

ORIGINAL ARTICLE

The Educational Video "Dental Trauma to Primary Teeth" Increases the Awareness of Early Childhood Education School Teachers: An Experimental Study

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Received: 10 April 2023
Revised: 26 June 2023
Accepted: 31 July 2023
Published: 31 July 2023
DOI:[10.24198/pjd.vol35no2.46376](https://doi.org/10.24198/pjd.vol35no2.46376)

p-ISSN [1979-0201](#)
e-ISSN [2549-6212](#)

Citation:
Fauziah,E; Kusumanigum,A;
Khairani,A; Widyagarini,A;
Educational Video "Dental Trauma to
Primary Teeth" Increase Early
Childhood Education School Teachers
Awareness: Experimental study. Padj
J Dent, July. 2023; 35(2): 118-122.

ABSTRACT

Introduction: Dental trauma of primary teeth is more common in boys than in girls, and it frequently affects maxillary anterior primary teeth. Approximately 25% of schoolchildren worldwide have had dental trauma, although its prevalence varies among different countries. Group education through public lectures, television, community posters, leaflets, or videos can be selected as an educational method. The ineffective management of trauma to primary teeth is related to a lack of awareness among parents, schoolteachers, and health workers. Dental trauma mostly happens when children are at school; therefore, the study was conducted on Early Childhood Education (ECE) teachers' awareness before and after watching educational video "Dental Traumatoto Primary Teeth". The aim of this study is to determine the influence of the video "Dental Trauma to Primary Teeth" on ECE teachers' awareness. **Methods:** This study used an experimental study approach by involving sixty-four ECE school teachers in Jakarta. They watched educational video "Dental Trauma to Primary Teeth" for two minutes before spending ten minutes answering questions to evaluate their understanding of dental trauma in children before and after viewing the film. The questionnaire was divided into 2 parts: the first part consisted of questions about sex, age, and education, and the second part consisted of nine questions about dental traumato primary teeth. The data were analyzed by comparing understanding before and after watching the educational video. **Results:** This research showed that all questions were answered correctly. There was an increasing percentage (1.5%-15.6%) after giving the video. The difference between the teacher's degree of awareness before and after watching educational video "Dental Trauma to Primary Teeth" was statistically significant ($p \leq 0.05$). **Conclusion:** Providing children with educational media in the form of a video titled "Dental Trauma to Primary Teeth" is effective and can increase ECE teachers' awareness of trauma to primary teeth.

KEYWORDS

dental trauma to primary teeth, awareness, educational video

INTRODUCTION

Dental trauma is a common problem in children. The incidence of boys experiencing dental trauma is twice as frequent compared to girls. It commonly affects the maxillary anterior primary teeth. The etiology of primary tooth trauma in children aged 1-2 years are falls when learning to walk, accidents while playing at school, traffic collisions, sports injuries, and acts of violence.¹⁻³

Dentists are responsible for educating parents, schoolteachers, medical workers, and non-medical personnel about primary tooth trauma to minimize the risk of trauma and provide first aid for primary tooth trauma.⁴⁻⁶ Oral health education can be presented in various ways. Both individual and group education techniques are frequently used in the field of oral health education. Individualized education strategies can be delivered through personalized guidance, counseling, and one-on-one meetings. Education methods for the public include lectures, television, radio, posters or leaflets, and article writing.^{1,7-9}

Oral Health Educational media comprises audio, visual, and audio-visual formats. Visual media stimulate the sense of sight during the learning process. Visual media can be projected, such as slides, films, and film strips, or non-projected (print media), such as booklets, posters, leaflets, charts, and many others. Audio media, such as radios, vinyl records, and vocal cassettes, stimulate the sense of hearing during the delivery process. Examples of audio-visual media, which stimulate the senses of sight and hearing, include television, video, and video cassettes.⁷⁻¹⁰

The treatment of dental trauma in children is ineffective and inefficient due to the lack of awareness among parents, teachers, and healthcare workers, regarding trauma to primary teeth.¹¹⁻¹⁶ Therefore, this study was conducted to assess the level of awareness of ECE teachers before and after watching the educational video "Dental Trauma to Primary Teeth".

METHODS

The study subjects were ECE teachers of 10 public ECE schools in south Jakarta. The sampling technique used in this study was convenience sampling, and 64 teachers met the inclusion criteria for this study. The inclusion criteria are teachers who had a minimal education of Diploma III, who had never received any dental first aid management education before, and agreed to participate in the study. We excluded the teacher who had received dental first aid management education before.

Before conducting this study, the researchers ensured the reliability of the questionnaire before and after watching the video among 20 teachers who were not included in the final sample (Cronbach alpha=0.80). The questionnaire was written in Bahasa Indonesia, and was adopted from similar surveys that had been previously modified.^{11,17} It's divided into 2 parts; the first part consisted of questions about sex, age, and education. The second part consisted of 9 questions about dental trauma to primary teeth.

The video consists of 5 parts describing the definition of trauma to the primary teeth, the impact of the primary teeth on the permanent teeth, actions that need to be taken if the primary teeth are broken or the primary teeth fall out, the signs that a child must immediately go to the dentist due to trauma, and things to consider after trauma care. The duration of the video was two minutes.

Sixty-four research participants were given a questionnaire with questions on their knowledge of "Dental Trauma to Primary Teeth". Before watching the video the participants were given 10 minutes to complete the questionnaire. After watching the video for two minutes, ECE school teachers completed the second part of questionnaire, the same one that had been previously given before watching the video.

The total number of questionnaires was determined by the findings of the questionnaire before and after the participants received the educational video for the first aid of primary teeth trauma, which were compared as part of the data analysis process. All data were analyzed using the statistical package for the Social Sciences version 22 software program (IBM Corp., Armonk, NY, USA). A paired t-test or Wilcoxon's signed-rank test was used because the data does not follow a normal distribution in this study and to determine the significance of the differences between before and after education. The significance level was set at 5%.

RESULTS

The results indicated that all questions could be answered correctly or that the proportion of correct responses increased after educational videos were shown (Table 1). Question #4 received the greatest percentage, 15.6% (41 - 51 participants out of 64 correctly responded), with the question "Will you still take the child to the hospital or dentist if they don't complain of any pain?" Before watching the educational video, the ECE instructor stated that there was no need to check post-traumatic children who had just had an incident. Nevertheless, if a child experiences dental trauma, teachers or parents must continue transporting him to a hospital or clinic. Children who have experienced trauma will have a more thorough examination of their overall health and dental condition at the hospital or clinic.

The second-highest percentage of accurate responses increased by 9.4% between question #3 and question #6. Consider the third question, "Do you think it is important to visit a doctor or dentist as soon as possible after an incident?", not all ECE instructors stressed the importance of taking a child with a dental trauma, prior to the instruction. However, after receiving education, 62 ECE instructors stated that it was important to take their children to the hospital in the event of dental trauma. For question #6, "What is the first type of health service?" there was a 9.4% rise (56 - 62 participants out of 64 answered correctly) in the proportion of individuals who believed that a general dentist or pediatric dentist should be the primary service sought after dental trauma, after viewing the video.

The third-highest, equal to 6.2%, occurred in question #1 (49 - 53 participants out of 64 answered correctly), and question #7 (of 64 participants, 51 - 55 participants answered correctly). The first question was "Are these teeth permanent or primary teeth?" the ECE teachers correctly identified the teeth as milk teeth after watching the video. Despite being provided with informative movies, some teachers still responded that the teeth are permanent. Regarding question #7: "When is the best time to visit a health facility to increase the chance of successful treatment?" After receiving the educational information through the video, they discovered that the child with dental trauma should be taken immediately following the accident.

Table 1. Distribution of Correct Responses to the Questionnaire on the Influence of the Educational Video "Dental Trauma to Primary Teeth" on ECE School Teachers' Awareness

Distribution of Responses		Before (%)	After (%)	Increment (%)
1	These are primary teeth	76.6	82.8	6,2
2	Teachers have to look for the broken or loose tooth after the incident	43.8	45.3	1.5
3	It is important to visit a doctor or dentist soon after the incident	87.5	96.9	9.4
4	Teachers have to take the children to the hospital or dentist even they don't have any complain of pain	64.1	79.7	15.6
5	Teachers will not re-insert the child's lost tooth in the gum if it comes out	93.8	98.4	5.4
6	Teachers choose General Dentist / Pediatric Dentist as the first type of health service	87.5	96.9	9.4
7	The best time to visit a health facility is as soon as possible after the accident	79.7	85.9	6.2
8	It is important to take a child to the dentist periodically after dental accident	95.3	96.9	1.6
9	It is important to be educated about emergency pediatric dental accident care	98.4	100.0	1.4

Table 2. The Effect of Educational Video "Dental Trauma to Primary Teeth" on ECE Teachers' Awareness

Total score	Before	After	<i>p-value</i>
Min - Max	11 - 18	13 - 17	
Median	15	16	0.001
Mean [SD]	15.0 [1.5]	15.8 [1.2]	

Data were analyzed to determine the influence of increasing awareness before and after watching educational videos. Before and after watching educational videos, the results of statistical tests revealed an increase in the median, and the Wilcoxon test was performed to determine the statistical significance of the difference between the teacher's degree of awareness before and after watching the educational video "Dental Trauma to Primary Teeth" with a value of $p \leq 0.05$ (Table 2)

DISCUSSION

The proportion of correct responses to all questionnaire items increased significantly. The median total value increased as a result of watching educational videos. Similar research conducted in the past demonstrated that after watching educational video "First Aid Management of Dental Avulsion" by Katthika VK¹¹ improved the test scores. From this result, the highest percentage is on question number 4 "Will you still take the child to the hospital or dentist if they don't complain of any pain?", indicating that the teachers do not understand the importance of dental examination after dental trauma occurred even though the children didn't have any complaints. These results are similar to other research by Al Sari S et al. (2019), Siddiqui AA et al. (2017), Catilo D et al. (2019), Singh M et al. (2015), Yazeed Saudet al. (2019) that the teachers at school need dental education in related to dental trauma in children.^{15,16,17-19}

In this study, question number #3 and #6 are the second-highest percentage. From the third question, the ECE instructors stressed the importance of taking a child with a dental trauma, prior to the instruction and after receiving education from the video, 62 ECE instructors stated that it was important to take their children to the hospital in the event of dental trauma. For question #6, there was a 9.4% rise (56 - 62 participants out of 64 answered correctly) in the proportion of individuals who believed that a general dentist or pediatric dentist should be the primary service sought after dental trauma, after viewing the video. This result is similar from other study by Katthika VK (2020), the teacher will not take the child immediately if there are no complaints after the trauma but after viewing the educational video about trauma, teacher understands that it is important to check the condition of children after dental trauma to the health care service.¹¹

The third-highest, equal to 6.2%, occurred in question #1. The ECE teachers correctly identified the teeth as primary teeth after watching the video. Despite being provided with informative movies, some teachers still responded that the teeth are permanent. This study in line with the Enikawati M et al. (2020), after viewing education from poster, the teacher could identify the teeth and it is also similar with Katthika VK (2020), the teachers could identify the teeth after viewing the educational video about avulsion.^{11,14} For question #7, after receiving the educational information through the video, they discovered that the child with dental trauma should be taken immediately following the accident. This result is similar with the study by the Enikawati M et al. (2020), Katthika VK (2020), Yazeed Saudet al. (2019), Singh M et al. (2015), that they should give the immediately treatment if there was dental trauma accident in school.^{11,14,18,19}

The Wilcoxon test results comparing teachers' knowledge scores before and after watching the educational video "Dental Trauma to Primary Teeth" revealed a value of $p = 0.001$, indicating that there is a significant difference between the level of awareness among ECE teachers before and after watching the educational video "Dental Trauma to Primary Teeth". This is consistent with research on the degree of teacher awareness using different educational techniques by Enikawati M et al. (2020) and Niviethitha S et al. (2018), which indicated that teacher knowledge increased and varied after receiving education.^{14,20} Several comparable studies have found an increase in teachers' awareness of dental trauma shortly after receiving educational treatments.¹¹⁻¹⁴

The findings of this study indicated that the educational video "Dental Trauma to Primary Teeth" can be utilized as a useful educational tool to increase ECE teachers' awareness of the causes and first aid for trauma to a child's primary teeth. In addition, this educational video can be used by ECE teachers as an option for oral health education media.

The limitations of this study are the limited number of samples and the small area of coverage; therefore, additional research with a greater number of samples and a wider coverage area is needed. However, despite the limitations, our data emphasize the need for further dental trauma education and teachers' training regarding managing dental trauma to primary teeth.

CONCLUSION

From this study, it can be concluded that the educational video "Dental Trauma to Primary Teeth" has a significant influence and increases the degree of awareness of ECE teachers. Consequently, the teachers may act promptly if primary tooth trauma occurs at school.

Author Contributions:

F.E: Conceptualization; methodology; F.E writing original draft preparation; F.E writing review and editing; K.A; investigation; K.A statistics analysis; K.A writing review and editing; W.A; investigation; W.A statistics analysis K.A; investigation; statistics analysis; K.A.

Funding: This research received no external funding

Institutional Review Board Statement: The Protocol of this research has been approved by Faculty of Dentistry Universitas Indonesia (No: 07/Ethical Approval/FKGUI/III/2023

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Data is unavailable due to privacy or ethical re-strictions.

Conflicts of Interest: The authors declare no conflict of interest.

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