



The Effect of Drama and Tooth Brushing Methods in Dental Caries Experience of Kindergarten Children

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ABSTRACT

Published Online: 04 July 2022

Background: The aim of this study was to compare the oral health education with drama method and tooth brushing, drama method and control group in caries of the kindergarten children aged 4 to 6 years. **Methodology:** A Descriptive analysis study was conducted to 240 children of 3 kindergartens. The children between 4-6 year were divided into 3 groups. There were Group I: drama and tooth brushing method, group II: drama method, and group III: control. The drama method and tooth brushing have been followed in 2 years. The tooth brushing was done every day at school and the drama was performed every six months. The dmft index used in this study. Statistical analysis used Kruskal-Wallis test and Mann-Whitney test.

Result: The prevalence of caries and mean of dmft are 74%:3.98 (Group I); 86.25%:4.86 (Group II); 91.25%:7.59 (Group III) with only 3 f-t in group I. There were significant difference of caries among Group I-III and Group II-III ($P < 0.05$) and no significant difference between Group I-II ($P > 0.05$). It means no difference attitude in children with drama method, and with or without tooth brushing method.

Conclusion: The drama method and tooth brushing are an effective method to prevent dental caries.

KEYWORDS:

Dental caries, drama method, kindergarten children, tooth brushing

Abbreviations

dmft : decay missing filling-teeth

f-t : filling-teeth

WHO : World Health Organization

1. INTRODUCTION

Globally, Dental caries have a negative impact on the health and quality of life of children. The most common illnesses suffered by children are dental Indonesian children, 5-6 year were 74.4 % have caries with dmft 6.29 ,the biggest score was d-t : 5,64 and most these caries were untreated.¹The higher prevalence found in Indonesian basic health research (2018) that 5 years old children 92.7% have caries with dmft 8,43.²

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*Cite this Article: Yudha Rahina, Surwandi Walianto, Pudak Elang (2022). The Effect of Drama and Tooth Brushing Methods in Dental Caries Experience of Kindergarten Children. International Journal of Clinical Science and Medical Research, 2(7), 52-56

The untreated caries will cause pain, bacteraemia, affect facial growth and development, premature tooth loss, speech impairment, increased maintenance cost, loss of confidence, and affect the pattern and direction of permanent dentition.³ Dental caries will disturb the function of mastication and affect to disturb the nutritional status and will at risk of stunting. Nutritional deficiencies that were chronic in stunting toddler have an impact on the growth of bones and teeth, so that stunted toddler experience delays in tooth eruption.⁴ The high caries experience and the low protein intake was risk factor for stunting. Dental caries is preventable and reversible disease if handled in the early stage.³

Dental caries can have devastating effects on children who lack access to dental care. Gupta et. all.⁵ show that having a dental visit in the past year is associated with lower odds of untreated caries among children. Demographic and socio-economic variables like: age, race/ethnicity, gender, poverty level, family income, marital status and education level were associated with untreated caries. Interestingly, early childhood caries is not limited to children with a low socioeconomic status.⁶

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There is a global understanding that good oral health behaviour, such as an appropriate diet, plaque control and the use of fluoride paste, can help prevent oral diseases. Rahina et. al.⁷ found there were 3.9% preschool children in Bali were not brushing their teeth, and 94.6% children brushing teeth at the wrong time when taking shower. Regular twice-daily toothbrushing with a fluoridated toothpaste is widely recommended for schoolchildren, brush day and night.⁸

Promotion of oral health in childhood can result in a positive impact on holistic health of an individual for a lifetime. Dental health education using lecturer method and brushing teeth demonstration as one of Indonesia government program to reduce caries prevalence on children. But children caries prevalence were tend to increase.⁹ Lecturer is not interesting method for children recently. Children need a new innovations a fun and attractive oral health education such as the drama method.

A drama, or a play, is a piece of writing that is presented almost exclusively through dialogue. It has a setting, characters, actor, plot and even symbolism. Drama is presented and performed in front of an audience. These plays are usually written out as a script, or a written version of a play that is read by the actor. Drama is often combined with music and dance. Drama is a subject that can also form the basis of a particularly powerful pedagogy in schools. However, drama as pedagogy relies on teacher having drama subject knowledge, skills and in order for them to give children the chance to learn both in drama (as a subject) and through drama (as pedagogy). This method is used by people who are chronically bored or these who seek attention.¹⁰

In addition that behavior is response to action or activity of organism that can be observed and studied which is differentiate in passive and active, passive means that the response occurs inside the human and is not visible by other people, such as knowledge, attitude, and perceptions. In other word, health promotion or education aims to behavior change.¹¹ This study aimed to compare the caries of the children in drama method and tooth brushing, drama method, and control groups in kindergarten children aged 4 to 6 years.

2. MATERIALS AND METHODS

Study sample

This study was carried out in urban areas in Denpasar, Bali Indonesia. These kindergarten school is under the PR Saraswati foundation which has 4 kindergartens. There are 240 children of 3 kindergartens involved in this study by random sampling. The children between 4-6 years were divided in to 3 groups. The schools have different dental health prevention activities, Group I : drama method and tooth brushing activities; Group II : drama method activity only and Group III : without drama method and tooth brushing activities (as control group). Each school was taken 80 children that sample were selected by proportionally simple random. The drama method and tooth brushing have

been doing since 2 years intervention at the school as a part of school activity. The tooth brushing was done every day at school and drama method was performed every six months.

Permission to carry out the study was obtained from respective school authorities. All parents were provided with oral and written information about the study prior to them being asked to inform consent to their child taking part. The informed consents have been obtained from the parents. After obtaining approval from foundations, schools and parents, the identity of every child whose becoming a sample will be included into the data. children's identity were taken from school data.

Data Collection

The clinical oral examination to obtain the def-t score were carried out by 10 persons of young dentists who had previously been calibrated, and using a sterilized mouth mirror and WHO probe. In group I, the children were examined after they brushed their teeth, while in groups II and III the children did not brush their teeth. The assessments were performed only on cooperative children.

Dental health education with role play of drama methods in kindergarten of Group I and II were performed by dental student of Mahasaraswati university every six months. This activity has been going on for 2 years, in collaboration with the Faculty of Dentistry, at the same foundation. They were performed the same story of popular character in cartoon film (Marsha and Bear, Sponges Bob, Dora the explorer and Ipin-Upin) in front of class of both schools. The theme of DM story is how to prevent children oral health. The dental education contents are simple knowledge about the healthy teeth and mouth, caries and gingivitis, cariogenic and non cariogenic food and drink, brushing teeth, bad habit, and what should children do when they have teeth and mouth problems. After the perform, the children may ask about oral and dental health.

Tooth brushing activities have been carried out only in schools in Group I. Teeth brushing training for children was done when they watched a tooth brushing demonstration using a tooth model during a drama show. Tooth brushing with fluoride tooth paste were done by kids after meals time at school every day. They brush their teeth by themselves without teacher supervising.

Research ethical

Permission was obtained from the ethical committee of Mahasaraswati University Denpasar

Statistical Analyses

All data were collected and analysed used statistic software computer. Normality test showed that the data of Group I and group II were not normal, so analyzed continued with non-parametric test. The data were analyzed with Kruskal-Wallis H test, and an extension of the Mann-Whitney U test to allow the comparison of three independent groups.

3. RESULTS

The mean age of the total sample of Balinese kindergarten children was 5.4 years. They were 52.5% boys and 47.5% girls. The prevalence of caries increase from Group I-II and III (74% ; 86.25% ; and 91.25%), so the mean of dmf-t. The group without intervention (Group III) has a highest frequency of dental caries. Almost all dental caries were untreated. It found 28.3% dental caries have been reached and involved the pulp. It was concerned that there were only 3 filling has been found (Group I) , and a kid with 19 dental caries (Group III).

The result showed the significant difference among mean of dmf-t ($P < 0.05$) : 3.98 (Group I); 4.86 (Group II); and 7.59 (Group III) .It means that the high prevalence make the high mean of caries but when analyzed continue between two group, the result showed that there were significant difference of caries between Group I-III and Group II-III ($P=0.00$) but no significant difference between Group I-II ($P=0.108$). It means that no difference attitude in children with DM, and with or without TB method.

4. DISCUSSION

This study show that dmf-t index between Group I and Group II significantly difference with Group III (control). It means the drama method and tooth brush activity at school can prevent caries evidence. Dental health education with DM can prove a good impact to children. They change the bad behaviour of dental health care to the good behaviour. DM contents a story, role and action that give motivation for feeling and thinking that reflecting the children to learning and satisfaction.¹⁰

Creative drama and storytelling methods were effective in increasing the awareness of children regarding personal hygiene.¹² GeethaPriya et. al.¹³ compare three modes among game, drama and conventional flashcard. All modes were effective in improving the oral health status of school children aged 8-9 years. Game mode had the highest impact on oral hygiene and oral health related quality of life of children followed by drama and flashcard modes.

The drama method significantly can improve preschool children oral health knowledge. The drama method in this study presents a popular and favoured story by children, that was combined with music and dance. So the content of dental health education were easier to listening and watching that give a new knowledge and new good dental health behaviour. The drama educational formats are likely to more beneficial for learning how to brush teeth properly and also conveying knowledge about oral health. The knowledge about cariogenic food and drink have motivated children to make a new habit on them. In pre-schoolers, high consumption of sucrose, sweet drinks, high sugar, intake between meals and frequent snacking have all been associated with dental caries.¹⁴

This study accordance to Sharma¹⁵ that the dental health education was effective in improving the oral health related knowledge, behaviour, and oral health status. Repeated oral health education had significant influence on the dental plaque index, tooth-brushing method, brushing occlusal surface and tooth-brushing time. Oral health education is considered effective in changing the oral health behaviour of children when conducted at least 3 times.¹⁶

The change process of behaviour begins that the individual has acknowledged the new information and learn to understand that new object, it was continued by the confidence which individual has already made positive of negative attitude about the object or information. Then individual will decide whether or not they will change and capability to implement the new behaviour according to the health norms.¹¹ The dental health education have made the children aware of good oral health behaviour.¹⁵

This study is in accordance with Risqa et al¹¹, that education plays a role in improving the effectiveness of brushing teeth in 5-8 years old in North Borneo. Respondents behaved better after the investigator gave education and knowing that if they did not change their behaviour in brushing teeth properly, they would be in risk of having tooth caries. This good attitude was the implemented in respondent oral hygiene maintenance behaviour. Cakar et al. ¹⁷ study show that the caries experience and prevalence were lower for tooth brushing group than Non-TB group. The 21-day brush day and night programme improves oral health knowledge and behaviour of the enrolled schoolchildren, with the best outcomes achieved by 7 to 9 year old children.⁸

Toothbrushing practice in school after meals was aimed to give a habitual behavior for children to always clean their tooth. Using tooth brush to remove food debris reduces the production of acids that lead to plaque formation and tooth decay, and avoiding foods and especially drinks manufactured with high sugar content also helps prevent caries.⁹ Brushing teeth for about two minutes at night before go to bed and on one other occasion every day will prevent tooth decay. Frequency of tooth brushing between children with and without caries and more than two-thirds of children with early childhood caries spent less than two minutes when brushing their teeth was statistically significant difference.¹⁴ Infrequent tooth brushing was factor significantly associated with dental caries.

The absence of differences in caries between group I and Group II Shows that tooth brushing is not more prominent than drama method to have an impact on kindergarten children dental caries experience. Lack of skill and improper tooth brush (big size adult tooth brush) may cause of it. Moreover some of kids cannot brush their teeth correctly. Many kids only brushing front of their teeth. The children were not on supervised by teacher or parents when they were brushing. There were no found support from dentists or any dental personnel to spend time supervising tooth brushing in

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groups of children, at school. The children should brush their teeth twice a day under parental supervision and be supported with brushing.¹⁸ Tooth brushing without supervision will give unoptimal result.

This study showed that there were caries increase in group I, group II and group III That significantly diferent among Goup I and Group II with Group III. Our finding are not similar to study Sharma and Vasisht,¹⁵ that the dental health education showed slight increase in def index score but difference between the group was not significant.

It was concerned with the result of this study, the high prevalence and frequency of dental caries and untreated caries show that less of dental health care attention and aware of the parents. A study by Narayanan¹⁹ in India show only 64% parents are aware that they have to regulary monitor their child's teeth for decay, 37% do not agree that restoration of primary teeth is required, and 67.6% are aware of pulp therapy procedures. Parents and family members are

considered the primary source for knowledge about child rearing and health habits for children. There was a low level of awareness in parents regarding knowledge and attitude toward the oral health of children. Parents can play avery important role in promoting good oral habit, and by imbibing good habits themselves can positively influence their children.²⁰

5. CONCLUSION

The drama method and tooth brushing are effective method to prevent dental caries.

6. ACKNOWLEDGMENT

Thank you to all samples and the PR Saraswati foundation, so that this study has been going well

7. FUNDING SOURCES

This study did not receive funding from any party

Table 1. Comparison of caries prevalence and frequency among three groups

Criteria	Group I	Group II	Group III
Caries prevalence	74%	86.25%	91.25%
Mean of dmft	3.98	4.86	7.59
d-t score	308	383	586
m-t score	7	7	21
f-t score	3	0	0
The highest frequency of caries in mouth	13	15	19

Table 2. Comparison test among and between groups

	N	Test	Sig.
Group I			
Group II	80	Kruskal-Wallis	0.00
Group III			
Group I-II			0.08
Group II-III	80	Mann-Whitney	0.00
Group I-III			0.00

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