PATIENT ACCEPTANCE OF FLUORIDE VARNISH APPLICATION IN A UNIVERSITY DENTAL SCHOOL

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Abstract:
The aim of this study is to patient acceptance of fluoride varnish application in a university dental school. To determine the detailed behavioral and acceptance of fluoride application. The fluoride varnish application is a dental preventive intervention that has some positive benefits for reducing caries in preschool children.

Materials and methods:
Case records were collected from the dental archives of patient management system software patterned by Saveetha dental college. All paediatric patients in a specific time period were involved in the study. Chi square test was preferred using SPSS version 20.

Results:
The analysis shows that the mostly both genders are common and the more accepted age group is 3 to 5 years. The study shows correlation of constant value.

Conclusion:
Within the limits more acceptance in 3 to 5 years of age group. Common in both genders.

Keywords: Children, Fluoride varnish, Fluoride acceptance

INTRODUCTION

Dental decay is the most common chronic disease of childhood and affects a disproportionate number of low income and minority children. These vulnerable children have more dental caries than other paediatric patients and encounter greater difficulty accessing timely and appropriate dental care.[1] The fluoride varnish application, dental preventative intervention has some positive benefits for reducing caries in preschool children[2]. Paediatrician and other paediatric health care providers may be the only source of preventive oral health education and care for very young children and others who are unable to access other sources of dental care. Acknowledging this, a number of State medical programs reimburse paediatrician and other paediatric health care providers to apply fluoride varnish, a caries preventive agent to eligible patients teeth[6].

Fluoride varnish is a professionally applied, highly concentrated (22600ppm) fluoride product that has been widely used in Europe and Canada as a caries prevention agent for >20 years[3]. In part decade it has become more widely available in the US. Fluoride varnish is an attractive option for the primary care setting because it can be applied by ancillary staff in <5 minutes is generally acceptable to patients and does not require special preparation of the teeth or expensive equipment[3]. Fluoride varnish can also reverse early caries lesions (white spot lesions)[4]. Application 2 to 4 times a year have been shown to decrease caries in the Permanent dentition by 38 %.[5]

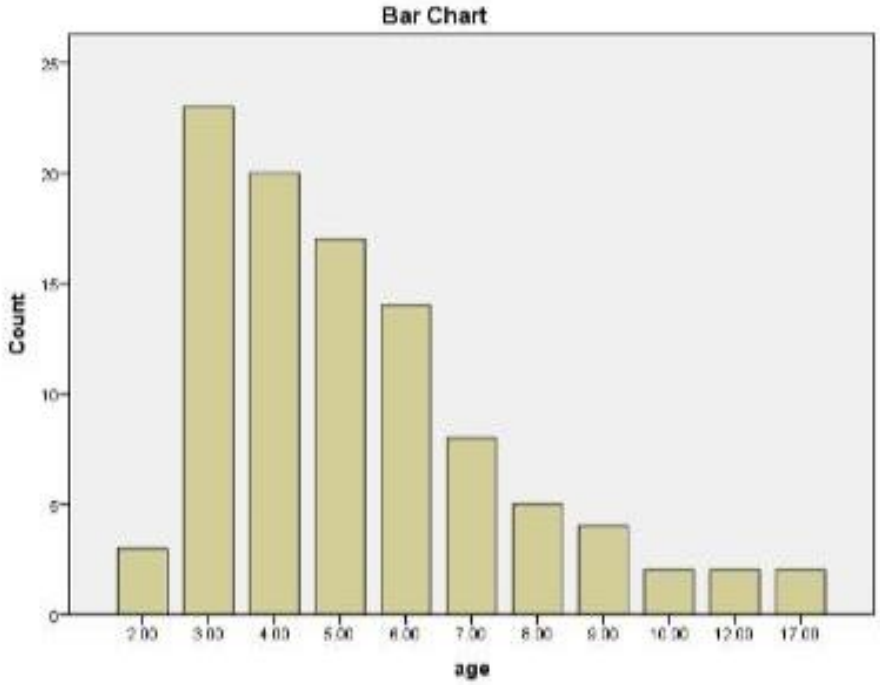
Fluoride has been the focus of caries - preventive strategies since the introduction of water fluoridation schemes midway through the last century[7]. Fluoride varnishes were developed to prolong the contact time between fluoride and dental enamel and have been available in Europe, Canada and USA for decades[8]. Indeed, the recommendation to use fluoride varnish for caries prevention now appears globally in clinical practise guidelines.It is reasonable to posit that adherence to fluoride varnish recommendations,

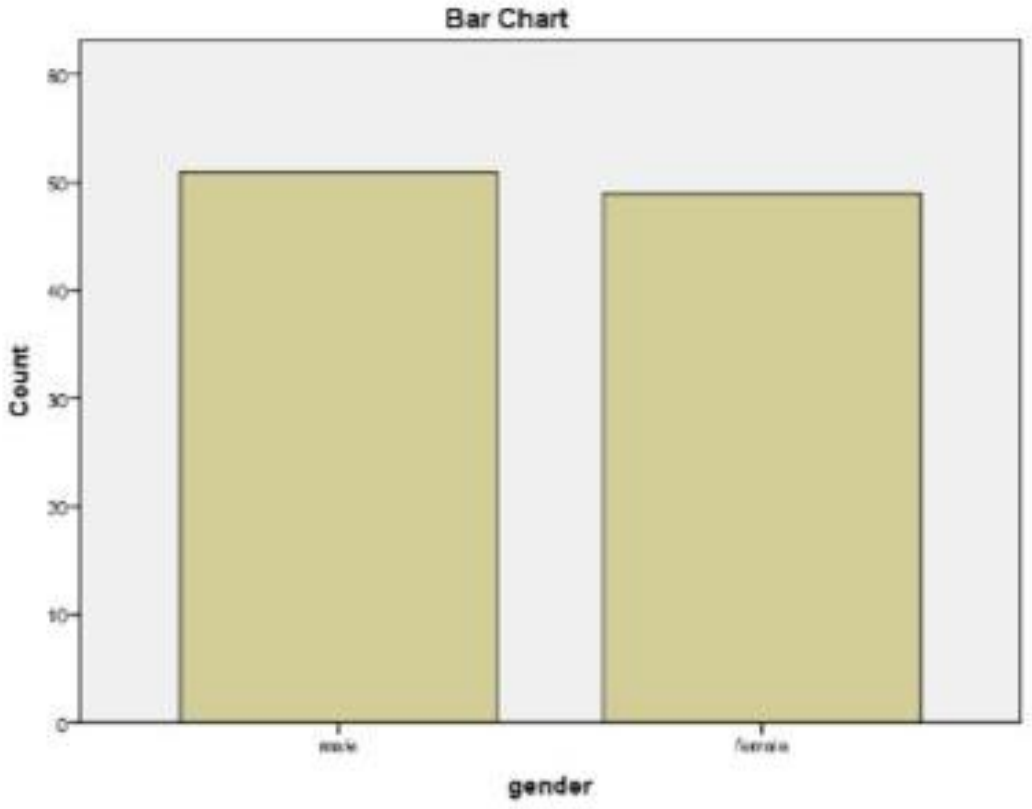
whatever the strength of its evidential support, will vary between countries and regions with different political and economic agendas, reimbursement systems and patient access to care[9].

Fluoride is a natural mineral that builds strong teeth and prevents cavities. It's been an essential oral health treatment for decades. Fluoride supports healthy tooth enamel and fights the bacteria that harm teeth and gums. Tooth enamel is the outer protective layer of each tooth. Fluoride is especially helpful if you're at high risk of developing dental caries, or cavities. Cavities occur when bacteria build up on teeth and gums and form a sticky layer of plaque. Plaque produces an acid that erodes teeth and gum tissue. If the plaque breaks down the enamel layer, bacteria can infect and harm the nerves and blood at the core of the tooth.Fluoride works by restoring minerals to tooth surfaces where bacteria may have eroded the enamel. It can also inhibit the growth of harmful oral bacteria and further prevent cavities. Fluoride cannot remove decay but, while creating a stronger outer surface to your teeth, it can help stop the decay from penetrating into the deeper parts of teeth.Fluoride benefits both children and adults. The earlier children are exposed to fluoride, the less likely they are to develop cavities. A large study found that children and adolescents who received fluoride treatments for one year were 43 percent less likely to have tooth decay and cavities. Before fluoride was added to toothpaste, studies found that people with fluoridated water were 40 to 60 percent less likely to get cavities. The ADA and the Centers for Disease Control and Prevention recommend trace amounts of fluoride be present in drinking water. The growing emphasis on prevention-based dentistry has led to rapid development of newer and more innovative treatment modalities aimed at early disease prevention. In this context, fluoride varnishes are fast becoming an integral component of prevention based programs along with patient and parent education. In Europe and Canada, the use of fluoride varnishes has become the standard of care. One of the primary advantages of fluoride varnishes is their ease of application. There is considerable confusion as to whether a thorough prophylaxis is essential prior to varnish application. The following sequence of steps can be followed to ensure proper varnish application: Prophylaxis (tooth brush or professional) then Isolate quadrant that is ready to receive the varnish using cotton rolls. Most commercially available varnishes set in the presence of moisture, so meticulous drying of the teeth is not critical. Then Dispense fluoride varnish as per manufacturer's instruction. Usually 0.5-1 ml is more than adequate for the entire dentition. Apply varnish on tooth surfaces using a disposable brush or cotton applicator. The entire surface of the tooth must be treated. Avoid getting varnish on the soft tissue. The varnish sets in a few seconds leaving a fluoride rich layer adjacent to the tooth surface. The entire process takes 3-4 minutes. Duraflor and Duraphat set to a yellowish-brown layer causing a temporary change in tooth color. Parents and patients should be instructed that this discoloration is temporary and will vanish once toothbrushing is commenced. Patients should avoid brushing their teeth for the rest of the day and to avoid eating for the next two hours. It is advisable to put the patients on a soft diet for the rest of the day.

Materials and methods:
The study is done under an university setting. The similar characteristics of the study is that it is done with available data under similar ethnicity. Records of children who visited Saveetha dental college, Chennai were evaluated between June 2019 to March 2020. This study was approved by the institutional ethics board. Two reviewers were involved in this study. Total sample size included were all paediatric patients in specific time peroid. To minimise the sampling bias all available data was included with a sorting process of removing double entries. Internal validity of the study was random selection of participants to whom fluoride varnish applied and external validity was defined age group and gender. Data collection was done from the dental archives of patient management software system patterned by Saveetha dental college, Chennai. The data was obtained from treatment records under the category of fluoride application and data was tabulated. Data was verified by one external reviewer. The data was then exported to SPSS and variables identified.
Chi-square test was performed on data using SPSS version 20. Age, gender and ethnicity were considered as independent variables. Paediatric patients - fluoride varnish application was considered as dependent variables.Type of analysis done was correlation analysis.

Results:
The data collected from the patient management software was tabulated in SPSS and the descriptive analysis were obtained. All paediatric were included out of they more common age group is 3 to 5 years and common in both gender. In total 23 patients at the age of 3 years is more acceptance and 17 in 5 years and 20 in 4 years.The frequencies in this study are defined in tabulation and graphical representation. Chi square test was done between age and gender of population. Results showed as a constant value.





Discussion:

Fluoride has been the focus of caries preventive strategies since the introduction of water fluoridation schemes midway through last century. Fluoride varnishes were developed to prolong the contact time between fluoride and dental enamel.

Peterson et al. had also discussed then effect of fluoride varnish among preschoolers. Van - Riikom HM et al. based on the acceptance of age group[10] and Holne S. association of fluoride varnish and early childhood caries[11].

Few limitations of the study design might be that the study is single centered, with less sample size, similar ethnicity and geographic location. This study requires a larger time and extensive research for better results. Fluoride works to prevent dental caries through both topical and systemic mechanisms via 3 processes: inhibiting tooth demineralization, enhancing remineralization, and inhibiting

bacterial metabolism. Newer studies also suggest that fluoride interferes with bacterial adherence to the teeth.[14] The topical effect provides the majority of the benefit. Through systemic mechanisms, the lesser effect, fluoride is incorporated into the tooth structure during tooth development to harden the enamel and make more resistant to demineralization. Topical fluoride in the form of toothpaste (at-home use) and varnish (in-office use) should be recommended for all children starting at tooth eruption.[12,15] The American Academy of Pediatrics (AAP) and United States Preventive Services Task Force (USPSTF) also recommends dietary fluoride supplements for all children who do not have an adequate supply of fluoride in their primary drinking water. The AAP additionally recommends fluoride mouth rinse use for children aged 6 years and older who are at high risk for dental caries.[12,16] Over-the-counter fluoride rinses may be beneficial for use for children, particularly those who have high caries risk or live in fluoride-deficient areas. Mouth rinses should be reserved for high-risk children aged older than 6 years who can rinse and spit.[12,10] Alcohol-containing mouth rinses should be avoided in pediatric populations.[19] Fluoride mouth rinses, supplements, or gels can be used after brushing with fluoride toothpaste. Fluoride varnish is a highly concentrated form of topical fluoride that is applied to teeth in a professionally supervised setting. Research shows fluoride varnish is highly effective in caries reduction with a decrease in caries incidence between 18% to 24% in 1 study and as high as 59% in another.[11,12] The USPSTF "recommends that primary care clinicians apply fluoride varnish to the primary teeth of all infants and children starting at the age of primary tooth eruption" through age 5 years.6 The recommended fluoride varnish dose is 0.25 mL unidose 5% NaF (2.26% F), and frequency is every 3 to 6 months, based on the child's caries risk considerations.[12,13] Fluoride varnish application is easy and fast. A thin layer should be placed on relatively dry teeth achieved by wiping the teeth with gauze. fluoridated community water aids in prevention of dental caries by up to 27%. [21] and reduces dental expenditures per capita[22] by providing both topical and systemic routes of fluoride. Fluoridated tap water use should be encouraged instead of bottled water use, which may not contain fluoride and may be more acidic than previously anticipated, thus promoting demineralization of tooth structure.[23]Parents who live in areas with fluoridated water should be asked if their child drinks fluoridated water. Parents often use bottled water and therefore their children may not be receiving the benefits of fluoridated water. Pediatric medical and dental providers should continue to strongly advocate for community water fluoridation as it benefits not only children, but the entire population.[24]

Conclusion:
The application of Fluoride varnish acceptance is considered as an excellent option to prevent the early childhood caries and oral health. Within the limits more acceptance in 3 to 5 years of age group and common in both gender.

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