

Empowerment of Little Dentists and Parents as the Effort to Change the Tooth Brushing Behavior of Sayan Students

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Abstract: *The empowerment of the society has a purpose to improve the ability of the society to behave healthily, to solve the health problems independently, to be active in any health building, and to become the activator in realizing the development in health vision. The purpose of this research is to change tooth brushing behavior and to improve the oral hygiene of SD 2 Sayan students by carrying out the correct daily tooth brushing program by little dentists and parents guidance. This experimental study with pre-post test without control group design was implemented using 68 students. All students did correct tooth brushing program every day that conducted by little dentists at school and who had been trained before that and their parents at home for 35 days. The result showed that the correct tooth brushing behavior and oral hygiene of students before and after tooth brushing program at school and at home were different significantly that analyzed using Wilcoxon test. ($p < 0.05$). The correlations between students' tooth brushing behavior and oral hygiene before and after correct tooth brushing program at school and at home was analyzed using Spearman test showed significantly ($p < 0.05$).*

Keywords: empowerment, tooth brushing behavior, oral hygiene

1. Introduction

One of the diseases nowadays that has high prevalence level among the children of primary school in Indonesia is mouth and teeth disease as much as 74.4%, as the effect of the lack of oral hygiene care [1]. Among the children, the caries that are not cared have caused their low body mass index, anemia, sleep disorder, and as the result, the decrease of the children's life quality [2,3]. Children who have decay, abscesses, and chronic dental pain are more frequently absent from school. Children who are in pain from tooth decay cannot concentrate on, nor excel in, their school work and are unable to actively participate in their learning environments[4].

Based on the research result of basic health in 2013 that the correct tooth brushing behavior among Balinese people aged more than 10 years old only reached 4.1%, meanwhile in 2007 had reached 10.9% [5,6]. It shows that there is a decrease in the correct tooth brushing behavior among the citizen aged 10 years old or more[1].

Behavior has important role to influence oral health status[7,8]. Health is not just about something to know or to realize or to take up, but also something to do in daily life, so that the aim of health education to make the society have healthy behavior to themselves can be implemented [8,9].

National health system stated that the empowerment of the society has a purpose to improve the ability of the society to behave healthily, to solve the health problems independently, to be active in any health building, and to become the activator in realizing the development in health vision, which can begin in each family as the smallest unit of the society [10,11]. Parents are the basic founder of their children's health behavior[12]. The realization of society empowerment is also needed in the school environment through the peer group approach by preparing the students to actively become the motivator of healthy and clean life,

either in the school environment, family or in the society as well[13].

One of the resolutions from The 60th World Health Assembly (WHA) by World Health Organization (WHO) in 2007 is developing and implementing the oral health promotion together with the prevention of mouth and teeth disease as a part of health promotion event in school by focusing on Clean and Health Living Behavior (PHBS) and the practice of personal health care at school, by implementing the daily tooth brushing program at school[1].

The fundamental needs of the implementation of the school health effort are: 1) school aged society (6 – 18 years old) is the biggest part of Indonesian citizens (about 29%), estimated that 50% of them are school aged kids, 2) developing and growing aged children are believed to be trained and led more easily, and 3) health education through school society is the most effective one amongst all efforts to make healthy living behavior for the society in general, since the school society has the high percentage, organized so that can be reached easily, sensitive to education and modernization, and also spreading up the modernization[14]. Thus, children have been taught to be discipline to clean their mouth and teeth wholly in their early childhood[15].

The purpose of this research is to change tooth brushing behavior and to improve the oral hygiene of SD 2 Sayan Ubud students by carrying out the correct daily tooth brushing program by little dentists and parents guidance.

2. Materials and Methods

This experimental research using the pre-post test without control group design took place at Primary School (SD) Negeri 2 Sayan Ubud, Bali. This research used the total population of Grade 1 to 3 students as many as 68 students. The classes chosen are based on the School Dental Health Effort (UKGS) strategies in implementing the prevention to

mouth and teeth disease through the daily tooth brushing program at least for students of grade 1, 2, and 3 [16].

All of the students did the program every day at school conducted by 10 little dentists who had been trained and monitored by the UKS teacher by ticking the checklist given. This research also involved all parents of grade 1 to 3 students. Some meetings with parents were held to show them how to brush teeth correctly and so that they could guide their children how to brush their teeth correctly every day at home and ticking the monitoring check list for that.

Tooth brushing behavior is scored through the skills or practice through the practical aptitude score, i.e., score taking which needs the target to demonstrate how to brush teeth correctly. The instrument used is a check-listed rubric. The score of the skills is qualified as the following criteria [17]:

Qualifications of the Skills Scores

Aspects Scored		Score
Preparing	Doing correctly	1
	Doing incorrectly	0
Practice/Action	Doing correctly	1
	Doing incorrectly	0
Finishing	Doing correctly	1
	Doing incorrectly	0

Score	Criteria
80 – 100	Very Good
70 – 79	Good
60 – 69	Average
< 60	Need Guidance

$$\text{Score of the skill} = \left(\frac{\text{The total score} \div \text{maximum score}}{100} \right) \times 100$$

The oral hygiene status of all grade 1 – 3 students was checked before and after the daily tooth brushing program at school and at home using Personal Hygiene Performance Modified index (PHP-M) of Marten and Meskin.

The categories of oral hygiene status are [18]:

Score	Criteria
0 – 15	Very Good
16 – 30	Good
31 – 45	Poor
46 – 60	Bad

The last score of tooth brushing behavior and oral hygiene status were collected for 35 days after the program held at school and at home.

The research datas were analyzed using Wilcoxon test to find out the difference of students' tooth brushing behavior and the difference of students' oral hygiene status before and after the program held at school and at home. To get the correlations between the students' tooth brushing behavior and oral hygiene before and after the tooth brushing program, Spearman test was used.

3. Results

The subject of the research included 68 students that held the correct daily tooth brushing program, at school are conducted by the little dentists and at home conducted by their parents.

Descriptive Analyzes

Table 1 The scores of students' tooth brushing behavior before and after tooth brushing program at school and at home

Table 1 shows that there was an increase of students' tooth brushing behavior mean score after the correct tooth brushing program at school and at home.

Table 2 The scores of students' Oral Hygiene (PHP-M) before and after tooth brushing program at school and at home

Table 2 shows that there was a decrease of students' PHP-M mean scores, which means that students' oral hygiene gets an increase after the correct tooth brushing program at school and at home.

Multivariate Test Result

Table 3 The difference of students' tooth brushing behavior before and after tooth brushing program at school and at home

Table 3 approves that students' tooth brushing behavior after and before the correct tooth brushing program at school and at home has difference significantly in the trust level of 95%.

Table 4 The difference of students' Oral Hygiene/PHP-M before and after tooth brushing program at school and at home (p<0.05)

Table 4 approves that students' oral hygiene before and after the correct tooth brushing program at school and at home has different significantly in the trust level of 95%.

Table 5 The correlations between students' tooth brushing behavior and Oral Hygiene/PHPM - before and after tooth brushing program at school and at home

Table 5 approves that there was a correlations between the tooth brushing behavior with the oral hygiene of SD 2 Sayan Ubud students before and after the correct tooth brushing program at school and at home in the trust level of 95%.

4. Discussion

The correct tooth brushing behavior of SD 2 Sayan Ubud students before and after the tooth brushing program at school under guidance by little dentists and parents at home has shown the significant difference. This might happen because before the intervention, the students did not know how to brush their teeth properly. Knowledge is the result of knowing, and this happens after someone use his/her senses to a definite object until he/she realizes in the sense of identifying the stimulus (objekt) that has been given[8].The

knowledge obtained can develop an action or someone's behaviour which lasts longer than the behavior which is not established from knowledge[19]. The knowledge or cognitive is a very important domain in building someone's action[8].

Those students have experiences the adoption process, i.e., they have new behavior based on their knowledge, awareness, and attitude to the stimulus [12]. The change or adoption of recent behavior is a complex process and it takes a long time. Behavior changes consist of 3 passages. To get over those three passages, it takes a period as minimum as 21 days. The first 7 days are considered as the passage of building the knowledge and affecting the mind-set. The second 7 days are known as the passage of internalization to make a known behavior as the attitude pattern or habit and the last 7 days are the passage of changing attitude into the new culture[20].

Besides of the above reasons, that might happen because of the monitoring by the little dentists and the parents. Human health behavior is affected by predisposing, enabling, and reinforcing factors [19]. Parents become one of the reinforcing factors while the existence of little dentists become the enabling factors. The empowerment of little dentists and parents becomes the implementation of society empowerment as the effort or process to build the concern, willingness, and capability of the society to support the realization of health behavior or action[12]. The research held by Yongpisanphop showed that the decrease of carries prevalence of three-year-old children was caused by the participation of parents in carrying the tooth brushing activity to their children before bedtime at night [21].

The result of the research shows that the oral hygiene of SD 2 Sayan Ubud grade 1 to 3 students increased which may be affected by having correct tooth brushing behavior after doing the correct tooth brushing program every day by the little dentists and parents guidance, so that their teeth are prevented from plaque. Tooth brushing behavior become one of very important and effective healthy living behaviors in maintaining the oral health by doing prevention of plaque on the teeth[22].

Tooth brushing behavior is one of health behaviours which is very important and effective to oral health protection by preventing them from plaque growing on teeth. The important things to notice in brushing teeth are the teeth, the tools, and the materials used, the time/frequencies of brushing the teeth, and also the way to brush the teeth[15,23].

The increase of the students' oral hygiene may happen because of their parents' participation in controlling those students to brush their teeth at least twice a day appropriately using appropriate tools and material for brushing the teeth. An intervention involving the oral health providers, the school personels, and children and their parents needs to be attempted to see what effect it could have on impact of school oral health education[24,25].

Brushing the teeth will minimize the mixture between sucrose and bacteria so that it can prevent from the existing

of caries. The habit of brushing teeth after breakfast will minimize the growing of caries compared to the ones who never brush their teeth after breakfast, similar to the habit of brushing teeth before bed time at night that will minimize the growing of caries compared to the ones who do not brush teeth before bed time[26]. WHO and FDI clearly stated that the use of toothpaste with fluoride is the most realistic way to minimize the growing of caries because it has been used by almost all people around the world and it is safe to use. Fluoride toothpaste will be the most effective when it is used twice a day[1].

Health is not just about something to know or to realize or to take up, but also something to do in daily life, so that the aim of health education to make the society have healthy behavior for them themselves can be implemented. The collective tooth brushing program is for enabling the daily tooth brushing program advocacy at school based on the GyeongJu Declaration in The 4th Asian Declaration on Oral Health Promotion for School Children in September 2007, mainly considered for early childhood since behavior becomes habit, which will be easier to build in early childhood[1].

5. Conclusion

The conclusion of this research is that little dentists and parents are able to change the tooth brushing behavior into the one and thus improve the oral hygiene of SD 2 Sayan Ubud students. Suggestions for this research are the correct tooth brushing program must be done everyday at school and at home continuously and the school people of SD 2 Sayan Ubud may motivate to the others schools which are not have little dentists yet should collaborate with official of health for gaining the little dentists training.

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Table 1: The scores of students' tooth brushing behavior before and after tooth brushing program at school and at home

	N	Minimum	Maximum	Mean	Percent	SD
Tooth Brushing Behavior (Before)	68	1.00	4.00	1.53	100.00	.91
Need Guidance	48				70.60	
Average	7				10.30	
Good	10				14.70	
Very Good	3				4.40	
Tooth Brushing Behavior (After)	68	1.00	4.00	2.88	100.00	1.09
Need Guidance	10				14.70	
Average	14				20.60	
Good	18				26.50	
Very Good	26				38.20	

Table 2: The scores of students' Oral Hygiene (PHP-M) before and after tooth brushing program at school and at home

	N	Minimum	Maximum	Mean	Percent	SD
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Oral Hygiene/PHP-M (Before)	68	1.00	3.00	2.04	100.00	.91
Bad	8				11.80	
Poor	49				72.10	
Good	11				16.20	
Very Good	-				-	
Oral Hygiene/PHP-M (After)	68	2.00	4.00	3.07	100.00	1.09
Bad	-				-	
Poor	13				19.10	
Good	37				54.40	
Very Good	18				26.50	

Table 3: The difference of students' tooth brushing behavior before and after tooth brushing program at school and at home

		N	Mean Rank	Sum of Ranks	Sig. (2-tailed)
Tooth Brushing Behavior (Before)	Negative Ranks	0 ^a	.00	.00	.000
Tooth Brushing Behavior (After)	Positive Ranks	51 ^b	26.00	1326.00	
	Ties	17 ^c			
	Total	68			

Table 4: The difference of students' Oral Hygiene/PHP-M before and after tooth brushing program at school and at home

		N	Mean Rank	Sum of Ranks	Sig. (2-tailed)
Oral Hygiene/PHP-M (Before)	Negative Ranks	1 ^a	14.00	14.00	.000
Oral Hygiene/PHP-M (After)	Positive Ranks	47 ^b	24.72	1162.00	
	Ties	20 ^c			
	Total	68			

Table 5: The correlations between students' tooth brushing behavior and Oral Hygiene/PHPM - before and after tooth brushing program at school and at home

Spearman' rho		N	Correlation Coefficient	Sig. (2 - tailed)
Tooth Brushing Behavior (Before)	Tooth Brushing Behavior (Before)	68	1.00	.
	Oral Hygiene/PHP-M (Before)	68	.29*	.016
Oral Hygiene/ PHP-M (Before)	Tooth Brushing Behavior (Before)	68	.29*	.016
	Oral Hygiene/PHP-M (Before)	68	1.00	.
Tooth Brushing Behavior (After)	Tooth Brushing Behavior (After)	68	1.00	.
	Oral Hygiene/PHP-M (After)	68	.57*	.000
Oral Hygiene/ PHP-M (After)	Tooth Brushing Behavior (After)	68	.57*	.000
	Oral Hygiene/PHP-M (After)	68	1.00	.

*(p<0.05)