Oral Health Related Quality of Life among 12-15 Year Old Children Residing at Orphanages in South India- A Descriptive Study

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A B S T R A C T

Objective: Oral diseases seriously impair quality of life in a large number of individuals and they may affect various aspects of life. In turn, oral disease pattern is dependent on various socioeconomic characteristics of the children and parents. Behaviour and attitudes of children are formed and developed from social, cultural, economic and ethnic factors throughout their lives. This process is also influenced by their knowledge of health and prevention of disease, including oral diseases. The absence of family support might also influence oral health behaviour. Thus, in the light of the above situation, this study is an attempt to assess the oral health related quality of life among 12-15 year old children residing in orphanages. **Materials and methods:** A cross-sectional study was carried out among 252 subjects residing in orphanages in Kozhikode district. The child - OIDP Index was used to evaluate the OHRQoL. Information regarding the demographic factors, and oral hygiene practices were obtained by interview method using a structured questionnaire along with this oral examination was performed and data were collected on dentition status and dentofacial anomalies. **Results:** The prevalence of the impacts of oral health on daily activities increases proportionate with the reduction in intensity, 97 subjects suffered from moderate impacts, 136 from small and 139 very small impacts. The average final scores for the subjects included in the study is 49.76. **Conclusion:** The elevated score for the Child-OIDP obtained in this study is in accordance with the reduced oral health status of the subjects.

Keywords: Oral impacts, Quality of life, Child- OIDP, Socio-economic inequalities, Oral health.

INTRODUCTION

Oral health is a standard of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general well being.[1] The World Health defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns."[2]

Oral Health Quality of Life (OHRQoL) has been studied over the past 15 years, with the development and testing of measures designed to assess the functional, social, and psychosocial outcomes of oral disorders using self-reported questionnaires.[3] The concept of OHRQoL is particularly significant to 3 areas – clinical practice of dentistry, dental research and dental education.[4] Only in recent years, the relationship between the quality of life and oral health was given the attention it deserves.

Oral Health Related Quality of Life has become a priority for specialists as late as the 1980's, and then they focused on evaluating the consequences of oral disease on the life of the individual and the establishment of proper measures in order to cancel the negative effects of oral disease on the quality of life.[5] The relation between the quality of life and oral health is defined as the evaluation, both from a personal and a medical point of view, of the way in which psychological, social factors and traumatizing and uncomfortable experiences affect an individual's well-being.[6]

According to child developmental psychology, children have the ability to make evaluative judgements of their appearance; the quality of friendships and other people's thoughts, emotions and behaviors gradually develops through middle childhood (6-10 years) and by the age of 11 or 12 they view health as a multi-dimensional concept organized around the following constructs: being functional, adhering to good lifestyle behaviors, a general sense of well-being and relationships with others. [7]

Oral diseases seriously impair quality of life in a large number of individuals and they may affect various aspects of life, including function, appearance, interpersonal relationships and even career opportunities. [8] In turn, oral disease pattern is dependent on various socioeconomic characteristics of the children and parents. Behaviour and attitudes of children are formed and developed from social, cultural, economic and ethnic factors throughout their lives. This process is also influenced by their knowledge of health and prevention of disease, including oral diseases.[9] The absence of family support might also influence oral health behaviour.

Thus, it can be hypothesized that the pattern of disease and quality of life would be different among children residing in orphanages, as they are under privileged and do not receive as much care as other children receive from their parents. Thus, in the light of the above situation, this study is a sincere attempt to assess the oral health related quality of life among 12-15 year old children residing at an orphanage in Kozhikode district.

MATERIALS AND METHODS

Among 12 orphanages, 6 were randomly selected for the study. Sampling frame comprised of 252 subjects (between the age of 12 - 15 years) residing in these

orphanages in Kozhikode, Kerala. The study was carried out among 252 subjects (between the age of 12 - 15 years) residing in orphanages who were randomized and invited to voluntarily participate in the study and were screened using following inclusion and exclusion criteria.

Subjects who were between the age group of 12 and 15 years were selected, those who agreed to give the informed consent to participate in the study were included and those subjects who were mentally and physically disabled were excluded from the study.

Organizing the survey

The ethical clearance for the study was obtained from the Institutional Ethical Review Board of the Coorg Institute of Dental Sciences, Virajpet. In conducting the study in the orphanages permission was also obtained from the managers and trustees of the respective orphanages and wardens residing in the orphanages.

The study was conducted during the month of January and February 2012. A detailed schedule of the survey was prepared well in advance and the concerned authorities were informed regarding the examination place, date and timing. On an average 25-30 patients were interviewed and examined on each day. Examination of each individual took approximately 8-10 minutes.

The oral examination of all the study subjects was carried out by a single examiner. The investigator was trained and calibrated on groups of patients for two successive days. Each patient was meticulously examined and findings were compared to know the diagnostic variability agreement which was found to be 80%.

Implementing the survey

Child- Oral Impact on Daily Performance Index: The evaluation of the relation between the quality of life and oral health by Child- OIPD index (Child-oral Impact on Daily performances), following the Georgios Tsakos protocol. [6]

First step- first list of questionnaire

Filling the first questionnaire which was done both individually and assisted (Tsakos has recommended groups/classes). The goal of this first set of questions is to get the subjects, accustomed to oral conditions which may represent reasons for impacts, with repercussions on their quality of life.

Second step- the interview

The following interview ignores the answers given to the first set of questions. It focuses on evaluating the impact of oral diseases on the following eight activities they are eating, speech, oral hygiene, sleeping and resting, smiling (the ability to show one's teeth without embarrassment), maintaining the emotional status, study (lessons, learning, going to school), and socializing. The reminding time for the child- OIPD index is 3 months.

The questionnaire was filled with an assistant, each question coming out with supporting explanations, in order to clarify both the content as well as the way to answer about frequency, severity and intrusion perceived by a specific issue.

The frequency and the severity of the impact of oral health issues of the subject of common daily activities were estimated by summing the answers to the questions with the scores for frequency and severity. To evaluate the perceived intrusion, as the cause which, in the subjects view, determined a specific result, each one of the question is accompanied by a symptom from the first step list. The scores for the impact of oral health issues on each of these activities is obtained by multiplying the frequency and severity scores. The final score for one activity (impact intensity) may, in this way, have values ranging from 0-9.

The impact intensity is calculated as follows

Very severe: value 9 (severity 3 x frequency 3).

Severe: value 6 (either severity 3 x frequency 2; severity 2 x frequency 3).

Moderate: values 3-4 (severity 2 x frequency 2; severity 3 x frequency 1; severity 1 x frequency 3).

Small: value 2 (severity 2 x frequency 1; severity 1 x frequency 2).

Very small: value 1 (severity 1 x frequency 1).

Zero: (severity 0 x frequency 0).

The general average (the prevalence) of the impact of oral health issues on daily activities of the subject is calculated as a percentage of the maximum obtainable score (9x8=72), so the sum of the eight activities (which may be anywhere between 8 and 72) is divided by 72 and multiplied by 100. Another way to appreciate the impact of oral health on the quality of life of subjects is to verify the number of activities affected by oral health issues.

Clinical examination

A Performa was designed to record the information about demographic factors and oral hygiene practices. The Performa was filled by the examiner himself by interviewing the children before the examination. The same examiner conducted the clinical examination using the WHO oral health assessment form (1997).[10] Dentition status and dental-facial anomalies, as in the WHO oral health assessment form (1997) was used to assess the decayed, missing and filled component, and malocclusion status. The examination was done in the premises of the respective orphanages. After the clinical examination of the study subjects, they were educated regarding oral health with emphasis on the importance of oral health, maintenance of oral hygiene and periodic dental visits.

The data were analyzed applying the descriptive statistics. All statistical calculations were done using SPSS software version18 for windows.

RESULTS

The frequency of the oral health issues which were perceived by the subjects and mentioned in the answers to the first set of questions are shown in Table 1. Self perceived oral issues which have a major negative impact on the daily activities of the children are bleeding gums (58.97%), dental sensitivity (47.20%), toothache (40.24%), and badly positioned teeth (28.20%). Among those less mentioned was bad breath and oral ulcers (5.12%), erupting permanent teeth (4.11%), tooth shape or number (2.56%). Fractures to permanent teeth, mouth and face deformities were not mentioned.

Oral conditions which caused impacts on each of the eight activities (perceived intrusion) and the frequency with which certain oral pathological states caused impacts on each of the 8 activities are presented in Table 2.a and 2.b. Eating has been mostly affected by toothache and tooth sensitivity and by the exfoliation of deciduous teeth. Speech suffered because of badly positioned teeth, toothaches and bad breath. Oral hygiene was impacted by bleeding gums and dental sensitivity. Sleep and resting were affected by toothaches and gingival ulcers. Smiling was often affected by badly positioned teeth, empty spaces for erupting permanent teeth and modified tooth coloration. The emotional status suffered because of toothaches, from gingival ulcers and exfoliating deciduous teeth. Learning (studying) was more affected by toothaches and gingival ulcers.

The intensity of oral health issues impact on daily activities of the subjects is shown in Table 3. A small number of subjects

suffered very severely (16 subjects) and severely (40 subjects) impacts of the oral issues of daily activities, and the most affected activities were eating and exercising of dental hygiene. The prevalence of the impacts of oral health on daily activities increases proportionate to the reduction in intensity: 97 subjects suffered from moderate impacts, 136 – small impacts and 139 very small. At the same time, as the intensity of impacts decreases, the number of affected activities increases. If severe and very severe impacts affect a reduced number of activities (Eating and oral hygiene and emotional status), moderate impacts refer to 7 activities, while the small and very small ones affect all eight. A subject who suffers from numerous impacts, but of reduced intensity, with the implications of all daily activities is actually much more affected by oral health issues than another one suffering from very severe impacts, which only affect a reduced number of his actions. The actions most affected by oral health issues are eating, oral hygiene and emotional status, followed by smiling and speech capacity. The least affected are studying, smiling and socializing.

The general score for the Child-OIDP indicator that was obtained in this study was calculated as an average of the scores obtained for each of the subjects. The average final scores for the subjects included in the study is 49.764 points.

Oral health status of the subjects on the basis of clinical indicators have been shown in Table 4 and 5, the mean dmft and DMFT scores among study subjects according to age indicated the highest among the age group of 15 years. The average value of the DMFT indicator for was found to be 2.88 of which only 23.41% are caries free. Based on the distribution of subjects according to the prevalence of dentofacial anomalies it was seen that 4.0% of total study subjects had severe malocclusion.

DISCUSSION

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 feelings of social well-being. This led to the development of many instruments to measure the effect oral health experts on quality of life.[11]

A number of authors have advocated the use of patient- based assessments of outcomes to gain more substantive information on the impact of oral disorders on health- related quality of life.[12,13] This led many researchers to 'formulate OHRQoL instruments and more recently, interest in children's quality of life arose, which include social, psychological, functional aspects, as well as oral health.[14] However, Tsakos *et al*, advocated that OHRQoL measures cannot replace normative needs and hence both should be used in combination in order to cover different dimensions of oral health.[15]

It is evident from past literature that a gradient in general and oral health occurs between the populations based on the socioeconomic status, income and family characteristics. On the other hand, children residing in orphanages pose a special problem as many of the children in the orphanages are previously street children. The environment in which they live and the associated lifestyles makes street children vulnerable to a wide range of health related and other problems, including malnutrition, communicable and infectious disease and poor oral health.[16]

Due to the fact that the studies concerning the relation between oral health and the quality of life of children with no parents aged 12-15 are not so numerous even internationally and the analysis criteria and categories vary, comparative studies are quite limited. It is important for this study that, even though the impacts of oral health on the quality of the subjects' life are frequent, their intensity is mainly moderately-small. Very severe and severe impacts occur only in a

reduced number of activities: eating, emotional status and oral hygiene performance.

From the point of view of the activities most often affected by oral health issues, the present study is in accordance with all other studies of this type performed on subjects of the same age reported by Adulyanon and Sheiham,[17] Adulyanon, Vourapukjaru and Sheiham[18] and Sudaduang , Tsakos and Sheiham.[19]

Another extremely important activity for each individual's oral health is the performance of oral hygiene. It is badly affected by oral disease and particularly by bleeding gums, as deducted from the present study. The absence of proper oral hygiene, overlapped with already existing issues, will most certainly lead to increased oral disease in these subjects. Smiling and social relations are most often affected by misplaced teeth and color changes. The least affected by oral health issues are studying and socializing.

Eating and oral hygiene performance are also the daily activities that suffered most frequently because of oral health issues. The reasons of these impacts are physical agents, toothaches, exfoliating deciduous teeth, badly positioned teeth, oral ulcers and carious cavities, which limit the consumption of certain food-types and which will eventually cause improper feeding from a quality point of view of the 12-15 year olds, involved in the full process of growth and development.

CONCLUSION

The elevated score for the Child-OIDP obtained in this study is in accordance with the reduced oral health status of the subjects, and especially that of dental hygiene and increased frequency of dental-maxillary anomalies. The oral health issues most frequently perceived to have a negative impact on the daily activities of children are bleeding gums (58.97%), dental sensitivity (47.20%), toothaches (40.24%) and misplaced teeth (28.20%). Eating, oral hygiene, and emotional status followed by smiling and speech are the most affected activities by oral health issues. The least affected are studying, sleeping and socializing. The prevalence of the impacts of oral health on daily activities increases proportionate to the decrease in intensity.

RECOMMENDATIONS AND SUGGESTIONS

Despite the increasing number of rigorous studies focusing on quality of life we still know relatively little about how oral health conditions affect people feeling of wellbeing. Perceptions on how oral health affects the life quality may have implications for the future design of oral health–related quality of life measures. Future effort must be directed towards exploring the ultimate modulating factors or traits that make subjects to feel the need for dental treatment, complaints or to perceive frequently some oral impact in spite of good oral health status and high satisfaction level.

As tooth loss emerged as one of the strongest predictor of oral health–related quality of life, it is important to educate the public on the importance of preserving their natural teeth and a functional dentition throughout life. Further extensive studies, performed on the juvenile population residing in orphanages will be required to accurately appreciate the way in which the oral health status affects the quality of life for this population of our country.

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Table 1. The frequency of oral conditions mentioned in the first set of questions

Oral symptom	Frequency (%)
Toothache	40.24
Dental sensitivity	47.20
Tooth decay	17.94
Permanently fractured tooth	0.0
Modified teeth color	18.21
Modified teeth shape or number	2.56
Dental position	28.20
Gum bleeding	58.97
Gum swelling	3.41
Plaque	19.17
Bad breath	5.12
Oral ulcers	5.12
Exfoliating deciduous tooth	11.75
Erupting permanent tooth	4.11
Unerupted permanent tooth; slot/space	1.21
Mouth and face deformalities	0.0
Missing permanent tooth	1.21

Table 2a. Main oral conditions which cause impacts on each of the eight activities (step 2 questionnaire analyses)

Performance	# of subjects who reported impacts on each activity	Cause for the impacts (percentage of subjects who reported a specific cause impacting on a specific action)						
		Sensitivity	Pain	Exfoliation	Position of teeth	Ulceration	Caries	Eruption
Eating/Drinking	181	38.35%	33.32%	12.16%	9.69%	9.69%	12.15%	5.61%
Speech	28	-	29.77%	-	58.55%	-	-	-
Oral hygiene	102	34.48%	-	8.40%	-	-	6.40%	7.40%
Sleep/Resting	27	-	59.15%	-	-	45.85%	-	-
Smiling	22	-	-	-	34.33%	-	6.76%	-
Emotional status	39	-	69.66%	14.11%	-	24.20%	-	-
Studying	18	-	68.68%	-	-	36.36%	-	-
Socializing	11	-	-	-	43.85%	-	-	-

Table 2b. Main oral conditions which cause impacts on each of the eight activities (step 2 questionnaire analyses)

Performance	# of subjects who reported impacts on each activity	Cause for the impacts (percentage of subjects who reported a specific cause impacting on a specific action)					
		Bad breath	Gum bleeding	Gum inflammation	Slot/ space	Color	Shape/ no. teeth
Eating/Drinking	181	-	-	-	-	-	-
Speech	28	18.66%	-	-	-	-	-
Oral hygiene	102	-	47.94%	9.4%	-	-	-
Sleep/Resting	27	-	-	-	-	-	-
Smiling	22	-	-	-	30.57 %	25.8%	10.52 %
Emotional status	39	-	-	-	-	-	-
Studying	18	-	-	-	-	-	-
Socializing	11	30.57%	-	-	-	-	-

Table 3. The intensity of the impacts on daily activities and their rate

Activity	# of subjects who reported impacts on an activity	Intensity of the Impacts									
		Very Severe		Severe		Moderate		Small		Very Small	
		# no of subjects	Percent of those who reported	# no of subjects	Percent of those who reported	# no of subjects	Percent of those who reported	# no of subjects	Percent of those who reported	# no of subjects	Percent of those who reported
Eating	181	9	4.97%	10	5.52%	42	23.20 %	71	39.23 %	49	27.07%
Speech	28	-	6.86%	-	-	9	32.14 %	6	21.42 %	13	46.43%
Oral hygiene	102	7	-	24	23.53%	28	27.45 %	27	26.47 %	16	15.69%
Sleep/Resting	27	-	-	-	-	3	11.11 %	7	25.93 %	17	62.96%
Smiling	22	-	-	-	-	5	22.73 %	2	9.09%	15	68.18%
Emotional status	39	-	-	6	15.38%	7	17.95 %	14	35.09 %	12	30.77%
Studying	18	-	-	-	-	-	-	6	33.33 %	12	66.67%
Socializing	11	-	-	-	-	3	27.27 %	3	27.27 %	5	45.45%

Table 4. Mean dmft and DMFT scores among study subjects according to age

AGE	dmft	DMFT
12	0.27 ± 0.64	0.44 ± 0.74
13	-	0.70 ± 0.22
14	-	0.71 ± 0.16
15	-	0.95 ± 0.55

Table 5. Distribution of study subjects according to the prevalence of dentofacial anomalies by level of severity and treatment indication

DENTOFACIAL ANOMALIES	TREATMENT INDICATION	PERCENTAGE (%)
No abnormality or minor malocclusion	No or slight need	96.0
Definite malocclusion	Elective	0.0
Severe malocclusion	Highly desirable	4.0
Very severe or handicapping malocclusion	Mandatory	0.0