

Are Health Promotion Education Interventions Effective At Preventing Dental Caries In Pre-school Children 0-5 Years Old?



Table of contents

Abstract	3
Introduction	4
Aims of the study	5
Literature review	6
Methodology	9
Results and findings	11
Risk factors for developing early childhood caries	13
Oral health promotion interventions	14
Gaps in the literature	16
Conclusion	16
References	18



Dissertation
Help Services

ABSTRACT

More children in rural areas have dental decay than in metropolitan areas, according to a new study. Poor fluoridation of municipal water supplies is possible. We wanted to see if a community-based programme for better dental health in kids might be evaluated. Two of the three local governments in the study were given the experimental treatment, while the third was given the standard of care. Despite the several components of the intervention, the main objective was to encourage early exposure to fluoridated toothpaste by delivering an oral health beginning kit to parents during their child's 7–8-month health check by mother and child health nurses (MCHNs). For the first five years of their lives, the youngsters were closely monitored. Fluoride supplementation in the second year of life through local MCHNs may be useful in avoiding dental caries, but older children who have less contact with MCHNs may not benefit from this strategy.

What is known about this subject already?

- Dental caries is one of the most frequent long-term conditions, even in children.
- There is a higher incidence of dental caries among children in rural settings compared to those living in metropolitan areas.
- Fluoride exposure can help prevent dental cavities before they develop.

What is this paper able to add?

- This study contributes to the limited body of knowledge about newborn and toddler oral health.
- According to these findings, nurses working in child and maternal health settings are well-suited to promote good oral health among their patients.
- Fluoridated toothpaste can help keep young children's teeth healthy by encouraging their parents to use it as early as possible.

INTRODUCTION

Mutans Streptococci (MS) are acid-producing bacteria that dwell in the mouth and feed on carbohydrates, causing dental caries, generally known as tooth decay. Caries occurs as a result of tooth demineralisation due to the acid created over time. Early childhood caries (ECC) is a term used to describe aggressive tooth decay in children (Selwitz, Ismail, & Pitts, 2007). Dental decay can be prevented by brushing teeth twice a day, drinking fluoridated water, and avoiding sugary meals and beverages (Satur et al., 2010). Dental caries can be greatly exacerbated by poor oral hygiene and dental care, such as not brushing teeth with fluoride toothpaste or not seeing a dentist on a regular basis. Poor oral health is linked to a person's socioeconomic status and living in a region that does not fluoridate its drinking water (Harris et al., 2004).

Early Childhood Caries (ECC) is a type of caries that affects the teeth of infants and young children (Ministry of Health, 2008a). According to the American Academy of Paediatric Dentistry, "any evidence of smooth-surface caries in children younger than three years of age is indicative of severe ECC". Despite the fact that early childhood caries (ECC) most usually affects the upper front teeth (Ministry of Health, 2008a), it can strike any tooth in the mouth. When it comes to ECC, it's comparable to the elements that raise a person's risk of acquiring caries later in life (Ashkanani & Al-Sane, 2012). Although ECC can have an impact on any community, children from low-income families are particularly vulnerable and so have a higher prevalence than children from higher-income families,

Aside from being the most common chronic childhood illness, dental caries have a significant impact on the health and well-being of the child. This is because the condition can cause pain, tooth loss, sleep disturbances, and even speech difficulties. Despite improvements in oral health care, new research shows that the prevalence and incidence of caries among children in wealthy countries are on the rise. ECC, or early childhood caries, is a highly contagious illness that primarily affects children under the age of five years old. ECC appears to be more prevalent in low-income families and among ethnic minorities among children under the age of five, but it's impossible to know for sure based on current research.

People of all ages are affected by poor dental health, which is a public health problem. Those who have poor oral health in childhood are more likely to have poor oral health in adulthood since dental caries can occur at any age (Kawashita, Kitamura, & Saito, 2011). According to an earlier study, ECC has been related to a number of health concerns, including diabetes and cardiovascular disease. (Kawashita and colleagues, 2011) Increasing oral health is a high concern

for the World Health Organization (WHO) because it affects both individuals and the general population (World Health Organization, 2015).

Oral health promotion methods can help prevent dental caries at an early age. That early childhood care and education have roots in the first year of life are supported by research, which suggests that this is the best time to implement the strategy. Dentists rarely treat children under the age of two, unlike many other health care practitioners. MCHNs see children and their families an average of 14 times in the first year of life. A fantastic way to teach new mothers about the need for proper oral hygiene is to take them to the dentist with you. In recent studies, non-dental health care practitioners, notably MCHNs, have been found to play an important role in disease prevention and oral health promotion programmes. Researchers set out to see if a community-based initiative may help reduce dental caries among young children.

AIMS OF THE STUDY

Evidence from throughout the country and around the world will be gathered in this review to support:

- Oral health promotion in early childhood and social marketing: the impact of diverse activities
- Parents' and caregivers' comprehension of the significance of oral health for young children, as well as their corresponding beliefs and practises in this regard.



LITERATURE REVIEW

Because the scope and outcomes of these studies are so varied, a narrative evaluation of the literature will be used instead of a systematic review (CEBD, 2015). In contrast to meta-analyses, narrative literature reviews do not gather and synthesise data from several sources. A broader view of the subject is provided rather than a narrow focus in this form of research. Tobacco and alcohol use, a sugary diet, and a grazing lifestyle have all been related to an increased risk of dental decay and caries (Harris, Nicoll, Adair, & Pine, 2004). Poor dental hygiene, such as not brushing with fluoride toothpaste and not seeing a dentist on a regular basis, can dramatically increase your chance of acquiring dental caries. A person's socioeconomic standing and whether or not they live in an area with non-fluoridated drinking water also affect their vulnerability to dental caries and poor oral health (Harris et al., 2004).

A total of four studies and two questionnaires have been undertaken on the dental health of preschool-aged children, respectively. According to these studies, preschoolers aren't well-versed in dental hygiene. Schluter and colleagues conducted an investigation examining the oral health habits of Pacific Island children and their mothers in South Auckland, New Zealand (Schluter, Durward, Cartwright, & Paterson, 2007). Only 47% of moms reported their kids brushed their teeth at least once a day and 47% of moms said they watched their kids clean their teeth under their supervision (Schluter et al., 2007). As a result, 31 per cent of children and 54 per cent of moms did not know that enrolling their children in the COHS was completely free (Schluter et al., 2007). Individuals were also asked about their dental hygiene habits in the poll. Approximately one-fifth of the pregnant women in the research received regular dental examinations. Studies show that mothers who don't take their children to the dentist on a regular basis are more likely to have children with dental caries. This is a troubling discovery (Honkala & Al-Ansari, 2005). Women from lower socioeconomic backgrounds were shown to be less knowledgeable about oral health care than their more advantaged counterparts (Rothnie et al., 2012).

According to a study by Rothnie and colleagues, younger and first-time mothers have less knowledge than older mothers (2008). Research is undertaken in other nations also supports these findings (Akpabio et al., 2008; Amin & Harrison, 2009). There was only a 43 per cent confidence among first-time mothers in their knowledge of the dental needs of their children and where to receive treatment when they had their infants, according to the research findings

(Rothnie et al., 2012). 57% of the women who were asked how they would like to get information about their children's dental health decided to get it from a phlebotomist in their area. Approximately 30% of the women selected for general practitioners, 21% of dentists, and 18% of midwives were asked to provide information (Rothnie et al., 2012). Studies of parents' ideas and actions are few and few, with only a few studies focusing on a specific demographic. According to new research, parents' and expectant women's knowledge of preschool oral health has to be broadened. Parents will also learn how and when to begin brushing their children's teeth, as well as where and how to get free or low-cost dental care. It is critical for parents to understand dental hygiene practices, but this awareness does not always translate into action, so researchers must investigate the factors that motivate or hinder parents in their pursuit of healthy oral health status for their preschoolers. What encourages and inhibits preschoolers from practising adequate dental hygiene will be discussed in the following section.

Efforts to improve oral health in children aged 8 to 12 months in England were studied in an intervention experiment (Davies et al., 2002). Participants in a survey were split into three groups, two receiving an intervention and the third serving as a control. For the duration of the study, intervention groups received instructional booklets and fluoride toothpaste every 12 weeks. It was recommended that parents brush their children's teeth twice a day with the toothpaste provided in the instructional brochures. Two different kinds of toothpaste, one with a fluoride concentration of 1450 ppmF and the other with a fluoride concentration of 44 ppmF, were tested (Davies et al., 2002). In both groups, every year, a new toothbrush was given to the test subjects' children. Even those in the "control" group were not given toothbrushes or toothpaste. Over the course of two years, participants in the high-strength intervention group saw their scores improve. When compared to the control group, those in the high-strength intervention group slept fewer days per week on average. Significantly fewer caries was seen in high-strength intervention individuals than in low-strength intervention participants (Davies et al., 2002).

It was shown that giving parents of infants aged 8 to 32 months dental equipment such as a training cup, toothpaste, and toothbrushes, as well as instructional brochures for clinics and medical offices, had a similar favourable effect in a study conducted in the United Kingdom (Davies, Duxbury, Boothman, Davies, & Blinkhorn, 2005). Parents who received dental supplies in the mail saw a large increase in the frequency of cleaning their children's teeth before the age of one year, and this trend continued even after the intervention. Despite the encouraging results, the total compliance rate was low, with less than half of the intervention's parents implementing the target behaviours (Davies et al., 2005).

Researchers have found that decreasing the occurrence of dental caries can be accomplished by providing high-risk children with toothbrushes and toothpaste and requiring them to brush their teeth in the presence of a teacher. Our target audience for this literature review was 5.3-year-olds, on average, between the ages of birth and five (Curnow et al., 2002). Consequently, these findings will be included in the literature review due to their significance. Each child in the intervention group received a toothbrush, toothpaste, and supervision for daily brushing as a way to encourage parents to brush their children's teeth. Dental examinations were performed on-site

at the school six times a year for all students during their two-year study tenure. Newly erupted primary teeth in the intervention group had lower rates of caries than those in the control group (Curnow et al., 2002).

Impact on child's oral health

Early childhood is a key period in a child's development (Watt, Stillman-Lowe, Munday, Plimley, & Fuller, 2001). Poor dental health in children can have a negative impact on quality of life and raise the risk of acquiring other health problems later in life. It is difficult for children with poor dental health to eat, sleep and socialise, making it more difficult for them to learn and grow up healthy (Bach & Manton, 2014). Compared to children who had no decay, those who had at least one nerve-damaged tooth lost an average of one pound (Sheiham, 2006). A child's overall health may be harmed if they have poor dental hygiene. ECC is an indicator of adult oral health, which indicates a higher risk of developing caries in adulthood. – (Riter, Maier, & Grossman, 2008; Van den Branden). Dental caries can be directly linked to a variety of health issues, including cardiovascular disease, type 2 diabetes, and pneumonia (Satur et al., 2010).

Importance of Oral health promotion and education

Promoting people's health and well-being is one way to make a difference in the health and well-being of an entire community (Ministry of Health, 2008b). According to the Ottawa Charter, everyone, not only those at high risk, should be active in addressing the root causes of poor health (Ministry of Health, 2008b). There are a large number of people worldwide that suffer from ECC; however, it is treatable (Rothnie, Walsh, Wang, Morgaine, & Drummond, 2012). Increasing oral health and reducing the prevalence of ECC are two of the most important health promotion goals (Arrow, Raheb, & Miller, 2013). Fluoridation of the water supply and frequent dental examinations are preventable risk factors. ECC and other dental problems can be reduced by addressing these traits (Gussy et al., 2008).

Early childhood dental cavities are best prevented by using fluoride toothpaste (ECC). Only 66 per cent of parents with children between the ages of two and four clean their children's teeth twice a day, despite multiple studies showing the health benefits of brushing more than once a day and the necessity of adults helping their children wash their teeth (Ministry of Health, 2010). Oral health promotion initiatives should emphasise fluoride toothpaste brushing as well as the attention, technique, and care provided by parents and caregivers as part of efforts to educate them about the dangers of ECC and how to prevent it (Ismail, Tanzer, & Dingle, 1997). The foundation of government programmes to improve public health is laid out in documents outlining strategic orientations.

METHODOLOGY

Search strategy

A comprehensive investigation took place between February 23 and March 27, 2022. As part of a comprehensive search of all relevant studies published in English since 1995, databases and web-based searches were used. There is a lot of information available about this hunt. The first electronic database search was carried out by two individuals with academic credentials in public health and library studies; papers that came from this search were then evaluated for relevance. In addition, Google Scholar and the Cochrane Library, as well as relevant paper reference lists, were scoured for further information. There were a thorough search of academic journals, the Ministry of Health, and district health board websites for more information.

Study design and approval

For the 'Country KIDS' study, the purpose was to assess the impact of a fluoride promotion programme in the community compared to normal medical care. The research was conducted by three municipal governments (LGAs). The percentage of children having caries was measured at each of the next three annual visits. This research was approved by the Royal Children's Hospital Ethics in Human Research Committee (Segura et al., 2014).

Study setting and population

It was determined that three local government areas (LGAs) with populations between 10,000 and 15,000 were selected based on socioeconomic indexes, birth rate density, and dentists per capita. The study recruited individuals on an annual basis throughout a three-year period. Prior to the start of their intervention in 2004, each LGA gathered children as controls; therefore, each child was control in that year (Habibian et al., 2001). In the second year of the trial (2005), the two randomly selected LGAs (A and B) served as the intervention arm, while the third LGA

(referred to as C) served as the control arm. An early sign of caries is visible, opaque white lesions on teeth with pre-cavitated lesions. At this point in the disease, the lesions have the ability to remineralise and not become cavitated. The disease has progressed to the point that restoration is necessary.

Four years of paediatric examinations were given to the first group, three years to the second group, and two years to the third group (Habibian et al., 2001). This report summarises the findings from the first three rounds of testing on children ranging in age from one to three years old. At the time of their fourth evaluation, first-wave children aged 4 who hadn't yet received the intervention were excluded. So the study will not include the outcomes of this exam.

Recruitment

A detailed description of the recruitment method for this project has already been provided. MCHNs visited families with 7–8-month-old children and told them about the study. The research team sent a letter to parents explaining the purpose of the study and asking them to join by submitting a tear-off form in compliance with the ethics procedures of the Royal Children's Hospital. Families were contacted by phone when their children were one year old and asked to participate in the study after getting the slip (1 month). Families were only evaluated if they had no plans to move in the near future and had at least one parent who was fluent in English. In the first year of life, children who spent more than a month in the hospital could not take part in the study (Segura et al., 2014).

The intervention

Preceding and following the PRECEDE/PROCEED framework has already been explained. Along with age-appropriate toothbrushes and toothpaste, parents received an Oral Health Starter Kit (OHSK) filled with critical oral health promotion messages gleaned from current research and scientific evidence. It was given to every family in the intervention LGA regardless of whether or not they wanted to participate in the trial during their 8-month "ages and stages" visit from an MCHN. Additional materials were provided to these LGAs for MCHNs attending oral health promotion training programmes, including posters, brochures, and a video/DVD if necessary.

Clinical examination

Families in LGAs A and B were screened for dental health issues at the time of recruitment (age 12–24 months 1 month) at a local community centre each year. A headlamp and a lap-to-lap position were used to check children for dental floss and cotton wool/gauze (Colak et al., 2013). All teeth were assessed using modified British Association for the Study of Community Dentistry (BASCD) criteria.

RESULTS AND FINDINGS

Researchers were able to acquire a wide range of study materials on preschool ECC using the search strategy indicated in the previous section. Researchers have discovered several evident trends and considerable gaps in our present understanding through this study. The outcomes of the review will be summarised and presented in this section. The results will be reported in three parts. Preschoolers' dental health has been investigated by parents and caregivers, as well as parents' motives and challenges in ensuring good oral health for their young children, as part of a new study.

Teach parents about children's dental hygiene

Preschoolers' dental health can be improved by learning what parents and caregivers already know about the importance of brushing and flossing their children's teeth (Kay & Locker, 1996). According to a new study, dental caries is more common in preschoolers whose parents lack dental health education and have a negative attitude toward oral cleanliness (Bordoni, 2006). Dentist visits, brushing teeth less frequently, and ignoring the importance of oral health are all examples of negative attitudes about oral health. When parents and caregivers do not understand the importance of primary teeth in their children's oral health and how to properly care for them, they are less likely to encourage good oral health and prevent early childhood caries (ECC) (Vann, Lee, Baker, & Divaris, 2010).

Knowledge of tooth brushing and regular brushing

In past studies, parents' awareness of when to begin cleaning their children's teeth was uneven. Most parents are aware that they should begin brushing their child's teeth as soon as their first tooth appears. Only 32 per cent of mothers were able to tell when to begin brushing their child's teeth, according to another study (Inglehart, 2008). A study published in the *Journal of Pediatric Dentistry* indicated that parental brushing and flossing frequency had a significant impact on parents' awareness of their children's dental health (Akpabio et al., 2008). Parents need to be educated on the optimal time to begin brushing their children's teeth and how to encourage them to practise good oral hygiene practises. More than seven in ten parents (71 per cent) understood the need to brush their children's teeth on a regular basis to avoid dental plaque buildup.

Fluoride-infused toothpaste

There was a range of 74% to 86% agreement between studies suggesting fluoride toothpaste can help reduce tooth decay in moms (Baginska & Rodakowska, 2012; Gussy et al., 2008). Fewer than half of Polish parents (46 per cent) were aware that fluoride could help prevent dental cavities, according to a study performed in the country (Wierzbicka et al., 2002). Many parents are unsure if fluoride toothpaste should be used on their young children, and they also don't know how much to use.

Brushing habits and dental hygiene

Preschoolers' brushing habits have been explored in a number of scientific research. It was difficult to compare the findings of these studies because they employed a wide range of approaches. When it came to brushing their children's teeth, 65 per cent of American Head Start parents admitted to doing so, even though no statistical proof supported this claim (Vargas, Ronzio, & Hayes, 2003). Another American poll found that parents of low-income preschoolers brush their children's teeth an average of nine times each week (Finlayson, Siefert, Ismail, Delva, & Sohn, 2005). Despite its importance in preventing dental cavities, teaching children to clean their own teeth is a less popular health message. To avoid transferring germs from their parents' mouths to their children, children should have their own toothbrushes (Harris et al., 2004). There is a dearth of information on who owns and uses toothbrushes. However, nearly all parents asked in Brazil stated that each member of their family has a toothbrush (Sakai et al., 2008). The sexes, ages, and nationalities of the individuals were not reported.

Parents' perceptions of their children's teeth

There are some cultures where primary teeth may not require the same level of care or therapy as permanent teeth because they will fall out eventually (Mofidi, Zeldin, & Rozier, 2009). The significance of primary teeth was clear in other investigations, even though parents in some of those studies were not aware of it. 96 per cent of parents in Canada and 97 per cent of parents in rural Australia agreed that primary teeth are important, according to a study done in rural Australia (Gussy et al., 2008; Schroth et al., 2007). Only a tiny percentage of mothers in Hong Kong and Poland believe that basic tooth care is necessary, whereas two-thirds of mothers in Poland believe that primary tooth care is unnecessary (Szatkowski et al., 2004). In the study of Chan et al. In a child's first teeth, parental opinions are critical. Researchers in Canada were

shocked to learn that young children's primary teeth are far more vital to their health and well-being than secondary teeth (Schroth et al., 2007).

RISK FACTORS FOR DEVELOPING EARLY CHILDHOOD CARIES

ECC has several risk factors that have been discovered in preliminary research. Controllable and uncontrollable risk factors need to be linked to each other in order to achieve optimal health. The next sections will go into greater depth on each of these main categories, which include microbiology, nutrition, socioeconomics, and the environment.

Microbiological

As previously indicated, acid-producing bacteria can be discovered in the mouth's tissues and induce microbiological MS. To put it another way, ECC is more common in children born to moms with high levels of MS than in those born to mothers with low levels of MS (American Academy of Pediatric Dentistry et al., 2005). By kissing their children on the mouth or putting their children's utensils or bottles in their mouths as they eat, parents can transmit MS to their children (Sakai et al., 2008). A child's risk of ECC may be decreased if the decay in the parent's teeth is repaired or their MS level is decreased (Segura et al., 2014).

Diet

Food and drink consumption has a substantial impact on dental caries in both childhood and adulthood. Increased levels of MS in the mouth are linked to an increased risk of tooth decay. An additional dietary risk factor, along with the total amount of sugar consumed, has to do with the timing of when the sugar is consumed. ECC is connected to frequent midnight bottle feedings with milk or sugary drinks, according to the American Academy of Pediatric Dentistry et al. (2005). (Colak et al., 2013).

Socioeconomic

When it comes to oral health, those from less affluent origins tend to have a worse standard of living. Oral health disparities affect children and adults alike (Harris et al., 2004; Kawashita et al., 2011). As Pieper and coworkers point out, parents of various socioeconomic statuses may exhibit a wide range of behaviours (2012). In low-income households, children are more prone than their more affluent counterparts to use infant bottles incorrectly, wash their teeth infrequently, eat a lot of sugar and forego preventative dental care (Pieper et al., 2012). Poor dental health is a possibility for preschoolers who exhibit these habits.

Environmental

There is a substantial gap in oral health both domestically and internationally. Fluoride in the water and easy access to dental care in metropolitan areas put rural youngsters at greater risk of poor oral health than their urban counterparts (Ministry of Health, 2006). Children under the age of five who do not have caries are more common in places with fluoridated water supplies than in areas without it (Ministry of Health, 2006).

ORAL HEALTH PROMOTION INTERVENTIONS

In this section, we'll go through a range of techniques to help caregivers and parents of young children maintain good dental health. Health information is presented in both traditional and cutting-edge ways in all of the programmes (e.g. face-to-face, printed handouts). Some of the outcome measures used to evaluate the success of these programmes included the Caries, Decayed, Missing and Filled Teeth (DMFT) score, parental awareness and behaviour, and programme uptake.

The Child smile programme

Accessible treatments that emphasise prevention and high-quality treatment are provided as part of the Child smile initiative in Scotland (Astron, 2005). As an attempt to enhance the dental health of children in Scotland, the Childsmile initiative was created in 2005 (Astron, 2005; NHS Scotland, 2015). Each child receives a Dental Pack containing a toothbrush, a tube of 1000ppm fluoride toothpaste, and an educational leaflet at least six times by the age of five. Children are

given a free-flowing feeder cup at the age of one year. There is also a regular brushing of the teeth for all children aged three and four in the nursery. They are part of the Childsmile School and Nursery fluoride varnish programmes for children ages three and up who live in some of the most underprivileged areas. Many different types of health professionals participate in the Childsmile programme, and dental supplies are spread throughout the various Health Board regions in different ways. There are also many dental hygienists and dental support staff employed by the National Health System (NHS). As a result, the program's success was measured simply by its participation rate and enrollment in dental clinics, both of which show favourable results (NHS Scotland, 2015).

Oral education for pregnant mothers

Educating and assisting pregnant mothers as early as possible in their pregnancies is the best way to ensure their children's dental health (Plutzer & Spencer, 2008). Dental health education for first-time mothers during pregnancy reduces the risk of their children getting early childhood caries (ECC) (Plutzer & Spencer, 2008). After six and twelve months, subsequent phone consultations with intervention participants had no additional impact on ECC results, despite the overall success of the intervention. Women with lesser levels of education recalled information better than mothers with greater levels of education, according to the research (Plutzer & Spencer, 2008). More educated mothers are more likely to take advantage of educational opportunities. Therefore they may not need the assistance of writers as much (Plutzer & Spencer, 2008). Additionally, a Brazilian study evaluated the impact of prenatal dental care and oral hygiene training on the mother's primary and permanent teeth (Medeiros, Otero, Frencken, Bronkhorst, & Leal, 2015). The expecting mother received prenatal dental care and prenatal oral hygiene teaching during her pregnancy. At the age of three months, preschoolers began receiving dental examinations and continued to do so every three months afterwards. Dental care was provided when it was deemed essential. It is safe to say that the experiment was a success when the intervention group's DMFT score was just 0.25, and the control group was 4.12. Medeiros and colleagues (2015).

Child oral health education for mothers

ECC can be avoided with preschool oral health education programmes for parents, according to the most extensive research. Dental health in infants depends on their parents and caregivers being aware of the necessity of excellent oral hygiene habits, as they are the primary proponents of these practices, and so have a considerable impact on infants' mouth health (Ayhan et al., 1996). In order to get parents to start brushing their kids' teeth at a young age, researchers have used a range of interventions and messaging. Texting, the internet, and schooling are some of the most common examples.

Oral hygiene education for young children

Ongoing oral health education was reviewed after a four-year period (Hochstetter et al., 2006). Fluoride was applied to the control group every six months, whereas the experimental group received the educational component of the programme designed for children, their families, and their teachers. A year and six months after the start date, the findings were analysed. The

experimental group's children's gingival and plaque index values decreased dramatically, whereas the level of deterioration remained constant. According to a comparison of children in the control group and those who received treatment, the gingival index, plaque index, and rotting surfaces all increased (Hochstetter et al., 2006).

Motivational interviewing

Motivational interviewing (MI) has proven to be a very effective public health intervention method (Manchanda, Sampath, & De Sarkar, 2014). Motivational interviewing (MI) is used to assist patients in developing their own health improvement regimens. MI's use has grown as a result of its increased emphasis on dental health in preschoolers. In a series of trials, researchers investigated the impact of MI counselling and oral health education on children aged 6 to 18 months (Harrison, Benton, Everson-Stewart, & Weinstein, 2007). To teach the parents about dental hygiene, they were given a pamphlet and a DVD. One year after the original study, participants whose parents took part in the MI intervention had significantly fewer carious surfaces than those whose parents took part in the education group (Weinstein et al., 2004). Children whose parents had MI had significantly fewer new carious lesions or decaying or filled teeth than the educational group. At year two, children in the intervention group had a 46 per cent lower rate of DMFT than children in the education group, according to Harrison et al. (Harrison et al., 2007).

In 2014, researchers studied the dental health of youngsters in two intervention groups and a control group. MI was performed on two groups of individuals; one group got neonatal oral health education, and the control group received no intervention (Manchanda et al., 2014). When it came to dental degeneration, the data showed that individuals in the MI group improved their oral health the most when compared to the other two groups. Freudenthal and Bowen (2010) found that MI was ineffective in changing parents' views and improving their children's dental health. However, our findings contradict that conclusion (Freudenthal & Bowen, 2010). The mothers of this group of subjects received individualised MI and dental health education. On weeks one and two, the mother was contacted twice to see if she had any more worries or troubles. The Readiness Assessment of Parents Concerning Infant Dental Decay (RAPIDD) was used to assess readiness before and after the intervention (Freudenthal & Bowen, 2010). The intervention and control groups exhibited comparable levels of oral health knowledge and behaviour.

Improving maternal oral health

Recent research shows that the presence of MS bacteria in children's mouths increases the likelihood of tooth decay (Harris et al., 2004). Research exploring the possibility that a mother's dental health could shield her kid against the development of MS has led to the development of novel treatments. By reducing the number of children with MS in preschools, the prevalence of ECC can be reduced. Kohler et al. studies . 's focused on lowering the number of MS cases among first-time moms. Both the mother and the kids of those who got treatment had decreased levels of MS (Köhler & Andreen, 1994). One study found that the prevalence of ECC decreased in the intervention group compared to the control group.

Chlorhexidine gel application

On avoid ECC, apply chlorhexidine gel to the skin. An investigation conducted by Wan et al. Looked into the effectiveness of a parent-applied weekly chlorhexidine gel in reducing their children's MS risk (Wan et al., 2003). In contrast, those who used fluoride toothpaste and reduced their intake of sugary solids and liquids and ate less often had a greater reduction in MS levels than the control group (Wan et al., 2003). Parents should not use chlorhexidine gels, according to the findings of this study.

GAPS IN THE LITERATURE

Numerous studies have explored the link between parents' oral health knowledge and their children's oral health, examining the knowledge level of parents on preschool oral health. Some research has revealed that a high degree of parental awareness does not necessarily transition into a high level of practice when it comes to children's oral health. According to most behavioural change theories, addressing various elements that influence behaviour is crucial (Hollister & Anema, 2004). (Hollister & Anema, 2004). Factors beyond the individual's control, such as their home situation, might also play a role (cost) (cost). Research suggests that multi-faceted interventions, rather than focusing simply on family education, had the highest effects. Parents' educational level and socioeconomic background are two of the most prominent risk factors for poor oral health status, according to studies. Mothers who are aware of dental health are also at risk. Researchers have found a correlation between parental education and their children's oral health, with more ECC and more DMFT on average when parents are less educated. On average, children from lower socioeconomic origins have worse oral health issues than their more advantaged counterparts. In comparison to children whose moms are older or more experienced, those born to younger (under 23-year-old) or first-time mothers had worse dental health.

CONCLUSION

Repetitive oral health education with lectures, demonstrations and supervision of good brushing practises at eight weekly intervals for one year was proven to be useful in fostering and sustaining the right knowledge and behaviour in schoolchildren. Increasing preschoolers' dental health is a significant undertaking. This narrative literature review gives the available data that evaluates techniques to improve the oral health of children in the general community. Parents and caregivers of preschool children may benefit from oral health education courses, according to one review. Parents and caregivers of preschoolers could benefit from a variety of health promotion programmes, but further research is needed. Both treatments improved the self-reported performance of mothers and reduced plaques and white spots on the skin of mothers. There were few new cases of caries in the intervention groups. Fluoride varnish, an informational pamphlet, and regular follow-ups can all be used because they have the same impact. It was a substantial difference in the moms' attitude that they were able to get their children to brush twice a day, and this was due to the reminder group.



REFERENCES

Akpabio, A., Klausner, C. P., & Inglehart, M. R. (2008). Mothers'/guardians' knowledge about promoting children's oral health. *American Dental Hygienists Association*, 82(1), 12–12.

American Academy of Pediatric Dentistry, American Academy of Pediatrics, & American Academy of Pediatric Dentistry Council on Clinical Affairs. (2005). Policy on early childhood caries (ECC): Classifications, consequences, and preventive strategies. *Pediatric Dentistry*, 27(7 Suppl), 31.

- Amin, M., & Harrison, R. (2009). Understanding parents' oral health behaviors for their young children. *Qualitative Health Research*, 19(1), 116–127.
- Amin, M., Nyachhyon, P., Elyasi, M., & Al-Nuaimi, M. (2014). Impact of an Oral Health Education Workshop on Parents' Oral Health Knowledge, Attitude, and Perceived Behavioral Control among African Immigrants. *Journal of Oral Diseases*, 2014.
- Astron. (2005). *An Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland*. Edinburgh: Scottish Executive.
- Ayhan, H., Suskan, E., & Yildirim, S. (1996). The effect of nursing or rampant caries on height, body weight and head circumference. *Age (Years)*, 4, 4.
- Baginska, J., & Rodakowska, E. (2012). Knowledge and practice of caries prevention in mothers from Bialystok, Poland. *International Journal of Collaborative Research on Internal Medicine & Public Health (IJCRIMPH)*, 4(5).
- Berkowitz, R. J. (2003a). Acquisition and transmission of mutans streptococci. *CDA*, 31(2), 135–138.
- Berkowitz, R. J. (2003b). Causes, treatment and prevention of early childhood caries: a microbiologic perspective. *Journal-Canadian Dental Association*, 69(5), 304–307.
- Burt, B. A., & Pai, S. (2001). Sugar consumption and caries risk: a systematic review. *Journal of Dental Education*, 65(10), 1017–1023.
- Chan, S., Tsai, J., & King, N. (2002). Feeding and oral hygiene habits of preschool children in Hong Kong and their caregivers' dental knowledge and attitudes. *International Journal of Paediatric Dentistry*, 12(5), 322–331.
- Colak, H., Dülgergil, Ç. T., Dalli, M., & Hamidi, M. M. (2013). Early childhood caries update: a review of causes, diagnoses, and treatments. *Journal of Natural Science, Biology, and Medicine*, 4(1), 29.
- Curnow, M., Pine, C., Burnside, G., Nicholson, J., Chesters, R., & Huntington, E. (2002). A randomised controlled trial of the efficacy of supervised toothbrushing in high-caries-risk children. *Caries Research*, (36), 294–300.
- Da Silva, R. A. Da, Nóia, N. B., Gonçalves, L. M., Pinho, J. R. O., & da Cruz, M. C. F. (2013). Assessment of mothers' participation in a program of prevention and control of caries and periodontal diseases for infants. *Revista Paulista de Pediatria*, 31(1), 83–89.
- Davies, G., Worthington, H., Ellwood, R., Bentley, E., Blinkhorn, A., Taylor, G., & Davies, R. (2002). A randomised controlled trial of the effectiveness of providing free fluoride toothpaste from the age of 12 months on reducing caries in 5-6-year-old children. *Community Dental Health*, 19(3), 131–136.
- Dyall L. (1997). Recommendations for oranga niho. *J Te Ao Marama NZ Dent Assoc II*, 18 – 24.

- Finlayson, T. L., Siefert, K., Ismail, A. I., Delva, J., & Sohn, W. (2005). Reliability and validity of brief measures of oral health-related knowledge, fatalism, and self-efficacy in mothers of African American children. *Pediatric Dentistry*, 27(5), 422.
- Gussy, M. G., Waters, E., Riggs, E., Lo, S. K., & Kilpatrick, N. (2008a). Parental knowledge, beliefs and behaviours for oral health of toddlers residing in rural Victoria. *Australian Dental Journal*, 53(1), 52–60.
- Habibian, M., Roberts, G., Lawson, M., Stevenson, R., & Harris, S. (2001). Dietary habits and dental health over the first 18 months of life. *Community Dentistry and Oral Epidemiology*, 29(4), 239–246.
- Harrison, R., Benton, T., Everson-Stewart, S., & Weinstein, P. (2007). Effect of motivational interviewing on rates of early childhood caries: a randomised trial. *Pediatric Dentistry*, 29(1), 16–22.
- Hashemian, T. S., Kritz-Silverstein, D., & Baker, R. (2014). Text2Floss: the feasibility and acceptability of a text messaging intervention to improve oral health behavior and knowledge. *Journal of Public Health Dentistry*.
- Huebner, C., & Milgrom, P. (2014). Evaluation of a parent-designed programme to support tooth brushing of infants and young children. *International Journal of Dental Hygiene*.
- Ison, I. A., Zuckerman, K. E., Rao, S. R., Kuhlthau, K. A., Winickoff, J. P., & Perrin, J. M. (2010). Association between parents' and children's use of oral health services. *Pediatrics*, 125(3), 502–508.
- Jamieson, L. M., Armfield, J. M., & Roberts-Thomson, K. F. (2007). Indigenous and non-indigenous child oral health in three Australian states and territories. *Ethnicity and Health*, 12(1), 89–107.
- Johnson J. (2013). *Your Child's First Dental Visit*. America: American Dental Association.
- Kawashita, Y., Kitamura, M., & Saito, T. (2011). X. *International Journal of Dentistry*, 2011.
- Kay, E., & Locker, D. (1996). Is dental health education effective? A systematic review of current evidence. *Community Dentistry and Oral Epidemiology*, 24(4), 231–235.
- Köhler, B., & Andreen, I. (1994). Influence of caries-preventive measures in mothers on cariogenic bacteria and caries experience in their children. *Archives of Oral Biology*, 39(10), 907–911.
- Kulkarni, G. V. (2013). Long-term effectiveness of parent education using the "baby oral health" model on the improvement of oral health of young children. *International Journal of Dentistry*, 2013.
- Litmus. (2013). *Well Child Tamariki Ora Programme Quality Reviews*. Wellington: Ministry of Health.

- Manchanda, K., Sampath, N., & De Sarkar, A. (2014). Evaluating the effectiveness of oral health education program among mothers with 6-18 months children in prevention of early childhood caries. *Contemporary Clinical Dentistry*, 5(4), 478.
- Marinho, V. C., Higgins, J., Logan, S., & Sheiham, A. (2003). Fluoride toothpastes for preventing dental caries in children and adolescents. *The Cochrane Library*.
- Nunn, J., Gordon, P., Morris, A., & Walker, A. (2003). Dental erosion—changing prevalence? A review of British National childrens' surveys. *International Journal of Paediatric Dentistry*, 13(2), 98–105.
- Paunio, P., Rautava, P., Helenius, H., & Sillanpää, M. (1994). Children's poor toothbrushing behavior and mothers' assessment of dental health education at well-baby clinics. *Acta Odontologica*, 52(1), 36–42.
- Prowse, S., Schroth, R. J., Wilson, A., Edwards, J. M., Sarson, J., Levi, J. A., & Moffatt, M. E. (2014). Diversity considerations for promoting early childhood oral health: a pilot study. *International Journal of Dentistry*, 2014.
- Roberts, K., & Condon, L. (2014). How do parents look after children's teeth? A qualitative study of attitudes to oral health in the early years. *Community Practitioner*, 87(4), 32–35.
- Satur, J. G., Gussy, M. G., Morgan, M. V., Calache, H., & Wright, C. (2010). Review of the evidence for oral health promotion effectiveness. *Health Education Journal*.
- Segura, A., Boulter, S., Clark, M., Gereige, R., Krol, D. M., Mouradian, W., ... Keels, M. A. (2014).
Maintaining and Improving the Oral Health of Young Children. *Pediatrics*, 134(6), 1224–1229.
- Selwitz, R. H., Ismail, A. I., & Pitts, N. B. (2007). Dental caries. *The Lancet*, 369(9555), 51–59.
- Thomas, N. J., Middleton, P. F., & Crowther, C. A. (2008). Oral and dental health care practices in pregnant women in Australia: a postnatal survey. *BMC Pregnancy and Childbirth*, 8(1), 13.
- Van den Branden, S., Van den Broucke, S., Leroy, R., Declerck, D., & Hoppenbrouwers, K. (2013).
- Vargas, C. M., Ronzio, C. R., & Hayes, K. L. (2003). Oral health status of children and adolescents by rural residence, United States. *The Journal of Rural Health*, 19(3), 260–268.
- Weinstein, P., Harrison, R., & Benton, T. (2004). Motivating parents to prevent caries in their young children: one-year findings. *The Journal of the American Dental Association*, 135(6), 731–738.
- Wong, D., Perez-Spiess, S., & Julliard, K. (2005). Attitudes of Chinese parents toward the oral health of their children with caries: a qualitative study. *Pediatric Dentistry*, 27(6), 505–512.

Peres MA, Macpherson LMD, Weyant RJ, Daly B, Venturelli R, Mathur MR, Listl S, Celeste RK, Guarnizo-Herreno CC, Kearns C, Benzian H, Allison P, Watt RG. Oral diseases: a global public health challenge. *Lancet*. 2019;394:249–60.

World Health Organization: WHO information series on school health: Oral health promotion through schools. 2000..

Phyo AZZ, Chansatitporn N, Narksawat K. Oral health status and oral hygiene habits among children aged 12–13 years in Yangon, Myanmar. *Southeast Asian J Trop Med Public Health*. 2013;44(Suppl 6):1108–14.

Myint ZCK, Maung K, Aung SH, Soe KK. Effectiveness of oral health education on 12 year old school children in the selected townships of Yangon region in Myanmar. Master Thesis. University of Dental Medicine, Department of Preventive and Community Dentistry, Yangon. 2014.

