A STUDY ON PEDIATRIC DENTAL PRACTICE AMONG PATIENTS IN MANIPAL REGION

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Abstract

Face is the index of the mind and everyone today is obsessed with shinier and perfectly aligned teeth that makes a person more noticeable.. Up to last two decades, people were not showing much interest in taking care of oral dental hygiene. However, in the recent years, people are taking care of the same right from childhood. Pedodontics is the branch of Dentistry that deals with care and treatment of children's teeth. A descriptive research was carried out by collecting data from secondary sources from Pedodontics Department of well known (teaching) Dental Hospital in Manipal. The data was analyzed by using statistical tools and conclusions were drawn. It was concluded that less percentage of people give priority to oral dental hygiene and go for pediatric dental check up. Further, it can be concluded that changing food habits may probably result in some more dental problems.

Key Words: *pediatric, oral care, cost analysis, treatment type, oral habits*

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Introduction:

Compared to two decades back today everybody is giving importance for a better physical appearance as self promotion became the order of the day. Oral dental hygiene plays an important role in this aspect while interacting with the people in the society. Cosmetic dental surgery became popular even though it is expensive. Parents are worrying about the structure of the denture of their children right from birth. Teenagers are giving more priority for good looking denture and hence they are going for the orthodontic treatment by bearing the difficulty for longer period. Dentists are opening their clinics at every corner of the road because of the increasing demand. The affordability of the Cosmo dental surgery is an issue as the process is expensive. A study was conducted to understand the Cost-Benefit Analysis of Oral Dental Hygiene by collecting data from Manipal College of Dental Sciences (MCODS), Manipal.

Review of Literature:

Axelsson P. (2006) carried out research on risk for caries development in children which varies significantly for different age groups, individuals, teeth, and surfaces. Thus from a cost-effectiveness point of view, caries preventive measures must be integrated and based on predicted risk from age group down to individual tooth surfaces. The goals for the subjects following the program from birth to the age of 19 years were: 1. To have no approximal restorations. 2. To have no occlusal amalgam restorations. 3. To have no approximal loss of periodontal attachment. 4. To motivate and encourage individuals to assume responsibility for their own oral health. The effect of the program is evaluated once every year on almost 100% of all 3-19-year-olds in a computer-aided epidemiologic program from 1979. Thus it can be concluded that nearly 100% of our goals had been achieved.

Roberts MW. (2008) observed that dental caries remains the most common disease in man and presents a tremendous health-affecting challenge. Systemic and topical fluoride contacts remain the most cost-effective public health response to preventing caries among children. The time-honored impact of reducing sugars and carbohydrates in the diet and improving oral hygiene practices also remains essential. The impact on families and society, including financial and general well-being, due to poor oral health is significant. Lower income families absorb disproportionately the effect of dental diseases due to lack of education, food availability and selection, and access to early preventive care.

Peerbhay FB. (2009) evaluated the self-reported preventive dental care compliance of parents/families whose children received dental treatment under general anesthesia. Complete records of 68 pediatric patients who attended the University of Stellenbosch's Pediatric Dentistry Department for dental treatment were included in the survey. Parents of 41 (60%) patients were interviewed telephonically to evaluate parental dental health knowledge and preventive practices. It was concluded that parental belief that proper dental health behavior helps maintain the teeth, did not influence parents preventive compliance, despite them having received preventive instruction. Parents were mostly responsible for brushing their child's teeth following dental treatment of their children under general anesthesia. This research found however that, in the majority of cases there was no change in the children's frequency of sugar intake.

Suresh BS, Ravishankar TL, Chaitra TR, Mohapatra AK, Gupta V. (2010) studied on the assessment of the mother's knowledge about the oral health of their pre-school children in Moradabad, India. Mothers of children aged 1-4 years, attending the hospital for vaccination or regular checkups in the pediatric division of government hospitals, were invited to participate in the study. Mothers with higher educational qualification and information gained through dentist had a better knowledge about child's oral health. Oral hygiene habits and dietary habits are established during pre-school days and the parents, especially mothers, function as role models for their children.

Ramos-Gomez FJ, Crystal YO, Ng MW, Crall JJ, Featherstone JD (2010) found that recent increases in caries prevalence in young children, especially among minorities and the economically disadvantaged, highlight the need for early establishment of dental homes and simple, effective infant oral care preventive programs for all children as part of a medical disease prevention management model. This article presents an updated approach and practical tools for pediatric dental caries management by risk assessment in an effort to stimulate greater adoption of infant oral care programs among clinicians and early establishment of dental homes for young children.

Chongcharoen N, Lulic M, Lang NP. (2011) compared the interproximal cleansing efficacy of the novel, waist-shaped Circum(®) brush (Topcaredent(®) , Switzerland; CB) with that of a straight soft interdental brush (IB) (TePe(®) , Sweden; SB) on posterior surfaces. Data taken on eight patients after completion of initial periodontal therapy abolished oral hygiene for 3 days. It was concluded that application of the waist-shaped Circum(®) IB resulted in significantly lower

PlI scores than the use of a straight IB. This was predominantly due to the higher cleansing effect of the waist-shaped CB on the buccal and lingual line angles.

Vinay S, Naveen N, Naganandini N. (2011) studied about caretakers in day-care centers play a significant role in imparting good oral hygiene practices and also extend a working relationship with parents with regard to their children's oral health. As a result of this, caregiver's dental knowledge, attitudes, beliefs and practices affect the child's oral condition. A descriptive cross-sectional study involved caretakers working in day-care centers of Bangalore. Fifty-two day-care centers were randomly selected from the different zones of Bangalore city, from which 246 caretakers provided consent for participation. A comprehensive, closed-ended, self-administered questionnaire was designed and administered to collect the socio-demographic details and to evaluate the oral health knowledge, attitudes and practice of caretakers. Seventy-nine percent of the subjects had good knowledge of child's tooth eruption time, clinical presentation of dental caries and the role of fluoride in caries prevention. The results of this study indicate that caretaker's attitude towards oral health care has a positive impact on the children.

Prashanth ST, Bhatnagar S, Das UM, Gopu H. (2011) collected the data on visually impaired children face challenges for bearing their everyday skills. Maintenance of proper oral hygiene is one among them. The aim of the study was to assess the oral health knowledge, practice, oral hygiene status, and dental caries prevalence among visually impaired children in Bangalore. A total of 85 children were asked verbally a questionnaire regarding the frequency of brushing, cleaning tools, use of dentifrice, knowledge about the role of sugar in producing dental decay, and frequency of visit to the dentist. The study shows not much worsening of oral health status in the study of population. A little extra care by the parent or caretaker regarding oral hygiene can give drastic results in reduction of dental caries.

Blomqvist M, Ahadi S, Fernell E, Ek U, Dahllöf G. (2011) studied and tested the hypothesis that adolescents with attention deficit hyperactivity disorder (ADHD) exhibit a higher prevalence of caries than adolescents in a control group. Thirty-two adolescents with ADHD and a control group of 55 adolescents from a population-based sample, all 17 yr of age, underwent a clinical and radiographic dental examination. Adolescents with ADHD need more support regarding oral hygiene and dietary habits. They should be followed up with shorter intervals between dental examinations to prevent caries progression during adulthood.

Martins CC, Oliveira MJ, Pordeus IA, Paiva SM. (2011) carried out their research on the information on the oral habits of children reported by their mothers are commonly used to evaluate tooth brushing practices and to estimate fluoride intake by children. A sample of 201 mothers and their children (aged 24-48 months) from Montes Claros, Brazil, took part in a cross-sectional study. At day-care centres, the mothers answered a self-administered questionnaire on their child's tooth-brushing habits. It was observed that tooth brushing reported by mothers were compared for overall agreement. They concluded that in general, there was low agreement between observed tooth brushing and mothers' reports.

Razmienė J, Vanagas G, Bendoraitienė E, Vyšniauskaitė A. (2011) have evaluated that tooth brushing skills and the prevalence of dental caries as well as its intensity in relation to oral hygiene skills among 4 - 6-year-old children. Parents of the children were asked to fill in the questionnaires. The results of the study show that there is the high prevalence of caries, particularly of not treated forms, among 4 - 6-year-old children. The oral hygiene index is just satisfactory.

Nahás Pires Corrêa MS, Nahás Pires Corrêa F, Nahás Pires Corrêa JP, Murakami C, Mendes FM. (2011) carried out their research on the prevalence of dental erosion seems to be rising in young populations, particularly among individuals of higher socio-economic status. A total of 232 participants, aged 2-20 years, were examined. Dietary habits, oral hygiene, and medical data were collected from dental records. It was concluded that erosion was in association with frequent intake of soft drinks, candies, and fruits. The consumption of milk seemed to protect against dental erosion on anterior teeth.

Reddy K, Sharma A. (2011) carried out epidemiological investigation among 228 children selected from two schools of similar socio-economic strata in and around Chennai city. The study population consisted of 128 visually impaired and 100 normal school going children in the age group of 6-15 years. The conclusions drawn from this study were that there was a greater prevalence of dental caries, poorer oral hygiene, and higher incidence of trauma in visually impaired children.

Viswanathan K. (2011) carried out on the general practitioners to actively participate in providing care for young children under the age of 3. Components of an infant oral examination are described here with emphasis on knee-to-knee or lap exam, caries risk assessment, preventive

treatment, age-appropriate anticipatory guidance, and parent education. The First Dental Home is uniquely designed to help pediatric clients 6 months through 35 months of age to establish a dental home. The objectives, goal and components of FDH were discussed in detail.

Shivaprakash PK, Ohri K, Noorani H.(2011) conducted a study on 160 children, in the Bagalkot district of Karnataka state between August and October 2010, with the aim of finding out if there was a relationship between dental fluorosis status and Intelligence Quotient (IQ). Children were categorized as, those suffering from dental fluorosis and those not suffering from dental fluorosis and for all children in both categories. Also it was noticed that the percentage of children with dental fluorosis was more in Extremely Low and Low IQ categories whereas the percentage of children without dental fluorosis was more in Average and High Average IQ categories.

Makuch A, Reschke K, Rupf S.(2011) carried out a study to compare artificial tooth-brushing models (TBM) and individual modeling regarding their efficacy in teaching the correct brushing movements to younger preschool children. A total of 141 30- to 50-month-old preschool children who had not been previously instructed on tooth-brushing were enrolled in the present trial. Correct tooth-brushing position and movement were correlated with the attractiveness of the model and its similarity to the child. It was shown that human models achieved greatest learning success. It is important to find a "helper" and an attractive model person assisting in guiding the brush with feedback in a mirror.

Peedikayil FC.(2011) observed that Antibiotics are commonly used in dentistry for prophylactic as well as for therapeutic purposes. Most often antibiotics are used in unwarranted situations, which may give rise to resistant bacterial strains. Dentists want to make their patients well and to prevent unpleasant complications. These desires, coupled with the belief that many oral problems are infectious, stimulate the prescribing of antibiotics. Good knowledge about the indications of antibiotics is the need of the hour in prescribing antibiotics for dental conditions.

Based on literature reviews the following objectives have been set for the study.

- Socio-demographic factors
- Frequency of appointments with the dentist
- Proximity of dental clinics
- Duration of the treatment
- Cost aspect of the treatment

Methodology:

Data was collected using secondary sources from 112 records of the patients from Pedodontics Department of Manipal College of Dental Surgery (MCODS), Manipal. The records were taken for one year duration from Dec.2010 – Nov.2011 using Random Sampling Scheme. Data was cleaned, 100 samples were found to satisfy the requirement of the research and hence analyzed. The research was descriptive in nature and describes the behavior of the child patients in the given department.

Data Analysis:

Using the 100 samples, the data was analyzed as follows:

Table-1: Frequency of Patients - Religion Vs. Gender

	Religion			
Gender	Christian	Hindu	Muslim	**Grand Total**
Female	4	49	5	58
Male	5	30	7	42
Grand Total	9	79	12	100

It was observed that 79% of the patients are from the Hindu religion and 9% of the patients are from Christians. It was also observed that 58% are the girls among the patients.

Table-2: Frequency of Patients - Age Vs. Gender

	Gender		
Age in Yrs	Female	Male	**Grand Total**
2	2		2
3	1	1	2
4	8	3	11
5	7	2	9
6	6	3	9
7	4	6	10
8	4	6	10
9	9	3	12
10	7	4	11
11	5	4	9
12	3	4	7
13	1	4	5
14	1	1	2
15		1	1
Grand Total	58	42	100

It was observed that 11% of the patients are from the age of 4 years and also at the age of 10 years whereas 12% of the patients are of 9 years age.

Table-3: Distance travelled by Patients Vs. Gender

Distance in Kms. from Manipal	**Gender**		
	Female	Male	**Grand**

			Total
0-99	46	29	75
100-199	6	7	13
200-299	6	5	11
300-399		1	1
Grand Total	58	42	100

It was observed that 61% of the female patients traveled less than 100 kms for the treatment. It was noticed that patients traveled beyond 300 kms. for the treatment. It was also observed that majority of the patients from Udupi and Manipal.

Table-4: Percentage of Male and Females in Seven Activities

		Gender		**% of Female**	**% of Male**
	Activity	Female	Male		
A-1	1	34	33	59	79
	2	1	2		
A-2	1	27	15	47	36
	2	8	11	14	26
	3	3	2	5	5
	4		1		2
A-2(1)	1	7	2	12	5
	2	2		3	
	3				
	4				

A-3	1	21	6	36	14
	2	2	2	3	5
A-4	3	6	5	10	12
A-4(1)	1	1	1	2	2
	3		1		2
A-5	1	5		9	
	2	1		2	
A-6	1	1		2	
A-7	1	1		2	

Description of Activities:

A-1 (Scaling)

59% of female and 79% of male have completed their scaling problems in one appointment whereas 2% of female required two appointments for scaling.

A-2 (Simple filling)

47% of female and 36% of male have completed simple fillings in one appointment, 14% of female and 26% of male in two appointments, 5% of female and 5% of male in three appointments and 2 % male required 4 appointments.

A-2 (1) (Deep cavity)

12% of female and 5% of male have completed deep cavity treatment in one appointment whereas 3% of female required two appointments for the same treatment.

A-3 (Extraction)

36% of female and 14% of male required one appointment to extract tooth whereas 3% of female and 5% of male required two appointments.

A-4 (Root Canal Treatment)

10% 0f female and 12 % of male required three appointments to complete root canal treatment.

A-4(1) (Endo Pulpectamy)

2% of female and 2% of male required one appointment for pulpectamy and 2% of male required three appointments.

A-5 (Early interventions)

9% of female required one appointment for ortho early interventions whereas 2% of female required two appointments.

A-6(Minor surgery)

2% of female required one appointment for minor surgery.

A-7(General Anesthesia)

2% of females took general anesthesia treatment.

Table 5: Total cost of the Treatment Gender-wise

	Gender		
Total cost (Rs)	Female	Male	**Grand Total**
75	6	6	12
150	5	3	8
180	4		4
195	2	1	3

255	8	11	19
327.5	1		1
330	3	1	4
360	3	2	5
405	1		1
435	8	8	16
450	2		2
465	1		1
510	2		2
540	2		2
615	1	1	2
690		1	1
705	2		2
840		1	1
975		1	1
1417.5	1		1
1492.5		2	2
1597.5	1		1
1672.5		1	1
1747.5	1		1
1822.5	1		1
1852.5	1	2	3
8992.5	1		1
Case history	1	1	2
Grand Total	58	42	100

Table: 6 Frequency Table: Total cost Vs. Age

	Age(in years)							
Total cost(in Rs.)	2-3	4-5	6-7	8-9	10-11	12-13	14-15	**Grand Total**
75		5	2	2	2	2		13
150		1		1	4	2		8
180		1	1	1			1	4
195					1	1		2
255	4		2	5	3	4	1	19
327.5						1		1
330			2	1	1			4
360		1	1		3			5
405				1				1
435		3	4	6	3			16
450				1		1		2
465			1					1
510				1	1			2
540		1	1					2
615		1		1				2
690			1					1
705			1	1				2
840							1	1
975					1			1
1417.5		1						1
1492.5		1	1					2
1597.5		1						1
1672.5		1						1
1747.5					1			1
1822.5		1						1
1852.5		1	1	1				3
8992.5		1						1
Case history			1			1		2
Grand Total	4	20	19	22	20	12	3	100

It is observed that average amount paid is Rs.578 and Rs. 474 by female and male patients respectively.

Table 7: Distance Travelled by Patients Vs. Cost

	Distance from Manipal(in Kms.)							
Total cost(in Rs.)	0-49	50-99	100-149	150-199	200-249	250-299	300-349	**Grand Total**
75	9		2			1		12
150	4	1		2	1			8
180	2		1	1				4
195	2				1			3
255	13	1	1	3	1			19
327.5	1							1
330	1	1			1		1	4
360	3			1	1			5
405	1							1
435	11	2	1		1	1		16
450	2							2
465	1							1
510	1				1			2
540	2							2
615	2							2
690	1							1
705	2							2
840					1			1
975	1							1
1417.5	1							1
1492.5	2							2
1597.5	1							1
1672.5	1							1
1747.5	1							1
1822.5	1							1
1852.5	3							3
8992.5	1							1
Case History			1			1		2
Grand Total	70	5	6	7	8	3	1	100

It is observed that 70% of the patients are traveling within the range of 50 kilometers and paid the average cost of Rs.255 and rest 30% distance ranges from 50-350 kilometers having paid the average cost of Rs.507.

Conclusions:

1. The proximity within which a patient is located near to a dental facility plays significant role in his/her decision making process to approach the facility. It is clearly evident from the fact that majority of the patients hail from a distance of 5 to 10 Km from the hospital facility. However, a few of them from distant places ranging from neighboring districts like Shimoga, Chikmaglur to boarder districts of neighboring states of Kerala and Goa
2. Parents are more concerned about dental problems of their female kids. It is clearly evident from the fact that girls constitute majority of children seeking dental consultancy
3. Though religious background has no role to play in this context, it was has been observed that most of the patients covered in the study are incidentally from Hindu community followed by Christian community
4. Patients approach dental facility mostly for Scaling and simple filling
5. Data analysis suggests that patients come from distant places pay more than counterparts from nearby places. It may be due to delay in decision making of a patient to approach a dental facility if it is not near. Subsequently it could result in deterioration of the problem in terms of its complexity resulting in more cost of the treatment

The research indicates that more awareness needs to be created among the parents as it improves oral dental hygiene of children. Further, it can be concluded that changing food habits of children may probably result in some more dental problems.

Limitations:

The research is descriptive in nature and limited to a sample of 100. Generalizations may not be possible as it is mainly confined on secondary data sources.

Suggestions:

Though dental care awareness is high in urban population and it is not visible with respect to rural population. People from rural areas are required to travel long distances to have dental consultancy, which is available in urban areas. This could result in postponement of problems, which would have rectified by scaling and filling. Some times these basic problems could be

related to basic dental care and could further result in deterioration of teeth which could be fatal in case of children.

Hence, it is suggested that State Government is required to set up Dental Clinics in regular Govt. hospitals located in district head quarters along with regular medical facilities with minimum facilities which can address the basic dental care such as scaling and filling.

Acknowledgement

The authors acknowledge for the encouragement and guidance received from many quarters to present this paper. The authors are grateful to Dr. G.K.Prabhu, Registrar, Manipal University for the permission given to attend the Conference. The authors are thankful to Prof. Sandeep Shenoy, HOD, Dept. of Commerce, who encouraged us to present this paper. The authors extend sincere thanks to Dr. Nirmala Rao, Dean, Manipal College of Dental Sciences (MCODS) and Dr. Rashmi Nayak, HOD, Dept of Pedodantics for permitting us give to access the records of patients. The authors are also thankful to Dr. Sridhar, Associate Professor, Dept. of Pedodontics and Dr. Prasanna who helped to collect the relevant data.

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