The Effect of Audio-Visual Education on Oral Health Knowledge of the 6–12 Years Old Orphans

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Abstract. An optimal education could prevent caries risk in orphans. An appropriate educational media would make them easier to receive the information and increase their knowledge, attitude, and behavior. Audio-visual is an interesting educational media which involves more senses. This study aimed to analyze the effect of audio-visual education on oral health knowledge of the 6–12 years old orphans. This study was quasi-experimental with one group pretest-posttest design. The data were taken from the result of the questionnaire that was given to 20 6–12 years old orphans in Panti Asuhan Nurul Haq Yogyakarta, before and after the education. Data were analyzed by paired sample T-test ($p < 0.05$). The result showed 0.000, which explains that there was an effect of audio-visual education on oral health knowledge of the 6–12 years old orphans. Children with high knowledge need to perform good behavior in maintaining their oral hygiene.

Keywords: Audio-visual · Education · Orphan children

1 Introduction

Provision of oral health education can be started for elementary school-age children. Children who were 6–12 years old are included in the age group which is considered ideal to train their cognitive abilities. Intellectual abilities of children aged 6–12 years have been able to be the basis to provide various educations that can develop their mindset or reasoning ability. School-age children have a high curiosity about the things around them so that they have a higher urge to know and behave towards their environment [1].

One of the effective educational media to improve oral health knowledge is audio-visual media because it involves various senses. The sight and hearing senses involved in the learning process will be more effective in recording and understanding the meaning of the information conveyed [2]. The previous research proved that cartoon is an effective audio-visual method to improve dental health knowledge and reduce plaque-index on children [3]. This is not in line with another previous study which compared education in

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tooth brushing using several media such as videos, conventional methods, and pamphlets on changes in plaque index on children aged 12 years. The result showed that audio-visual media did not significantly effective compared to the conventional methods or even pamphlets. Pamphlets were considered as the most effective method [4].

Parents have a very influential role in shaping behavior in maintaining the oral health of their children. Regular oral checks by parents should be carried out especially before bedtime because the soft motoric activity is increasingly developed during this period. The role of parents in preventing tooth decay in children can also be done by assisting in the selection of the toothbrushes with the right size and contour. Parents should also explain, give examples, and guide their children to maintain their oral hygiene [5].

The role of parents sometimes cannot be experienced by children who live in orphanages. They may not know parental love and do not get the necessary rights for their growth [6]. Behavioral patterns and oral health knowledge received by orphans are usually less than children living with their parents [7]. The aim of this study is to analyze the effect of audio-visual education on oral health knowledge of the 6–12 years old orphans.

2 Material and Method

This research was a quasi-experimental study with one group pre-test and post-test design, and located at Panti Asuhan Nurul Haq Yogyakarta. The sample was carried out by total sampling and involved 20 children who met the inclusion criteria of 6–12 years old and were willing to be respondents. Informed consent was given and signed by the caretaker of the orphanage as the guardian of the respondents.

The children's knowledge was measured by using a questionnaire that was given before and after education using audio-visual media. Audio-visual media is given once a day with the help of the guardian for four consecutive days. The questionnaire contains 20 questions with a score of 3 for the correct answer, a score of 2 for the incorrect answer, and a score of 1 for not known answer. Each score is summed and determined by the knowledge measurement criteria in the form of low (total score 0–20), moderate (total score 21–40), and high (total score 41–60).

The normality test was carried out with Saphiro-Wilk test since the subjects were less than 50 persons. The paired sample T-test was carried out to analyze the effect of audio-visual education on oral health knowledge of the 6–12 years old orphans at Panti Asuhan Nurul Haq Yogyakarta.

3 Result

The number of respondents who met the inclusion criteria and involved in this study were 20 children.

Table 1 shows that the age group with the highest number is 10 and 12 years, with six children for each group (30%).

Table 2 illustrates that at pre-test there were 18 (90%) children who had high knowledge and 2 (10%) children with moderate knowledge. meanwhile, the results of the post-test showed that all children are in the criteria of high knowledge (100%).

Table 1. Sample Distribution by Age Group

Age	Total	Percentage (%)
7	1	5.0
9	3	15.0
10	6	30.0
11	4	20.0
12	6	30.0
Sum	20	100.0

Table 2. Distribution of Knowledge Score

Score (%)	Category	Pre-test		Post-test	
		Freq.	%	Freq.	%
0–20	Low	0	0.0	0	0.0
21–40	Moderate	2	10.0	0	0.0
41–60	High	18	90.0	20	100.0
Sum		20	100,0	20	100,0

Table 3. Score of Respondents

	N	Highest Score	Lowest Score	Mean	Std. Deviation
Pre-Test	20	58	34	47,80	6.732
Post-Test	20	59	48	53,70	3.213

Table 4. Paired T-Test Results on Oral Health Knowledge

Oral Health Knowledge	N	Sig. (2-tailed)
Before and After Audio-visual Education	20	0.000

Table 3 illustrates that the highest score in the pre-test was 58, and the highest score in the post-test was 59.

Table 4 explains that the significance value of knowledge is 0.000 ($p \leq 0{,}05$). This result showed that there was an effect of audio-visual education on oral health knowledge of the 6–12 years old orphans at Panti Asuhan Nurul Haq Yogyakarta.

4 Discussion

The result of this study showed that there was an effect of audio-visual education on oral health knowledge of the 6–12 years old orphans. The result is in line with the previous study which explains that there was an increase in the number of respondents with a high level of knowledge from 5.8% to 97% after receiving education with audio-visual media [8]. On the other hand, the result of the current research contradicts with another previous study, which states that providing education using the audio-visual media was not effective. The demonstration method was considered to be more effective and provided a more concrete experience for the target [9].

Another factor that may affect children's knowledge was the repeated screening of educational videos during the research. The repeated screening of educational videos has the possibility of behavior change [10]. An individual needs at least 18–254 days for a new behavior to perform a habit with repetition of the behavior at least twice a month [11].

Knowledge, attitude, and action are three levels of behavior that can be related to each other. Good knowledge and attitude may not be followed by good actions, because knowledge and attitude were still limited to closed-behavior. Action, on the other hand, is an opened-behavior that has been performed. Children with high knowledge still need attention to perform new behavior in maintaining their oral hygiene [12].

5 Conclusion

Based on the result of this study, it can be concluded that there is an effect of audio-visual education on oral health knowledge of the 6–12 years old orphans.

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