



Knowledge, Attitude and Practice Regarding Paediatric Endodontics among Final Year Dental Students and Dental House Surgeons.

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ABSTRACT:

Introduction: Dental caries is described as an acid demineralization of enamel or dentin produced by biofilm (plaque) and mediated by saliva. Untreated carious lesions might progress to deeper carious lesions that finally harm the pulp. Primary teeth with pulpal involvement are either extracted or treated with pulp treatment. The diagnosis of pulp pathology and the selection of the appropriate treatment method are critical for successful endodontic therapy in primary teeth. The American Academy of Paediatric Dentistry classifies pulp treatment for primary teeth as either conservative or radical. While radical pulp therapy includes pulpectomy and root-filling, conservative pulp therapy aims to keep the pulp alive. **Materials and Methods:** A cross-sectional study was carried out to assess Interns' and Final year dental students' knowledge about, attitude towards, and application of paediatric endodontics in primary teeth at Thai Moogambigai dental college and hospital. An online survey constructed using Google Forms with 24 questions split into four sections was sent through email and WhatsApp. The responses were collected and statistically analysed. **Results:** The study included 105 individuals, 52.4% of whom were interns and 47.6% were final-year students. 92.4% of students agreed that primary teeth with pulp involvement may be treated. The research group Final years and Interns had a comparable amount of knowledge about endodontic procedures performed in primary teeth, with interns having somewhat higher knowledge regarding the restorative materials utilised in such procedures than final years. **Conclusion:** Many research and reviews have advocated various methods for pulpally affected primary teeth; hence, enough information is essential to determine suitable approaches for specific carious lesions. According to the current study, both final year students and interns have a good knowledge regarding endodontic therapy and primary tooth materials.

Key words: Endodontic procedure, Primary teeth, Pulp therapy materials.

INTRODUCTION:

The American Academy of Paediatric Dentistry defines dental caries as an acid demineralization of enamel or dentin caused by biofilm (plaque) and mediated by saliva. Due to poor oral hygiene practises and subpar dental treatment, children and young adults frequently acquire severe carious lesions. If these carious lesions are not treated, they develop into deeper carious lesions that eventually affect the pulp^[1]. According to the American Academy of Paediatric Dentistry (AAPD) Guidelines, the fundamental goal of endodontic therapy for primary teeth is to sustain the strength and health of the teeth and the tissues that support them, as well as the length of the arch^{[1][2][5][7][11]}. Carious deciduous teeth should be managed differently depending on the pulp's vitality, whether there is periapical disease present or not, whether the tooth may be restored, and how longer it takes for exfoliation to occur naturally^[3]. Endodontic treatment for primary teeth is one of the challenging parts of paediatric dentistry. Successful endodontic therapy in primary teeth depends largely on the diagnosis of pulp disease and choosing the appropriate treatment strategy^{[1][11]}. The pulp therapy for primary teeth is categorised by the American Academy of Paediatric Dentistry as either conservative or radical. While radical pulp therapy involves pulpectomy and root-filling, conservative pulp treatment tries to preserve the pulp's vitality^{[2][4]}. Indirect Pulp Treatment (IPT): According to the American Academy of Paediatric Dentistry, IPT entails partially removing carious dentine from a tooth in order to prevent pulp tissue exposure, followed by the application of a biocompatible substance to the decayed area. By applying a dressing to a thin layer of remaining dentin, the treatment aims to promote reparative dentin and halt caries while maintaining the health of the pulp^{[2][4]}. Direct Pulp Capping: By directly applying a material to pulp, direct pulp capping aims to preserve the pulp's vitality. The American Academy of Paediatric Dentistry states that a primary tooth should only undergo direct pulp capping when the conditions are ideal for a favourable result^{[2][5]}. Pulpotomy, which involves removing the coronal pulp and preserving the radicular pulp, is a conservative therapeutic technique in paediatric dentistry that is frequently used on primary molars with severe caries. The justification is based on the pulp tissue's capacity to recover once the damaged or infected coronal pulp has been surgically amputated^{[5][2][6][7][8]}. Primary teeth with necrotic pulp or pulpitis of the radicular pulp should get a pulpectomy and root canal therapy^[2]. Due to the complex anatomy of the root canals in primary molars, the

method is sometimes regarded as difficult, yet clinical trials have demonstrated a satisfactory prognosis^[4]. Referring to filling materials used in deciduous teeth; an ideal primary tooth root canal filling material should have a number of characteristics, including resorbing at a pace comparable to that of the primary root, being safe for the periapical tissues and permanent tooth germ, resorbing easily if compelled beyond the apex, and being highly sterile. It should be simple to use, adhere to the canal walls, not be prone to shrinking, be simple to remove, if necessary, radiopaque, and should not discolour the tooth. Additionally, it shouldn't be set to a solid mass that might obstruct an emerging permanent tooth^[10]. Primary molar teeth that have undergone a pulp treatment, are severely decaying, or are broken down extensively are suggested to have crowns placed. For the purpose of covering teeth that are decaying or have developmental flaws, primary molar crowns are prefabricated and available in a range of sizes and materials. They can be entirely composed of stainless steel (referred to as "preformed metal crowns" or PMCs) or, for greater aesthetics, entirely made of a white ceramic material or stainless steel with a white veneer cover^[9]. As often as not, the dental procedure is left unfinished either because the dentist lacks the essential knowledge or because the child or parents are unwilling to cooperate. Due to these difficulties, a lot of dentists frequently elect to remove the tooth as their preferred method of treatment for the primary pulpally affected tooth^{[1][11]}.

MATERIALS AND METHODS:

Study design and purpose:

A cross-sectional study was carried out to assess dental students' knowledge, attitude towards, and adoption of paediatric endodontics in primary teeth.

Study participants and inclusive criteria:

The inclusion criteria for the study were that the dental students should possess clinical experience and be willing to participate. Dental students from the Thai Moogambigai Dental College and Hospital who met these requirements were included in the study.

Questionnaire:

24 questions in 4 sections—demographic details, knowledge assessment, attitude towards endodontic procedures, and paediatric endodontic practice—were incorporated into an online questionnaire created using Google Forms.

Data collection:

Through WhatsApp and email, the questionnaire was distributed to interns and final-year dental students at the Thai Moogambigai Dental College and Hospital. The responses were gathered and evaluated statistically.

Statistical Analysis:

The data obtained through google forms were transferred into excel format and its analysis was done using IBM SPSS Statistics for Windows, Version 26.0. Armonk, NY: IBM Corp. Descriptive statistics, including frequency and percentages, were computed for all of the responses provided by the participants. Comparison of the responses across gender and educational qualification were made using cross tabulations and statistical significance was assessed using Pearson's chi-square test and Fisher's exact test. The statistical significance in the present study was kept at $p < 0.05$.

RESULTS:

The study had 105 students in total, of whom 52.4% were interns and 47.6% were final-year students. 92.4% of students acknowledged that primary teeth with pulp involvement can be treated. For lesions affecting enamel, 15.2% of final-year students and 21.9% of interns prefer pit and fissure sealants. Regarding a severe dental caries pertaining to a primary molar, 14.3% and 16.2% of interns and 18.1% and 20% of final year students are in favour of direct/indirect pulp capping and pulpotomy as lines of therapy. In terms of a reasonable course of action for a primary molar with an asymptomatic periapical abscess, 62.9% of the students preferred extraction with a space maintainer. Sixty percent of the students knew that pulp treatment in primary teeth may be performed using rotary instruments. Interns and final-year students shared an equal level of knowledge about the various materials utilised in pulp treatment. Formocresol was chosen as the best substance for pulp fixing during pulpotomy by 26.7% of interns. Sodium hypochlorite as an irrigating agent, calcium hydroxide-iodine combination as a root canal filling material, and glass ionomer cement as a final restorative material for root canal treated deciduous teeth were the answers given by 11.4%, 27.6%, 39% of final year students and 13.3%, 34.3%, 39% of interns. Primary teeth can have full coverage restorations or crowns, according to 87.3% of interns and 64.4% of final year dental students. The implantation of a crown following pulp treatment is required, according to 34% of final years and 54.5% of interns, but not necessary if there is sufficient intact tooth structure, according to 50% of final years and 36.4% of interns. The knowledge that the stainless-steel crown is a semi-permanent crown was known by 31.4% of final year students and 32.4% of interns.

DISCUSSION:

The pulp treatment for primary teeth differs depending on the pulp's vitality, the presence or absence of periapical disease, and the tooth's restorable capacity. The treatment technique is chosen based on the examination of the tooth and the child's behaviour. Many studies have provided the indications, contraindications, and stages involved in several procedures for students to acquire knowledge so that they may adapt such procedures in their clinical practice. Additionally, they examined and reported on the success rate of various treatments and materials used in primary tooth endodontic therapy

[4][5][6][7][9][11][12][15][16][17]. In the current study, 60% of the students agreed that rotary instruments might be used during endodontic procedures, however 69.2% of practitioners in the study done by Patil et al. was not in favour of employing rotary instruments during root canal procedures [1]. In the present investigation, 62.9% of students recommended extraction with space maintainer as a treatment approach for the asymptomatic primary molar with periapical abscess, which was comparable to the study of Patil et al. (53.6%) [1]. According to Chen and Jorden's article and Sajeev Koshy's literature analysis, formocresol has a success rate of 70.98% as a pulp fixing agent in pulpotomy procedures, and 34.3% in the current study chose formocresol. However, H.D. Rodd et al.'s study and evidence-based narrative review by D. Finucane indicated that MTA had a success rate as a pulp fixing agent [2][7][12][15], 61.9% in the current study, 35.8% in the Patil et al. study, Chen & Jorden article, M. Mortazavi & M. Mesbahi article, 20% in the Aleena Alex et al. study, and articles by D. Finucane and Gupta S & Das G all reported Calcium hydroxide iodine mixture as an ideal material for root canal filling with a higher success rate [1][7][10][11][15][19]. Glass ionomer was reported as the ultimate restorative material by 78.1% of students in the current study, 36.3% in the Patil et al. study, 15% in the Aleena Alex et al. study, and 45% Amalgam and 29% Composite in the Aleena Alex et al. study as the final restorative material [1][11].

CONCLUSION:

Many studies and reviews have proposed various procedures for primary teeth that are pulpally affected; therefore, adequate knowledge is required to identify appropriate procedures for distinct carious lesions. The current investigation found that both final year students and interns have acceptable understanding on endodontic therapy for primary teeth. Since primary teeth are difficult to deal with, the therapy that is more acceptable for the afflicted teeth and the child must be favoured. Many articles have examined the success rate for various procedures; therefore, it is determined that any treatment strategy used to retain primary teeth achieves its purpose.

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CONFLICTS OF INTEREST:

There are no conflicts of interest.

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