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Leaflet and pocketbook as an education tool to change level of dental health knowledge



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ABSTRACT

Introduction: Dental caries is a dental problem that often arises in children. One of the factors that affect higher oral health problem is a behavioral factor associated with its children knowledge about oral health, so it is important to educate children to increase their knowledge that will change their behavior in a positive direction. The purpose of this study is to determine the differential effect of dental health education with leaflet and pocketbook in third-grade students.

Method: This type of research is Quasi-Experimental with the method that used in this study is non-equivalent control group design. Samples were taken using a quota sampling technique. Samples were taken from the health service of Padang city in 2014 that showed both of the elementary school (ES) (ES 17 and ES 20) have the highest oral health problem. Total samples are 40 children, 20 children of ES 17 and

20 children of ES 20. Both groups were given a pre-test and then at ES 17 given education with media leaflet and at ES 20 class with the pocketbook. Post-test was done on day seven after giving education. This study used a dependent sample t-test and independent sample t-test ($p < 0.05$).

Result: Statistical analysis showed increasing knowledge significantly, the value before and after the given education used leaflet and pocketbook with the significant value of $p = 0.000$ ($p < 0.05$). There is different between both media in increasing knowledge, with the significant value of 0.003 ($p > 0.05$). The Leaflet shows an increase of knowledge is greater than the use a pocketbook.

Conclusion: Leaflet is an effective media to increase oral knowledge of dental health.

Keywords: leaflet, pocketbook, increase of knowledge.

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INTRODUCTION

Oral health is one of the general health condition affecting the quality of life. One of the most common oral and dental health issues is caries. An Epidemiological study showed the prevalence of caries was higher among developing countries.^{1,2} According to basic health research 2007, caries prevalence was 43.4%, and 72.1% people had experience caries. In West Sumatera alone caries prevalence was 70.6%.³ In 2014, caries cases were 5188.⁴

Caries not only common among adults, but also among children. One of the contributing factors is negligence toward dental and oral health due to lack of knowledge about the importance of oral and dental health.^{5,6} Poor understanding among children is one of the contributing factors that cause caries.⁵ There was an association between children's knowledge about caries and incidence of caries, so thus intervention to increase children's understanding of oral health is very important.⁷

Education about oral and dental health is an initial step to increase children's knowledge.⁷ This is important to be done because at this age children start to develop behavior that would persist until adulthood, one of them is maintaining oral and dental hygiene.^{8,9}

One of population target is children 7-9 years old or 3rd grade.¹⁰⁻¹² This age is the critical age where caries would occur.⁷ Based on their age and cognitive development, children as an educational target have the specific characteristic. Children aged 7-9 years old are in the concrete operational developmental stage, they able to use logical reasoning in solving the problem,¹⁰⁻¹² so this method, approach, and media being used in the educational process must be adjusted so learning goals are achieved.^{7,13}

Children education is affected by several factors. External factors such as environment and culture, and internal factor such as physical and psychological. One of the contributing factors in the learning process is children's interest in a subject, and this affects the learning outcome.^{10,14,15}

Learning media can be used as an aid that enhances thoughts, feeling, attention, and interest.^{8,16-18} For children, pictures can increase learning activity.^{7,19,20} There are several media available to support health-related learning such as a printout, electronic, and outdoor activity. Print out media consists of a poster, leaflet, brochure, magazine, newspaper, flier, sticker, pamphlet, and book.¹⁷

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The Leaflet is a foldable paper consists of information in sentence, picture, or both.²⁰ Leaflet as media or visual aid enhances learning outcome compared with learning without media at all.²¹ The Book is also one of the print out media used in learning, such as pocketbook. Pocketbook has similarity with booklet, but with a smaller size that fits into a pocket.¹⁷ This book consists of a picture just like in the regular book, but with more simple content, and less than 24 pages.¹⁶

Based on the report of Padang city health office 2014, Puskesmas Alai was categorized in five highest caries case from 22 Puskesmas in Padang.⁴ UKGS program in Primary Health Care Alai area showed from 2179 elementary students, 1517 new students underwent dental health education.⁴ Puskesmas Alai has four oral and dental health program, one of them is UKGS that held four times a year. Based on the annual report of Puskesmas Alai on UKGS program, screening among seven elementary schools (ES) showed ES 17 Gunung Pangilun and ES 20 Berok was ranked as the highest and second highest.

Based on the above things researchers interested in researching about determining the differential effect of dental health education with leaflet and pocketbook in third-grade students in ES 17 and ES 20 Padang City.

METHOD

Caries case where 80% students from each school were diagnosed with caries. There was no print out media as learning method used in UKGS program among the elementary schools in Puskesmas Alai area.

Based on the reason above, the author would like to investigate leaflet and pocketbook as learning media with dental health knowledge among 3rd-grade students of ES 17 and ES 20 Padang.

Experimental study must fulfill these principles: replication, randomized and controlled. If the three principles were fulfilled but not perfect, it was called pseudo-experiment. This was a pseudo-experimental with nonequivalent control group design. Two groups of the same grade underwent pre-test, post-test, and different treatment.²² The same questionnaire was administered to a group of respondent twice. Pre-test and post-test were done within seven days period, hoping the respondent had more time to read the given information.²³ The questionnaire consists of 20 questions, with an assessment of each question given the point 5 and for the wrong problem given point 0, with maximal score 100 and minimal score 0.

The population of the study was 59 3rd grade students, 29 students were from ES 17 Gunung pangilun and 30 from ES 20 Berok. Sampling was done using a quota sampling technique, where samples were obtained from a specific population until the sample met the minimum requirement.²⁴ As many as 40 students were recruited, 20 students were from ES 17 Gunung pangilun and 20 students were from ES 20 Berok. From the two elementary school, students were divided into two groups of dental and oral health learning with lecture method, one was given leaflet (ES 17), and the other one has given a pocketbook (ES 20), which is the information for both of media exactly same.

Inclusion criteria were third-grade students 7-9 years old, physically and psychologically healthy, cooperative, literate, good speaking and hearing ability. Exclusion criteria were students who did not undergo pre-test, learning process, post-test, and did not return the questionnaire.

This study used univariate analysis to saw the distribution of data respondents. The bivariate analysis that was a T dependent test and T independent test ($p < 0.05$). The paired T-test was done to investigate the differences between pre-test and post-test in every elementary school. Unpaired T-test showed mean differences between leaflet and pocketbook.

RESULT

Data distribution was normal and a parametric statistical test was done. Statistical analysis was done using the Shapiro-Wilk test because samples were less than 50. Test of normality in ES 17 and ES 20.

Table 1, show all data were normally distributed ($p > 0.05$). Based on secondary data, subjects demographic was described in table 2 and 3. Table 2 showed a majority of samples were male as many as 25 students. Table 3 showed a majority of samples were 9 years old as many as 25 students.

Table 4 showed an increasing score after education about dental and oral health was given using leaflet. The score increased from 48.25 (pre-test) to 77.00 (post-test). The Score was increased as much as 28.75.

Table 5 showed an increasing score after education about dental and oral health was given using the booklet. The score increased from 49.75 (pre-test) to 70.50 (post-test). The score was increased as much as 20.75.

Independent t-test showed mean differences between leaflet and pocketbook was 8.00. Table 5.6 showed $p = 0.003$ (Table 6).

Table 1 Normality test

Variable	Saphiro-Wilk
ES 17	
Pre-test	0.229
Post-test	0.147
ES 20	
Pre-test	0.349
Post-test	0.347

Tabel 2 Frequency of subjects' gender of 3rd graders in ES 17 and ES 20

Sex	ES 17		ES 20	
	Frequency	Percentage(%)	Frequency	Percentage(%)
Male	16	80	9	45
Female	4	20	11	55
Total	20	100	20	100

Table 3 Frequency of 3rd graders age in ES 17 and ES 20

Age	ES 17		ES 20	
	Frequency	(%)	Frequency	(%)
8	6	30	10	50
9	14	70	10	50
Total	20	100	20	100

Tabel 4 Paired t test in leaflet group (ES 17 GP)

Value	n	Mean	Mean differences ± SD	CI 95%	p-value
Pre test	20	48.25			
Post Test	20	77.00	28.75 ± 7.92	25.04 -32.46	0.000*

Tabel 5 Paired t test in leaflet group (ES 20 GP)

Nilai	n	Mean	Mean differences± s.b	CI 95%	p-value
Pre test	20	49.75			
Post-test	20	70.50	20.75 ± 8.31	16.85 - 24.64	0.000*

Table 6 Independent t test between leaflet and pocketbook group

Media	n	Mean	Mean differences (CI 95%)	p-value
Leaflet	20	28.75		
Pocketbook	20	20.75	8.00 (2.8-13.2)	0.003

DISCUSSION

Data was gained from the results of pre-test and post-test. In this research, data distribution was normal and a parametric statistical test was done. Statistical analysis was done using the Shapiro-Wilk

test because samples were less than 50. Based on secondary data, subjects demographic was described by a frequency of gender and age. That showed a majority of samples were male as many as 25 students and a majority of samples were 9 years old as many as 25 students.

The result showed increasing score after education about dental and oral health was given using leaflet or pocketbook. Provision of education using the media will facilitate the delivery of information.^{18,24,25,29} Paired t-test in leaflet group (ES 17) showed increasing score after education about dental and oral health was given using leaflet. The score increased from 48.25 (pre-test) to 77.00 (post-test). The score was increased as much as a 28.75. The t-test was done to investigate the differences between pre-test and post-test. Paired T-test is significant if $< p 0.05$. Result showed $p = 0.000$. There were significant differences from pre and post-test with using leaflet. This research is supported by previous research conducted by Sudibyo Supardi mentioned that the use of media leaflet as a tool for visual aids in providing counseling show results better compared to without using tools in the form media.²¹ The other research by Endah also showed improving knowledge with using leaflet as an educational media.³⁰

Paired t-test in the pocketbook group (ES 20) showed increasing score after education about dental and oral health was given using the booklet. The score increased from 49.75 (pre-test) to 70.50 (post-test). The score was increased as much as 20.75. Based on Paired t-test between pre-test and post-test in the group with the pocketbook, there were significant differences between pre-test and post-test in the pocketbook group with $p = 0.000$. This research is supported by previous research conducted by Ditamarte that pocketbook as an educational media given effect to increase of knowledge.³¹

Independent t-test showed mean differences between leaflet and pocketbook was 8.00. Table 5.6 showed $p = 0.003$. It can be concluded that there were significant differences between increasing score before and after learning using leaflet among ES 17 Gunung Pangilun Students's and pocketbook among ES 20 Berok Students.

Each group showed significant improvement of knowledge, this was by Edgar Dale theory where using media in delivering knowledge enabled better knowledge enhancement.²⁶ This study showed leaflet as a media in delivering knowledge about dental and oral health was better in improving knowledge compared with the pocketbook.

Between the two media, there were differences that may affect the result of delivering knowledge. Both media consist of the same information but differ in presentation. The leaflet is more simple,

brief, and detailed compared with the pocketbook. Pocketbook explains information elaborately. From font size perspective, pocketbook has a smaller font compared with leaflet and this may affect children's interest in reading. Pocketbook also has more pages that may affect children's learning process. According to James W. Brown, children were more likely to have an interest in the picture and shorter sentence compared with long sentence.^{13,27-29}

In using additional media, children's willingness and interest to read is mandatory. Montessori suggested environment and surrounding affected children's interest in learning.¹⁵ A family is where children get their primary knowledge, whether formal or informal. Learning and discipline applied by parents during learning are related to children's interest in learning. Not only external factor, internal factor such as physical (e.g., individual health) and psychological (e.g. interest, intelligence, cognitive, attention, talent, and experience) also affect children learning the process. In reading media, internal factor such as interest and attention affected subject's willingness to read and learn, so thus prior reading, children must have interest in media and given information first.^{10,11,16,18}

CONCLUSION

Leaflet as learning media showed significant knowledge improvement in dental health among 3rd-grade student. Pocketbook as learning media showed significant knowledge improvement in dental health among 3rd-grade student. Both media played a significant role in improving children's knowledge about dental health. However, the leaflet showed more significant result compared with pocketbook.

CONFLICT OF INTEREST

Author declare no conflict of interest.

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