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RESEARCH ARTICLE

IMPACT OF SOCIOECONOMIC STATUS AND ORAL HEALTH ON QUALITY OF LIFE IN PRESCHOOL CHILDREN

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Manuscript Info	*Abstract*
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Aim: the aim of this study was to correlate the caries experience of preschool children and parental perception using ecohis and correlate it with the socioeconomic status.

Method: The sample consisted of 100 preschool children between the ages of 3 and 5 years.clinical examinations was performed by an examiner with children seated on chairs under natural light using mouth mirrors and cpi probes. Def index was used to assess the child's caries experience.the socioeconomic profile of parents/guardians was calculated using the kuppuswamy's classification. A 13 item ecohis questionnaire was answered by the parents/guardians for assessing their perceptions on the influence of oral health on quality of life of these children.the data obtained was statistically analyzed using pearson's correlation test to correlate the parental perception to the caries experience of the child as well as their socioeconomic status.

Results: A deft value of 3.27(+\-1.543) was found. With respect to socioeconomic classification, 68% of families were in the middle class. A statistically significant correlation was found between def and oral health-related quality of life for the overall score and domains of the questionnaire (p<0.001).

Conclusions: It was found that dental caries had ahigh influence on oral health on quality of lifeof the preschool children and the assessment of socioeconomic conditions of the children's families may guide practices aiming to reducing inequalities in the distribution of dental caries in the population.

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Introduction:-

The association between socioeconomic conditions and dental cariesprevalence has been observed in several studies.[1] Researchers have found that people living in precarious socioeconomic conditions are more favorable to be exposed to risk factors that influence oral health conditions, and this is directly related to quality of life, not only in functional domains, but also in its social and psychological ones.[2] The environment in which children live and grow up has also been reported as influencing their health behaviors and their perception of oral health.[3] Oral health problems has been increasingly recognized as important factors causing a negative impact on dailyperformance and quality of life because they influence how people grow, enjoy life, speak, chew, taste food, and socialize[4]

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Most studies on evaluation oral health status were carried out using only clinical measures, however, oral health-related quality of life (OHRQoL) instruments should be used in conjunction with them.[5] Adult's and children's perceptionof health conditions takes place in a different way and in the case of children that accuracy varies with cognitive capacity for each group of children. This ability may vary according to the stage of emotional development, language or social environment of the child. Moreover, the socioeconomic and cultural conditions in which children were born and grew up may also influence their perception.[6]

Tooth decay can exert a negative impact on activities of daily living and, consequently, quality of life.[7]The main purpose of this study was to evaluate the parental perception and influence of oral health related quality of life of preschool children in Bangalore, Karnataka using Early Childhood Oral Health Impact Scale (ECOHIS) and associate it with socioeconomic profile of households.

Material And Methods:-
The research protocol was approved by the Department of pedodontics, A.E.C.S. Maaruti Dental College and Research Centre,Bangalore.To perform this cross-sectional observational research the target population consisted of 100 preschool children of Bangalore, Karnataka. Informed consent was obtained from the parents or guardians prior to the survey which included 57 boys and 43 girls.

Clinical examinations were performed by a calibrated examiner. The preschool children were examined seated on chairs under natural light and examined with mouth mirrors and CPI (Community Periodontal Index) probes. The clinical examinations used for observation of the mean number of decayed, extracted or filled teeth (deft index) were performed according to the criteria established by the World Health Organization (WHO). The Early Childhood Oral Health Impact Scale (ECOHIS) was used to assess oral health-related quality of life of the preschool children. ECOHIS consists of 13 item questionnaire which were considered to be the most relevant to evaluate the impact of oral health on quality of life of preschool children.[8]The ECOHIS was answered by the parents or guardians of the children, assessing their perceptions about the influence of oral health on quality of life of the children in preschool age.The responses options are listed in codes ranging from 0 to 5, where code 0 = never, 1 = hardly ever, 2 = occasionally 3 = often,4 = very often 5 = dont know. The amount scores and domains were calculated from the sum of the reply codes. The responses "dont know" werecounted, but were excluded from the sum to calculate the amount score and by domain of each patient. The minimum score obtained in the questionnaire was zero corresponding to no influence of oral health on quality of life and themaximum was 52 where there was strong influence of oral health on quality of life of children.The socioeconomic status of the family was assessed by Kuppuswamy(2012)[9] scale. The Pearsons correlation test was used for comparison of deft according to age,with the oral health-related quality of life and socioeconomic classification as well as to relate the results of oral health-related quality of life with the socioeconomic.

Results:-
Table 1:- Socioeconomic status based on Kuppuswamy scale (2012).

Socio economic status	Frequency	Percent
Upper middle	26	26.0
Middle/lower middle	68	68.0
Lower/upper lower	6	6.0
Total	100	100.0

Table 2:- Intragroup Comparison of deft of different age groups.

Age	N	Mean deft	Sd	Median	Min.	Max.	'f' value	'p' value
3yr	24	2.17	.868	2.00	1	4	**18.131**	**<0.001**
4yr	42	3.10	1.478	3.00	1	10		
5yr	34	4.26	1.399	4.00	2	8		
Total	100	3.27	1.543	3.00	1	10		

Table 3:- Evaluation of ECOHIS questionnaire scores.

Age	Questionaire score		Total	χ2 value	'p' value
	Strong impact	**Medium Impact**			
3yr	24	0	24	**3.649**	**0.161**
	100.0%	0%	100.0%		
4yr	40	2	42		
	95.2%	4.8%	100.0%		
5yr	30	4	34		
	88.2%	11.8%	100.0%		
Total	94	6	100		
	94.0%	6.0%	100.0%		

Table 4:- Correlations of deft with the ECOHIS questionnaire scores.

Age	N	Mean deft	Questionnaire score		Corelations deft vs questionnaire Score	
			Strong impact	**Medium Impact**	**Pearson correlation**	- 0.212
3yr	24	2.17	24	0		
			100.0%	.0%		
4yr	42	3.10	40	2	**'p' value**	0.0310
			95.2%	4.8%		
5yr	34	4.26	30	4		
			88.2%	11.8%	**N**	100
Total	100	3.27	94	6		
			94.0%	6.0%		

Table 1 summarizes the socioeconomic status of the children classified using Kuppuswamy scale , it was found that 26% belonged to the upper middle class family,68% belonged to the middle/lower middle class families and only 6% belonged to the lower/upper lower class families. It was noted that none of the children in the study belonged to upper class or lower class families.Table 2 summarizes the deft scores of the children. They have been divided according to their age groups which interpreted that 3 year old children had a mean deft score of 2.17(+\- 0.68);4 year old children had a deft value of 3.10(+\-1.47). The prevalence of caries was highest in 5 year old children with a deft score of 4.26(+\-1.39). No significant differences was seen between the groups. Table 3 shows that 94% of children had a strong impact of oral health on quality of life, 6% children had medium impact and no children had a weak impact on the oral health quality of life.Assessing the correlation deft and oral health quality of life, Table4 shows that all 24 children who were 3 years old had a mean deft score of 2.17 had strong impact of oral health on quality of life. Among the 42 children who were 4 years old, and who had a mean deft of 3.10,40 children had a strong impact and 2 childen had a medium impact of oral health on quality of life. Among the 34 children who were 5 years old and who had a mean deft of 4.26, 30 children had a storng impact and 4 children had medium impact of oral health on quality of life. A Pearson co relation test was done to correlate the mean deft score among the children and their parental questionnaire score which provided a value of -0.212 indicating a negative correlation.

Discussion:-

In order to evaluate the prevalence of dentalcaries deft caries index was used. It has been reported that when there is a large number ofcases concentrated in a small group of individuals exist aphenomenon known as polarization.[10]This phenomenon isexpressed in the concentration of greater burden of diseaseand treatment needs in a small portion of the population (20-40%), whereas most the children presents caries-free (40-60%),may be reflecting the measures of prevention and control ofdental caries, based on solid population strategy, in whichmoved from a situation of high prevalence of the disease for alarge percentage of caries-free individuals[11.] In this sense, thegreater vulnerability to injury is associated with intenseexposure to risk factors and social deprivation. In some

studies,it was emphasized that the prevalence of dental cariesdecreased as socioeconomic level increased, even in areaswithout the addition of fluoride to public water supply.[12]

In order to quantify the extent which oral healthproblems interfere on daily life and well-being of people, researchers developed instruments of oral health-related quality oflife to assess the impact of oral health in the physical andpsychosocial development. Children, as well as young adultsare also affected by several oral health problems, which havethe potential to compromise the well-being and quality of life of them.[13]The ECOHIS wasdeveloped for use in epidemiological studies aiming to evaluate the influence of oral diseases and treatment on preschool children's quality of life. It considersthe experience of oral diseases and dental treatment of thechild's lifetime with the answers provided by parents.[14]There are few studies in the literature regarding the influenceof oral health on quality of life of children in preschool age.This research found a greater influence of oral health on qualityof life in the domains' symptoms and anguish of parents andlower means on self-image and family function.

The maximumscore obtained in the questionnaire was 32 points.In this study the domains with the highest means weresymptoms and functional limitations, which demonstrate thatthe influence of oral health on quality of life of children canbe perceived by parents/guardians, when there are symptomssuch as pain and limitations in daily activities such as speechand feeding. These results highlight the need to promote healtheducation activities with parents or guardians of preschoolchildren in order to raise awareness about the importance ofmaintaining a healthy primary dentition both for oral healthand general health of children in this age group. Similarly, Pahel et al. found that the highestaverage of the influence of oral health on quality of lifedomains were registered in symptoms, followed by functionallimitations and emotional well-being. Children who hadhigher caries experience reported greater influence on qualityof life that children who had lower caries experience.[7] In aresearch conducted by Abanto et alwith preschoolchildren using the ECOHIS, parents reported greater impactrelated to the child's subscale (69.30%) than with family'ssubscale (30.70%).[14] Parents reported no influence of oral healthon quality of life in 40.10% and in 59.90% of children inchild's subscales and family's subscale respectively. Themaximum score of 30 was recorded at child's session and 12on family's session.A recent study conducted in the city of Diamantina,MG, Brazil showed that in the child impact section, "pain inthe teeth, mouth or jaws" was the most frequently reporteditem by the parents (21.5%) and in the family impact sectionthe most frequently reported item was "felt guilty" (14.2%).[15]

However, Li et al. revealed that themajority of parents reported a weak impact of oral health onquality of life of their children before they perform dentaltreatment, and according to the parents, the same childrenhad dental problems that required treatment .[16]According to Baldani et al,the assessment ofsocioeconomic conditions allows to consider possibleetiologic factors of social inequalities such as income,educational attainment and housing conditions.[17] Knowledge of these data allows a reorientation of healthcare and public spending on prevention and care activities,enabling a fair distribution of available resources, providingmore resources to those groups with the greatest needs.

Epidemiological studies have been conducted to evaluatethe relationship between oral health and socioeconomicconditions and have been observed that low socioeconomicstatus is related to higher prevalence of dental caries. Thereason for the association between oral health andsocioeconomic status is reasoned on the fact thatsocioeconomic status determines access to resources thatdetermine the distribution of oral health, as well as, behavioralfactors and consumption of sugar among them: toothbrushing,preventive activities and regular dental visits.[18]Meneghim et al. showed that income,education level, housing conditions and socioeconomic statushave a significant relationship with higher prevalence ofdental caries.[19]The present study found inverse relation between oralhealth-related quality of life and socioeconomic conditionswhere children from middle socioeconomic conditions alsodemonstrated higher influence of oral health conditions onquality of life. These results indicate that people living inlow socioeconomic conditions have worst oral healthconditions due to exposure to risk factors interfering withtheir quality of life. Similarly, a study conducted with brazilian schoolchildren found that higher impacts onCOHRQoL were observed for children presenting withuntreated dental caries. Socioeconomic factors were alsoassociated with COHRQoL, as poorer scores were reportedby children whose mothers had not completed primaryeducation (RR 1.31; 95% CI 1.17-1.46) and those with lowerhousehold income (RR 1.17; 95% CI 1.05-1.31).[2]A study developed in Canada withschoolchildren demonstrated that in children from higherincome backgrounds, mean CPQscores were low, closeto the minimum score of 10, irrespective of the presence orseverity of oral diseases and disorders.[20] For children fromlower income backgrounds, those free of oral diseases anddisorders also had relatively low scores. However, scoresincreasedsignificantly in the presence of oral disease.

Thissuggests that oral health problems have less perceived impacton high income children, but a more marked impact onchildren from low income environments.[3]

The questionnaires to evaluate oral health-related qualityof life of preschool children can be a valuable instrument todemonstrate the perception of parents about the oral healthof their children and to guide the oral health attention ofthis population group.The present study identified a strong impact, statistically significant relationship of oral healthon quality of life of preschool children examined from theperspective of parents and verified socioeconomic inequalitiesassociated with oral health related quality of life of the children.

Conclusion:-
The present study showed that increase in dental decay led to poor quality of life in children and the need of planning educational activitieswith parents about the importance of taking care of the primaryteeth as well as the low capacity of the health system to treatpeople of this age group. The assessment of perceived needsby the use of quality of life questionnaires as well associoeconomic parameters can assist the planning of oral healthprograms aiming the reduction of unnecessary and unavoidableinequalities in the distribution of dental caries in populationsof different socioeconomic conditions.

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