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*RESEARCH ARTICLE*

# EARLY CHILDHOOD CARIES AND INFANT ORAL HEALTH -KNOWLEDGE, ATTITUDE, PRACTICES AMONG PEDIATRICIANS AND GENERAL PRACTITIONERS IN UDUPI DISTRICT

**Dr. Barkathunnisa, Dr. Shreya M.S, Dr. Anusha[1], Dr. Athira P.K[1], Dr. Anandhu Krishnan E.[2], Dr. Krithika Shetty[1], Dr. Kushal V. Shetty[2] and Dr. Sowmya B.[3]**

1. Postgraduate Student, Department of Pediatric and Preventive Dentistry AJ Institute of Dental Sciences Karnataka.
2. Reader, Department of Pediatric and Preventive Dentistry, AJ Institute of Dental Sciences Karnataka.
3. Professor and Head, Department of Pediatric and Preventive Dentistry, AJ Institute of Dental Sciences Karnataka.

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## *Abstract*

**Background:**Dental caries is a multifactorial microbial infectious disease characterized by demineralization of the inorganic and destruction of the organic substance of the tooth. Early Childhood Caries(ECC) affects children at the early stages of development and can have a detrimental effect on their growth and development. Pediatricians are the first healthcare personnel that children come in contact with and should be trained to identify and screen dental caries cases and refer to the concerned dentist at the earliest.

**Objectives:**The objectives of the study were to assess the level of Knowledge, Attitude and Practices related to Early Childhood Caries among Pediatricians in Udupi District.

**Material and Methods:** A prospective study was conducted among Pediatricians in Udupi district, a 20-item google form questionnaire was sent by means of social media (Whatsapp). The responses obtained were used to assess their knowledge, attitude and practices.

**Results:**The results of the study show that the pediatricians have good knowledge with respect to ECC, but need to improve on their attitude and practice with relation to ECC.

**Conclusion:** Based on the findings of this study, it was proven that Pediatricians have adequate knowledge with regard to ECC.



## Introduction:-

Dental caries" is an important public health problem and it is the most prevalent oral disease among children, which is five times more common than asthma and seven times more common than fever.[1] It is caused by the interaction of bacteria, mainly Streptococcus mutans, and sugary foods on tooth enamel. S. mutans can spread from mother to baby during infancy and cause Early childhood caries which begins soon after tooth eruption; These bacteria break down sugars for energy, causing an acidic environment in the mouth and result in demineralization of the enamel of the teeth initially on smooth surfaces, progressing rapidly, with early involvement of pulp affecting the primary teeth of infants and toddlers.[1] This disease not only causes damage to the tooth but also has a major effect on a child's quality of life.

**Corresponding Author:- Dr. Barkathunnisa**
Address:- Postgraduate Student, Department of Pediatric And Preventive Dentistry AJ Institute of Dental Sciences Karnataka.

The etiology of ECC is multifactorial with biological, genetic, behavioral and social modifying factors. Poor infant feeding habits such as Bottle-feeding during night, poor eating habits such as diet with high sugar consumption, and frequent snacking in between meals, inadequate oral hygiene practices, lack of parental awareness regarding their children oral health, low socioeconomic status and lack of access for dental care were all reported as risk factors for ECC (C¸ olak et al., 2013).[2] If left untreated ECC might lead to adverse effects on children's physical, psychological and social well-being, as the associated dental pain and tooth loss can negatively influence children's nutrition, phonetics, socializing and sleeping.

As a result, ECC must not be neglected and preventive dental measures for children's oral health should be considered. Prevention of caries includes Early diagnosis, oral hygiene instructions, dietary advice, fissure sealants and fluoride varnish application. Education of parents and caregivers is also an important preventive arm. The initiation and the application of these preventive measures are significantly associated with the child's first dental visit, which is recommended within 6 months of the first primary tooth eruption and not later than 12 months (Anand et al., 2017).[2]This first dental visit encourages parents to establish a dental home and allows the dentist to use anticipatory guidance to reduce the risk for caries and gingival disease.

However, lack of parental awareness regarding the importance of the child's first dental visit often delays the access to dental care until unless child complains of tooth pain. On the other hand, children in their first years of life are often seen more by family physicians or pediatricians compared with dentists. In that context, children were found to be seen by the physician on an average of 11 times by the age of three years old (Anand et al., 2017).[2] If proper counsel regarding the child's development and eruption of teeth as well as guidance for prevention of various oral diseases is rendered at this age, better oral and general health can be obtained for these children. Thereby, it is preferable for the physicians to possess the fundamental dental understanding to unmask signs and symptoms of dental diseases. The role of pediatricians in oral health was formalized in a policy issued by the American Academy of Pediatrics (AAP) in 2003, Oral Health Risk Assessment Timing and Establishment of the Dental Home, which Recommends that pediatricians and other pediatric primary care providers should incorporate screening.[3]

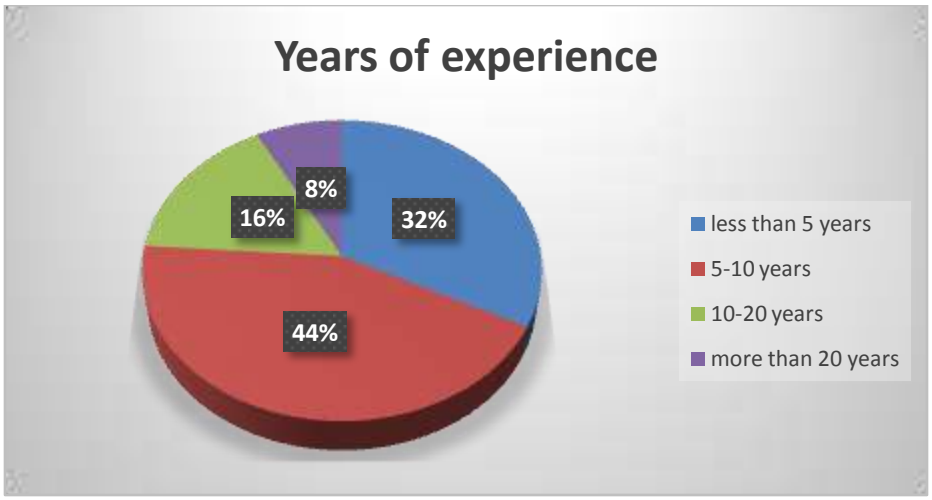
Even though they are the first health professionals in contact with parents of infants and infants, some authors have felt that they are not well informed about dental health and do not appropriately refer children with dental disease. Therefore, the aim of the current study is to assess pediatricians' and family physicians' knowledge, attitude and practice towards infants' oral health and Early Childhood Caries.

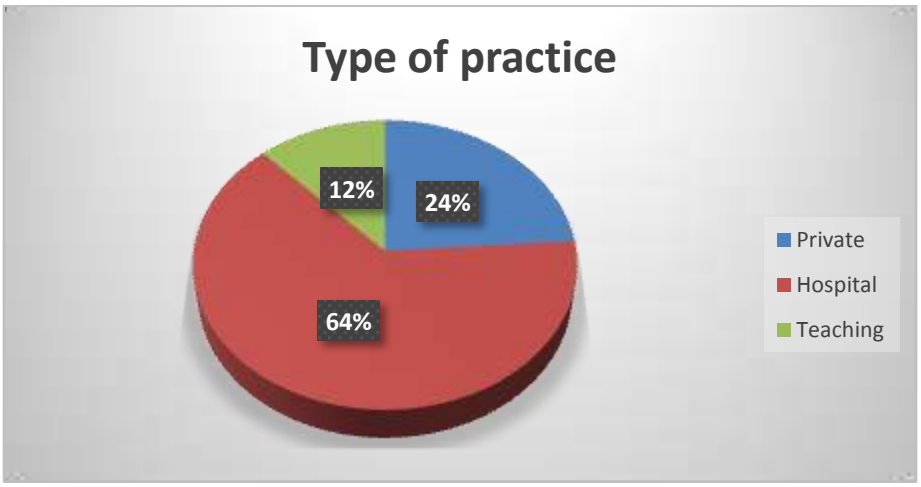
## Materials And Methods:-

Present survey was undertaken among the Pediatricians of Udupi district. A simple random sample of 120 Pediatricians was selected out of which only 116 actively participated in the study. A questionnaire was prepared using google forms and sent to the participants via social media (Whatsapp). Only participants who consented to the study were included. The questionnaire had 20 questions to assess the personal details, knowledge about ECC, attitude towards its prevention & practice approach regarding ECC. The first part of the questionnaire included demographic details like gender, age, years of experience and type of practice. The knowledge portion included questions about dental health promotion, age of first tooth eruption, frequency of dental visits and ECC. The attitude of Pediatricians was assessed by their knowledge about first dental visit, dental examination in first year of life and advising the parent for dental checkup of children. The awareness about ECC was assessed by asking question about recommendation of oral hygiene practices for infants and nutrition counselling to prevent ECC. The maximum score was given to the correct answer and minimum was given to incorrect answer. The responses obtained were subjected to statistical analysis.Descriptive statistics wereobtained using IBM SPSS Statistics software version 23.

## Results:-

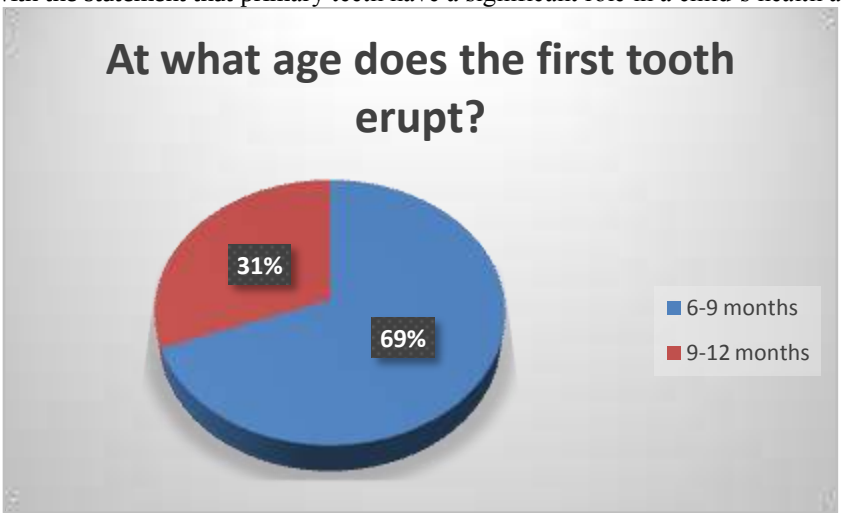
The present study involved 53% male and 47% female participants. The most pediatricians involved in the study were aged between 30-40 years (41.9%) followed by 20-30 years (39.3%), 40-50 years (13.7%) and 50-60 years (5.1%).

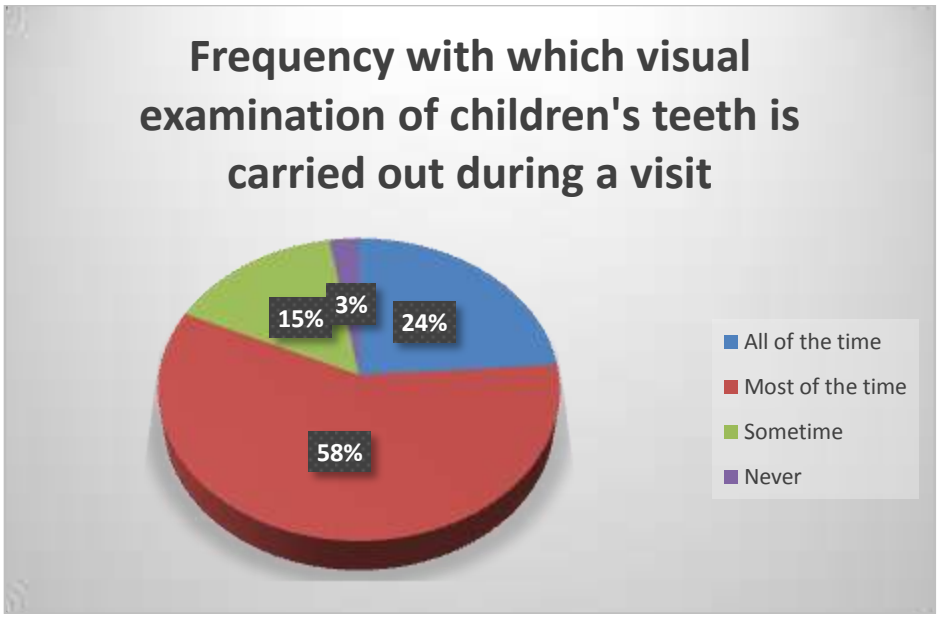


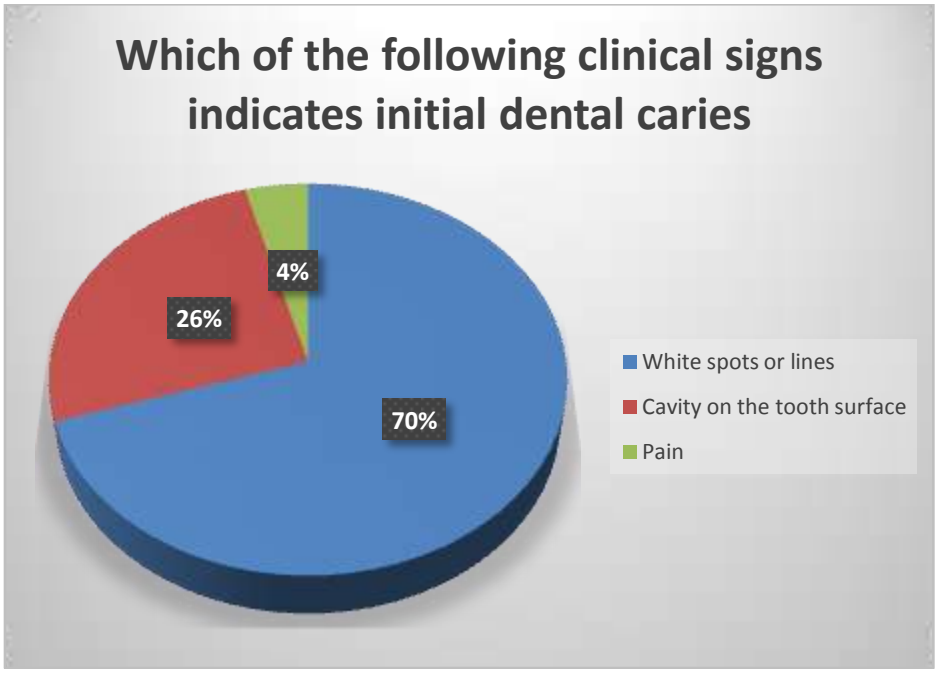

Majority of the participants have between 5-10 years of experience treating children (43.6%) followed by less than 5 years (32.5%), 10-20 years (16.2%) and 7.7% had experience of greater than 20 years. Of all the participants, 64.1%participants followed a hospital, practice private practice was followed by 23.9% and 12% followed a teaching practice.

When asked if pediatricians have a role in promoting oral health, 97.5% agree with this statement.97.5% of the participants agree with the statement that primary teeth have a significant role in a child's health and development.

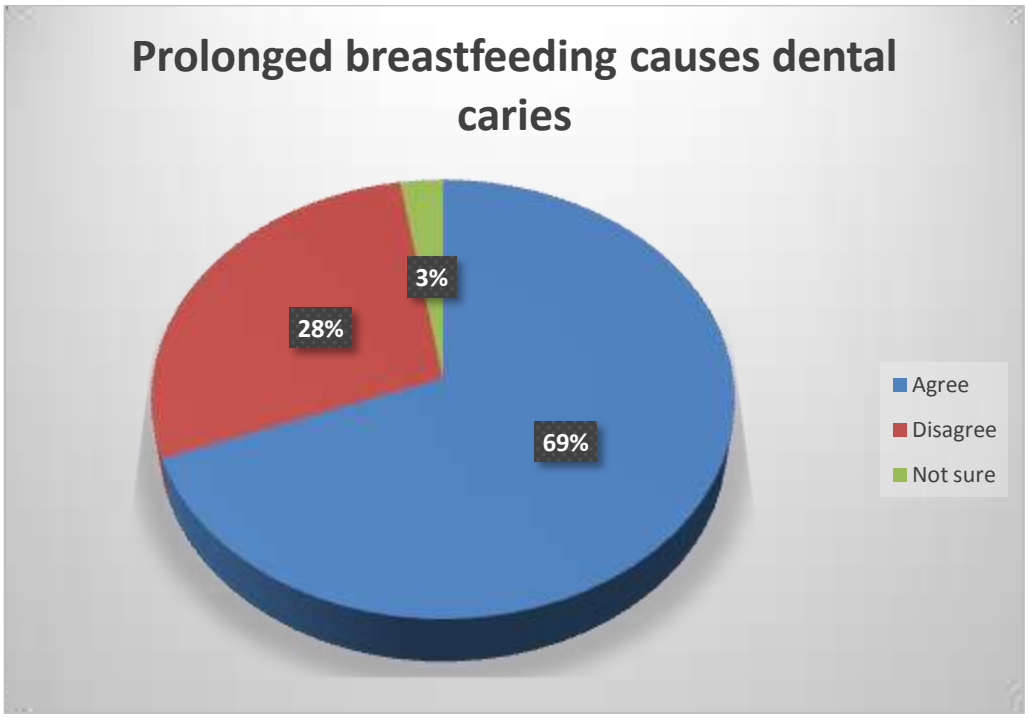




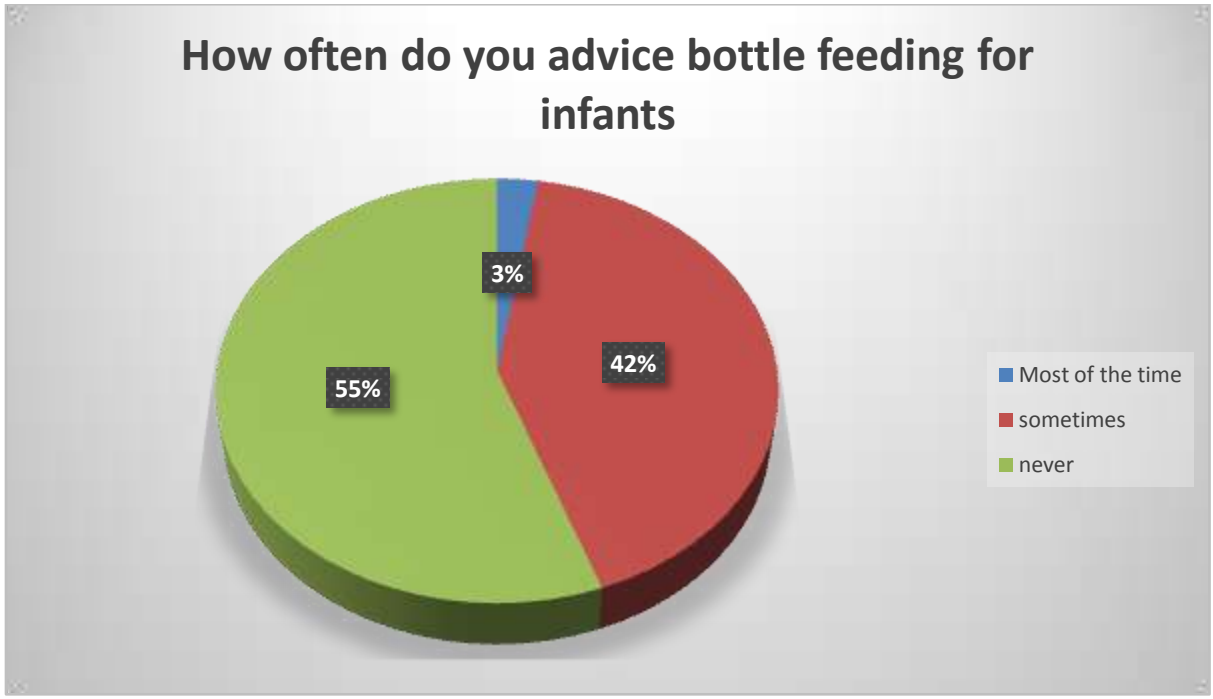

When quizzed on what age children erupt their first tooth, 69.2% of the participants answered that children erupt their first teeth at 6-9 months and the remaining 30.8% answered 9-12 months.The participants were asked at what frequency they perform a visual examination of teeth during a child's visit to the clinic and a majority (58.1%) answered that they perform an oral visual examination most of the time which was not the desired answer.When asked whether parents should start cleaning their children's oral cavity from the time of birth after every feed, a majority of the participants (64.1%) answered Yes.100% of the participants answered that they were aware of early childhood caries in children.



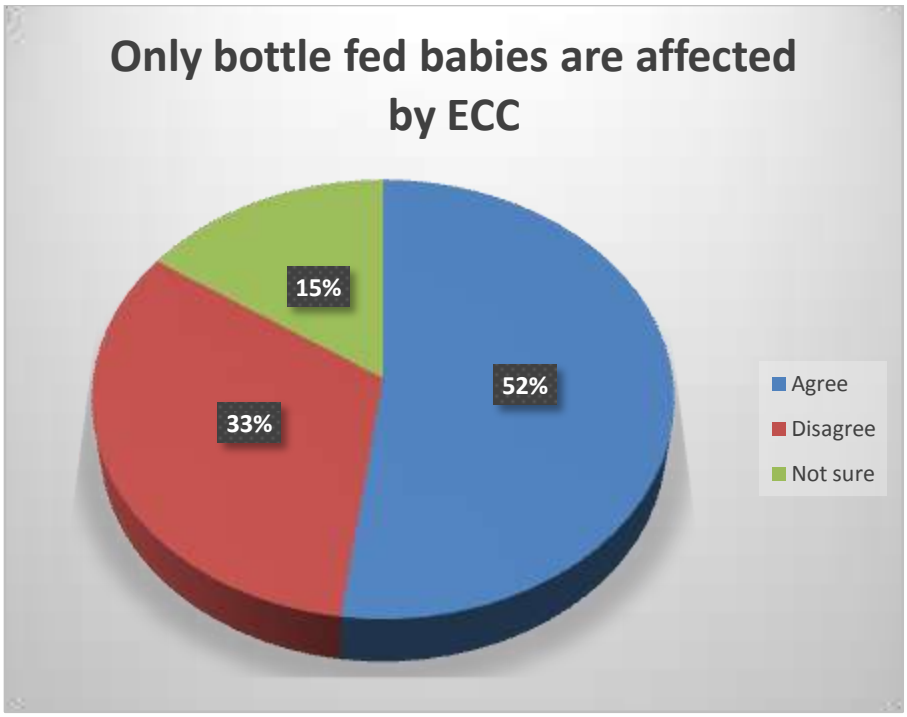

When quizzed on which of the given clinical signs indicated Initial dental caries, 70.1% of the participants responded with white spots or lines followed by cavity on the tooth surface (25.6%) and pain (4.3%).The participants were asked whether dental decay causing bacteria could spread from mother to child, 76.1% of the participants agreed with this statement.




69.2% of the participants agreed with the statement that prolonged breastfeeding causes dental caries, 28.2% disagreed with this statement and 2.6% were not sure about their knowledge on the statement.




When asked whether they advise bottle feeding for infants, 55.6% of the participants answered that they never advise it, 41.9% sometimes advise it and 2.6% advise it most of the time.99.1% of the participants agreed that Bottle-feeding and sleeping with a bottle can cause dental decay.




The participants were asked if only bottle-fed babies were affected by E.C.C, 52.1% agreed with this statement, 32.5% disagreed with this statement and 15.4% of the participants were not sure their knowledge on the statement.100% of the participants agreed with the statement that Untreated dental decay affects the general health of children.


When quizzed on what steps the participants take when a child is identified with tooth decay, 54.7% of the participants answered that advice parents to take the child to the dentist, 23.1% answered that they would suggest or prescribe treatment and 22.2% answered that they would make a formal referral to a dentist.72% of the participants answered that the recommended age for a child's first dental visit is less than 1 year followed by the remaining 28% answering 1-2 years. 57.3% of the participants answered that they offer nutritional counselling to prevent ECC offered in your practice and 42.7% did not offer counselling to prevent ECC.

## Discussion:-

Dental caries has been shown to be a global problem to individuals of all ages, but it has particularly deleterious effects on children. Pediatricians are the first contact to healthcare that children have and they can help in the control of ECC.The present study was a cross sectional questionnaire study to ascertain the knowledge and attitude of pediatricians with regard to Early Childhood Caries. The study garnered the response of 116 doctors of various types of practices.

The results of the study point at a good amount of knowledge of paediatric doctors toward Early Childhood caries. The attitude of the doctors toward dental health leaves space for improvement as the possible damage caused by ECC can have a very detrimental effect on the future oral health of the Child.The results of the present study are an improvement to the results of the study conducted by Rao DG in 2018 which suggested that medical practitioners had a moderate knowledge and attitude toward pediatric dental care.[4]

In a study conducted by Dima S in Taiwan, Pediatricians were found to lack ECC-related knowledge; however, they had a more positive attitude toward medical office-based prevention when they had a higher level of knowledge. A lack of time and confidence among pediatricians were significant factors that deterred them from providing caries prevention fluoride treatments to children. The present study shows that Pediatricians have a good knowledge of ECC but the present study did not account for attitude toward office.[5] Gupta SK conducted a study in North India which assessed the knowledge, attitude and awareness pediatricians toward ECC and oral health. The results of the study showed that the participants had poor knowledge regarding ECC, oral health and dental treatment needs in children. The results of the present study are not in accordance with these results and show good knowledge among pediatricians.[1]A study conducted by Alshunaiber R which assessed the Knowledge, Attitude and practice regarding ECC among pediatricians and family doctors. The results of the study concluded that the participants had good knowledge and attitude but lacked practice and also reported that a reduced amount of clinical time to be the reason for this. The results of the present study are in accordance with these results as the participants showed a lack of dental related practice in their interactions with children.[2]

Sonbol H et al conducted a study among medical students and their exposure, knowledge and attitude toward ECC and showed a very poor knowledge among the participants. The present study involves mainly pediatricians with experience and could be the reason for the good knowledge scores.[6]Goyal A conducted a study among pediatricians regarding the oral health care in children and the results showed good knowledge in some aspects of dental care but very poor knowledge in aspects like recommended age to start tooth brushing, maximum recommended sugar exposures per day and recommended fluoride concentration in toothpaste for children.[7]A scoping review was conducted by Dickson-Swift V in 2020 and it concluded that pediatricians have limited knowledge and understanding in critical areas, including; initial clinical signs of dental caries, recommended age for first dental visit, the transmission of bacteria from mother to child in the etiology of dental caries, and recommended use of fluorides. Barriersto oral health practice for pediatricians include inadequateeducation and training, time constraints in practice, lackof referral pathways, and cost implications that are oftencompounded by complicated medical/dental insuranceschemes.[8]

A study conducted by Sundas S in 2021 evaluating the knowledge and practice of Early Childhood Caries among Nepalese pediatricians and gynecologists and reported moderate knowledge and attitude about childhood caries but shows a lack of knowledge in harmful effect of prolonged breast feeding, vertical transmission of oral bacteria and importance of healthy oral health in expecting mother for prevention of dental caries in children.[9]

The results of the present studyshow that pediatricians possess good knowledge with regard to ECC but do not have practical experience with respect to dental health of children. Educating pediatricians of the different oral and systemic problems associated with ECC and prevention of these problems with the help of measures like early and regular oral health check-ups, interventions like fluoride application could help in improving the dental status of children. Awareness of the sugar content in prescription syrups which are given to children can help in reduced incidence of over prescribing which will help in reduced levels of caries in children. The results of the present study can set the precedent for the need of educating students at bachelor of medicine level in the basic oral health and the early identification of dental caries in children that can then be further investigated and treated by a pedodontist or even a general dentist.

The AAPD recognizes early childhood caries as a significant chronic disease resulting from an imbalance of multiple risk and protective factors over time. To decrease the risk ofdeveloping ECC, the AAPD encourages professional and at home preventive measures that include avoiding frequent consumption of liquids and/or solid foods containing sugar, in particular: a. sugar-sweetened beverages in a baby bottle or no-spill training cup. b. ad libitum breast-feeding after the first primary tooth begins to erupt and other dietary carbohydrates are introduced. c. baby bottle use after 12-18 months.[10]

Implementation of oral hygiene measures, no later than the time of eruption of the first primary tooth. Toothbrushing should be performed for children by a parent twice daily, using a soft toothbrush of age-appropriate size. In children under the age of three, a smear or rice-sized amount of fluoridated toothpaste should be used. In children ages three to six, a pea-sized amount of fluoridated toothpaste should be used. Providing professionally-applied fluoride varnish treatments for children at risk for ECC. Establishing a dental home within six months of eruption of the first tooth and no later than 12 months of age to conduct a caries risk assessment and provide parental education including anticipatory guidance for prevention of oral diseases. Working with medical providers to ensure all infants and toddlers have access to dental screenings, counseling, and preventive procedures and educating legislators, policy makers, and third-party payors regarding the consequences of and preventive strategies for ECC.[11]

One of the major reasons for the reduced incidence of oral health inspection among pediatricians has been reported to be limited amount of time that is expended on each patient which naturally leads to oral health being of low priority. Training of the pediatricians in this regard can help them in realizing the short amount of time necessary to do a basic oral examination and further referral to a pedodontist to resolve any established dental problem.There is a vast amount of evidence that states that in cases of ECC, first year of life is critical for successful treatment which makes understanding the severity of the disease a very important factor.[12,13] Educating parents against using baby bottles for extended periods and providing sugary diets to children should be stressed on to prevent ECC from ever occurring. These methods help in reducing the burden of ECC and its negative effects on the quality of life of the child and in instilling a positive attitude toward dentistry as they will not need to undergo any form of comprehensive treatment at a young age when they cannot comprehend its importance.

## Conclusion:-

Dental caries is a non-communicable disease which can affect the dentition at any age and it has life long effects when children are afflicted by it. Pediatricians can play a major role in oral health promotion of a child by encouraging parents to consult a pedodontist or general dentist when the child has reached an age of close to a year. By these means, pedodontists and pediatricians can both work in tandem to improve the dentition status of children and reduce the incidence of ECC.

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