences how they grow, enjoy life, look, speak, chew, taste food and socialize as well as their feeling of social well being.[3] Severe caries detracts from children's quality of life: they experience pain, discomfort, disfigurement, acute and chronic infection and eating and sleeping disturbances as well as high risk of hospitalization, high treatment cost and loss of school days with the consequently diminished ability to learn. Caries affects nutrition, growth and weight gain, so the impact of oral diseases on the quality of life is very obvious.[4]

Oral health-related quality of life refers to the impact oral health or disease has on an individual's daily functions. Health related quality of life is defined as a multidimensional concept that captures people's perceptions about factors that are important in their everyday lives (Slade, 2002).[5]

In addition to quality of life, dental anxiety is an issue of central importance in dental care: quality of life helps to understand the impact of dental problems and the effectiveness of interventions on the patients' well-being, while dental anxiety has proven to be a major barrier to the access and the provision of appropriate dental care.[6]

Parental anxiety have been shown to influence a child's behavior.[7] People with dental fear often have poorer oral health than people with no dental fear.[8] Child health status is usually measured by proxy reports from parents or caregivers. When a proxy rating is used, it has been suggested that the respondents' characteristics may affect the perception about children's quality of life.[9] Parents and caregivers are often the main decision makers regarding a child's health and their perceptions have a major influence over treatment choices. The Parental-Caregiver Perceptions Questionnaire (P-CPQ) is one of the instruments of the Child Oral Health Quality of Life Questionnaire (COHQoL).[10] Parents along with clinicians play a key role in the attempts to achieve the best oral health outcomes in their young children.[11]

These barriers can be removed by motivating people and making them aware about the oral health problems that remove anxiety and fear so that they develop positive attitude towards dental treatment.[12] The present study concentrates on how parental anxiety affects the oral health and subsequently the quality of life of their children. Therefore, the present study is carried out with a research hypothesis that parental anxiety would influence the children's oral health related quality of life of their children.

MATERIALS AND METHODS

Study location and Ethical considerations

A cross-sectional study was conducted among 16 schools (8 Private and 8 Government) for a period of seven months in Indore (MP, India). Ethical clearance was obtained from Institutional Review Board. Permissions for conducting the study were obtained from school authorities. Written Informed consent for participation was obtained from the parents or guardians of each child.

Sample Size Estimation

The sample size was estimated based on the data obtained from the published study on prevalence of dental anxiety on Indian populations. This study reported 10% prevalence of dental anxiety.[11] The minimum sample size required in the study was 345 schoolchildren. Considering that some children may be absent or miss the clinical examinations on the day of school visit, it was decided to include more than the required sample size.

Sample Selection

The sampling frame consists of school children aged 6 – 13 years old. A provisional list of all schools in the city was obtained from District Education Office (Indore, MP). Stratified random sampling was employed. Children aged 6-13 years and their parents who are willing to participate in the study and Children who are intellectually and physically capable of responding were included in the study. Children suffering from neurological or systemic diseases, acute pain or with any medically compromised condition that contra-indicates oral examination and Parents and children who does not provide consent for clinical examination were excluded.

Training and calibration of the investigator and recorder was carried out. The Kappa value (0.8) for calibration exercise showed good agreement for observations and measurement.

Data collection Tool

A structured proforma was developed to record data. Modified Dental Anxiety Scale given by Humphris G, Morrison T and Lindsay SJE (1995)[13] consisting of 5 items used to assess parental dental anxiety. Parental-Caregiver Perceptions Questionnaire (P-CPQ) given by Jokovic A et al (2003)[14] consisting of 31 items used to assess Child Oral Health related Quality of Life. The P-CPQ has 31 items distributed into 4 subscales: oral symptoms (OS), functional limitations (FL), emotional wellbeing (EWB) and social wellbeing (SWB). The questions refer only to the frequency of events in the previous 3 months. The items have 5 Likert response options: 'never=0', 'once or twice=1', 'sometimes=2', 'often=3', 'every day or almost every day=4'. A 'don't know' response also was permitted and scored as 0.

Data Collection

A pilot was carried out on a convenience sample of 35 school children aged 6-13 years to check the feasibility and practicability of the procedure. The school authorities were contacted well in advance and convenience date and time for data collection was decided. On the first visit of school for data collection, the informed consent form explaining the purpose and methodology of study was distributed among the children. The study subjects were also provided with questionnaire to be filled by the parents. Instructions were given to children for completing the questionnaire. Phone number of the investigator was also provided to contact for any doubts regarding the questionnaires and study. Parents were informed that participation was voluntary and if willing shall provide the consent through signing the informed consent form. All participants were assured of confidentiality. On the next visit, only those children who provide the informed consent form were examine.

The clinical examination involved an inspection of the oral cavity with plane mouth mirror and CPI probe (ADA Type III examination). A trained recording assistant recorded the finding on the proforma.

Data Analysis

The data collected was entered in Microsoft Excel and subjected to statistical analysis using Statistical Package for Social Sciences (SPSS, IBM version 20.0). The level of significance was fixed at 5% and $p \leq 0.05$ was considered statistically significant. Descriptive statistics was used to find the frequencies and mean of variables considered in the study.

Kolmogorov- Smirnov test and Shapiro-Wilks test were employed to test the normality of quantitative data. Non-parametric tests like Mann-whitney U test and Kruskal-Wallis test were employed to compare between the variables that do not follow normal distribution. Logistic regression analysis was performed to assess the effect of quality of life scores on the caries experience. Spearman's correlation coefficient was calculated to assess the correlation between the MDAS scores with quality of life scores.

RESULTS AND DISCUSSION

The present study was carried out among the 6 to 13 years old school children and their parents. Table 1 showed the frequencies of Sociodemographic variables and clinical characteristics of study subjects and parental dental anxiety.

Table 2 showed comparison of the mean score of parental perception of quality of life of study subjects among various demographic variables. It was found that the P-CPQ score was significantly varying among the age groups, the treatment need groups and the income groups ($p \leq 0.05$). The quality of life score of children aged 10 to 13 years was significantly higher than children aged 6 to 9 years. Among the income groups the quality of life score of parents having more than Rs.10,000 monthly income was higher than low monthly income groups. Similarly, the children aged 6 to 9 years with no dental treatment and belonging to the higher income group were having a better quality of life.

The total P-CPQ score of oral health related quality of life and the sub-scales (four domains) were compared with the parental dental anxiety groups (Table 3). The total QoL score of high dental anxiety group was significantly higher than moderate anxiety and the low anxiety groups. Similar pattern was observed with the sub-scales like: oral symptom, functional limitation, emotional wellbeing and social well being ($p \leq 0.05$).

Regression analysis was performed to identify the quality of life factors that were strongly associated with dental anxiety (Table 4). After adjusting for other domains final adjusted model showed that oral symptom domain was significantly associated with dental anxiety. (Adjusted OR = 1.15, 95% CI: 1.031-1.292).

Correlation analysis was performed between Modified dental anxiety score and various domains of Quality of life (Table 5). Modified dental anxiety score showed a significant positive correlation with Oral symptoms($r = 0.264$), emotional wellbeing($r = 0.355$) and social wellbeing($r = 0.396$).

Parental practice of oral hygiene as well as their knowledge of oral health is reflected in their children.[7] The objective of the present study was to assess the parental anxiety that may play a role on children's oral health related quality of life. The present study was a cross-sectional questionnaire survey carried out on children aged 6-13 years and their parents. The prevalence of high parental dental anxiety was found to be 2.26 % (MDAS score ≥19).

Studies in adults like Gisler V et al., (2012),[15] Shet RG et al., (2013),[16] Goettems ML et al., (2012),[17] Crofts-Barnes NP et al., (2010)[18] Mehrstedt M et al., (2007),[19] McGrath C and Bedi R (2004)[20] reported that Dentally Anxious individuals are more likely to suffer from poor quality of life compared with less anxious. Also the findings reported by Vermaire J et al., (2008)[21] and Ng S and Leung K (2008)[22] reported that higher dental anxiety was significantly associated with lower oral health related quality of life.

But none of the study assesses whether parental dental anxiety influences the oral health related quality of life of their children. In the present study the quality of life was better among the children of low parental dental anxiety.

Crocombe LA et al., (2012)[23] reported that dental attendance was associated with a greater improvement in oral health related quality of life. A positive correlation was observed between the parental anxiety and various domains of quality of life.

In the present study the quality of life was found to be dependent on age, family income and treatment need, the other factors reported to be associated with quality of life as reported by Paula JS et al., (2012)[24] and Locker D (2007)[25] were school type, mother's education, family structure, number of siblings, parents' perception of oral health of schoolchildren.

In the present study low income significantly associated with poor quality of life. The findings was similar to the finding reported by Wandera M et al., (2009)[26] and Panepinto, J. et al (2009)[27] who reported low income is considered risk factors to a poor quality of life.

The parental demand for the dental treatment of their children should be related to parental perceptions of their children's oral health. Mothers who consider that dental disease affects the OHRQoL of children negatively would, as a consequence, bring the child to the dentist. Results of our study indicate that treatment need is significantly associated with oral health related quality of life. These findings are in accordance with those of Filstrup et al., who suggest that, until decay interferes with the child's life, the parent/guardian may be unaware that a dental problem even exists.[28]

Some of the possible limitation of the study is the fact that parents answered the questionnaires (proxies) and it may not clearly reflect the children**'**s feeling and conditions. Social desirability bias should also be considered that might have played a role in lower scoring on Modified Dental Anxiety Scale. Parents may not provide the higher MDAS score as not wanting to show

their dental anxiety in front of children or other parent. Efforts to reduce the dental anxiety level or the dental fear among the parents as well as children should be carried out.

Table 1 – Sociodemographic variables, clinical characteristics of study subjects and parental dental anxiety.

Variables	Categories	n	Percent (%)
Age	6-9 years	206	46.60
	10-13 years	236	53.40
Gender	Male	235	53.16
	Female	207	46.84
School Type	Private	210	47.52
	Government	232	52.48
Parental Dental Anxiety	Low	161	36.42
	Moderate	271	61.31
	High	10	2.27
Utilization of dental care	Regular	8	1.81
	Non regular	434	98.19
Treatment need	No	288	65.15
	Yes	154	34.85
Caries Experience	Affected	284	64.25
	Unaffected	158	35.75
Parent Education	Illiterate	9	2.03
	0-10 class	283	64.03
	11-12 class	96	21.72
	Graduation	54	12.22
Parent occupation	Govt service	13	2.95
	Private service	330	74.66
	Business	90	20.36
	Others	9	2.03
Income	Less than 1000	92	20.82
	1001-10,000	262	59.28
	More than 10,000	88	19.90

Table 2 - Comparison of mean Parental Perception Quality of life of child (P-CPQ) score among study subjects.

Variables		n	Mean	Std. Dev.	Sig.
Age *	6-9 years	206	2.9951	4.47	**0.02 (S)**
	10-13 years	236	4.6356	7.11	
Gender *	Male	235	3.6	5.47	0.395 (NS)
	Female	207	4.1787	6.70	
School Type *	Govt	232	4	5.61	0.122 (NS)
	Private	210	3.72	6.56	
Utilization of Dental care *	No	434	3.83	6.05	0.647 (NS)
	Yes	8	5.62	7.54	
Treatment need*	No	288	3.60	6.41	**0.001 (S)**
	Yes	154	4.36	5.38	
Caries Experience	Affected	284	4.06	6.35	0.625 (NS)
	Unaffected	158	3.51	5.56	
Parent Education$	Illiterate	9	4.66	2.55	0.17 (NS)
	0-10 class	283	3.66	5.24	
	11-12 class	96	4.08	6.36	
	Graduation	54	4.46	9.31	
Parent occupation$	Govt service	13	3.38	3.66	0.84 (NS)
	Private service	330	3.75	5.83	
	Business	90	4.3	7.28	
	Others	9	4.66	4.74	
Income$	Less than 1000	92	3.47	2.68	**0.04**

	1001-10,000	262	3.7672	6.17	**(S)**
	More than 10,000	88	4.59	8.04	

Test: * - *Mann Whitney test* *S = Significance (p<0.05)*
$ - Kruskal Wallis test *NS = Non-significant (p>0.05)*

Table 3 - Comparison of Parental perception of Quality of life of child (P-CPQ) score among study subjects with varying parental dental anxiety score.

P-CPQ	Parental Dental Anxiety Score						Sig
	Low Anxiety n=161		Moderate Anxiety n = 271		High Anxiety n = 10		
	Mean	SD	Mean	SD	Mean	SD	
Oral Symptoms	1.46	1.60	1.93	2.00	5.30	4.37	**0.00(S)**
Functional Limitation	1.26	1.84	1.05	1.74	4.10	3.98	**0.01(S)**
Emotional Wellbeing	0.23	1.25	0.40	1.60	2.20	3.12	**0.00(S)**
Social Wellbeing	0.32	2.13	0.43	1.99	3.40	4.74	**0.00(S)**
Total Oral Health Related QOL	3.27	5.28	3.82	5.72	15.00	13.75	**0.03(S)**

Test: *Kruskal Wallis test* *S = Significance (p<0.05)*

Table 4: Association of P-CPQ score with MDAS score using regression analysis.

Variable	Unadjusted odds ratio	95%CI	P value	Adjusted odds ratio	95% CI	P value
Oral symptoms	1.22	1.099-1.354	<0.001**	1.15	1.031-1.292	0.013**
Functional Limitation	1.11	0.994-1.237	0.064			
Emotional wellbeing	1.24	1.095-1.414		1.07	0.861-1.336	0.531
Social wellbeing	1.19	1.074-1.316	0.001**	1.08	0.915-1.274	0.366
Total QOL	1.07	1.033-1.108	0.001**			

***. Correlation is significant at the 0.01 level (2-tailed).*

Table 5: Correlation of MDAS scores with domains of Parental-Caregivers Perception questionnaire Scores by using Spearman's correlation coefficient.

Correlations	Oral symptoms	Functional limitation	Emotional	Social	MDAS Score
Oral symptoms	1	0.449**	0.355**	0.396**	0.264**
Functional limitation	0.449**	1	0.555**	0.493**	0.067
Emotional	0.355**	0.555**	1	0.807**	0.184**
Social	0.396**	0.493**	0.807**	1	0.151**
MDAS	0.264**	0.067	0.184**	0.151**	1

***. Correlation is significant at the 0.01 level (2-tailed).*

CONCLUSION

The mean score of parental perception of quality of life score was significantly varying among age groups, the income groups and the treatment need groups. Regression analysis showed that oral symptom domain was significantly associated with dental anxiety. (Adjusted OR = 1.15, 95% CI: 1.031-1.292).A significant positive correlation was observed with Parental dental anxiety scores and child's quality of life scores. The children of lower parental dental anxiety exhibited better oral health related quality of life compared to children of higher parental dental anxiety.

ACKNOWLEDGMENTS

The authors would like to express their gratitude to all the volenteers for their cooperation and active participation in the study.

REFERENCES

1. Yee R, Sheiham A. The burden of restorative dental treatment for children in Third World countries. International Dental Journal, 2002; 52: 7-10.
2. Naito M, Yuasa H, Nomura Y, Nakayama T, Hamajima N, Hanada N. Oral health status and health related quality of life: a systemic review. Journal of oral sciences, 2006; 48(1): 1-7.
3. Sheiham A. Oral health, general health and quality of life. Bulletin of world health organization, 2005; 83(9): 644-645.
4. Acs G, Lodolini G, Kaminski S, Cisneros GJ. Effect of nursing caries on body weight in a pediatric population. Pediatric Dentistry, 1992; 14: 302-305.
5. Lawrence HP, Thomson WM, Broadbent JM, Poulton R. Oral health-related quality of life in a birth cohort of 32-year olds. Community Dent Oral Epidemiol, 2008; 36: 305–16.
6. Vermaire, J. H., de Jongh, A., & Aartman, I. H. Dental anxiety and quality of life: The effect of

dental treatment. Community Dentistry and Oral Epidemiology, 2008; 36(5): 409–416.
7. Al-Shalan TA. Factors affecting Saudi parents' perception of their children's first dental visit. J Contemp Dent Pract, 2003; 4(4): 54-66.
8. Armfield JM, Slade GD, Spencer AJ. Cognitive vulnerability and dental fear. BMC Oral Health, 2008 Jan 24; 8:2. Doi: 10.1186/1472-6831-8-2.
9. Cascaes, A. M., Peres, K. G., & Peres, M. A. Periodontal disease is associated with poor self-rated oral health among Brazilian adults. Journal of Clinical Periodontology, 2009; 36(1): 25–33.
10. Goursand D, Paiva SM, Zarzar PM, Pordeus IA, Grochowski R, Allison PJ. Measuring parental-caregiver perceptions of child oral health-related quality of life: psychometric properties of the Brazilian version of the P-CPQ. Braz Dent J, 2009; 20(2): 169-174.
11. Thakare VG, Ajith Krishnan CG, Chaware S. Parents' perceptions of factors influencing the oral health of their preschool children in Vadodara city, Gujarat: A descriptive study. European J Gen Dent, 2012; 1(1): 44-49.
12. Gambhir RS, Brar P, Singh G, Sofat A, Kakar H. Utilization of dental care: An Indian outlook, 2013; 4(2): 292-297.
13. Humphris GM, Morrison T, Lindsay SJ. The Modified Dental Anxiety Scale: validation and United Kingdom norms, 1995; 12(3): 143-150.
14. Jokovic A, Locker D, Stephens M, Kenny D, Tompson B, Guyatt G. Measuring parental perceptions of child oral health-related quality of life. J Public Health Dent, 2003; 63(2): 67-72.
15. Gisler V, Bassetti R, Mericske-Stern R, Bayer S, Enkling N. 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, 2012; 29(2): 290-296.
16. Shet R, Jain G, Maroli S, Srivastava KJ, Kasina SP, Shwetha G. Association of oral health related quality of life with dental anxiety and depression along with general health among people of Bhopal district, Madhya Pradesh. J Int Oral Health, 2013; 5(6): 1-8.
17. Goettems ML, Ardenghi TM, Demarco FF, Romano AR, Torriani DD. Children's use of dental services: influence of maternal dental anxiety, attendance pattern, and perception of children's quality of life. Community Dent Oral Epidemiol, 2012; 40(5): 451-458.
18. Crofts-Barnes NP, Brough E, Wilson KE, Beddis AJ, Girdler NM. Anxiety and quality of life in phobic dental patients. J Dent Res, 2010; 89(3): 302-306.
19. Mehrstedt M, John MT, Tönnies S, Micheelis W. Oral health-related quality of life in patients with dental anxiety. Community Dent Oral Epidemiol, 2007; 35(5): 357-363.
20. McGrath C, Bedi R. The association between dental anxiety and oral health-related quality of life in Britain. Community Dent Oral Epidemiol, 2004; 32(1): 67-72.
21. Vermaire JH, de Jongh A, Aartman IH. Dental anxiety and quality of life: the effect of dental treatment. Community Dent Oral Epidemiol, 2008; 36(5): 409-416.
22. Ng SK, Leung WK. A community study on the relationship of dental anxiety with oral health status and oral health-related quality of life. Community Dent Oral Epidemiol, 2008; 36(4): 347-356.
23. Crocombe LA, Brennan DS, Slade GD. The influence of dental attendance on change in oral health-related quality of life. Community Dent Oral Epidemiol, 2012; 40(1): 53-61.
24. Paula JS, Leite IC, Almeida AB, Ambrosano GM, Pereira AC, Mialhe FL. The influence of oral health conditions, socioeconomic status and home environment factors on schoolchildren's self-perception of quality of life, 2012; 10: 6. doi: 10.1186/1477-7525-10-6.
25. Locker D. Disparities in oral health-related quality of life in a population of Canadian children. Community Dent Oral Epidemiol, 2007; 35(5): 348-356.
26. Wandera, M., Kayondo, J., Engebretsen, I. M., Okullo, I., & Astrom, A. N. Factors associated with caregivers' perception of children's health and oral health status: A study of 6 to 36 month-olds in Uganda. International Journal of Paediatric Dentistry, 2009; 19(4): 251–262.
27. Panepinto, J. A., Pajewski, N. M., Foerster, L. M., Sabnis, S., & Hoffmann, R. G. Impact of family income and sickle cell disease on the health-related quality of life of children. Quality of Life Research, 2009; 18(1): 5–13.
28. Filstrup, S. L., Briskie, D., da Fonseca, M., Lawrence, L., Wandera, A., & Inglehart, M. R. Early childhood caries and quality of life: Child and parent perspectives. Pediatric Dentistry, 2003; 25(5): 431–440.