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# Modeling Mama's Heart Movement on Decreasing Debris Index among Elementary School Students

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**Abstract**

**Background:** Health problems are suffered a lot around the world, one of which is dental caries. Based on the study's results, as many as 93% of children aged 5-6 years experienced dental caries, with an average experience of dental caries (dmf-t) of 8.3. World Health Organization (WHO) data shows that 90% of children have caries, and the ECC prevalence of children aged 5-6 years in Indonesia is 90.05%. This figure is still very far from expectations compared to the WHO target, which states that in 2020 the child's DMF-T value is one, and the Indonesian Ministry of Health targets to be caries-free by 2030**. Objective:** The study aimed to examine the effect of Modelling Mama's Heart Movement to Decrease Debris Index in Elementary School Students. **Method:** Quasi-experiment with pre-posttest design, and the statistical test used is the Wilcoxon test. **Results:** The results are *Wilcoxon's test with* a *p-value* of 0.000, meaning that there is a significant change between the *debris index* scores before and after treatment in students. **Recommendation** Modelling Mama's Heart Movement can effectively decrease debris index and be an alternative problem-solving in school children's dental hygiene.

**Keywords:** modeling mama's heart movement, debris index, dental health, student

## INTRODUCTION

Health problems are suffered a lot around the world, one of which is dental caries. Based on the study results, as many as 93% of children aged 5-6 years experienced dental caries, with an average experience of dental caries (dmf-t) of 8.3 (1). World Health Organization (WHO) data shows that 90% of children have caries, and the ECC prevalence of children aged 5-9 years in Indonesia is 90.05%. The percentage of Indonesian people with oral and dental health issues increased for 5-9 years old from 28.9% to 54.0%.[7] This figure is still very far from expectations when compared to the WHO target, which states that in 2020 the child's DMF-T value is one and the Indonesian Ministry of Health target to be caries-free by 2030 (2).

Frequent caries in early childhood, called early childhood caries (ECC), is a disorder of hard dental tissue that attacks milk teeth in pre-age. The impact of dental caries disease is that more than 50 million hours per year are lost due to the child not attending school. This can affect the intellectual and decreased achievement of the child(3). Poor dental health maintenance behaviors cause as many as 25-30% of dental health problems. Behavior is a person's reaction to a problem received from the outside, which has a realm of knowledge, attitudes, and actions (4).

The government has carried out various prevention programs to restrain the development rate and reduce the prevalence and incidence of dental and oral diseases. Efforts to prevent dental and oral diseases in early childhood are carried out through school dental health efforts (SDHE). The dental health maintenance program implemented in schools through SDHE has yet to be able to change the brushing behavior of school students for the better and correct because it is only executed once a year (5). Habits in maintaining oral and dental health can be initiated by forming behaviors from an early age. The age of 5-9 years is the ideal age to train children's motor skills, especially brushing their teeth (6). The provision of stimulation from an early age has a significant influence on optimizing all aspects of early childhood development. The previous researcher proved that increased knowledge, attitudes, and skills affect a child's dental and oral hygiene status (7-8)

Efforts to increase knowledge, attitudes, and actions can be made through dental health education. Dental health education can be done with various fun, entertaining, and eye-catching methods to avoid boredom in a child. One of them is through Modeling Mama's Heart Movement to Lower the Debris Index in Elementary School Students.

Modeling Mama's Heart Movement to Decrease Debris Index in Elementary School Students is a model that formulates mother involvement in instilling children's habits of brushing their teeth at home. Modeling Mama's Heart Movement is packaged in a package: 1) training of the mother in the maintenance of dental and oral hygiene, 2) simulation of practicing brushing teeth to the child, and 3) supervision of the child's brushing through the timetable. The results showed that the Modelling Mama's Heart Movement effectively lowered elementary school students' debris scores.

Modeling Mama's Heart Movement is an innovation and revitalization of school dental health (UKGS) business carried out by involving the participation of parents, especially mothers, as a strategy to achieve the target of the Indonesian Ministry of Health to be caries-free by 2030.

## OBJECTIVE

This study is aimed to examine the effect of Modelling Mama’s Heart Movement to Decrease Debris Index in Elementary School Students.

## METHODS

The research method is quasi-experimental with a non-equivalent control group, pre-test, and post-test design.

### Sample size and sampling technique

The population was 150 elementary school students using random sampling techniques. Samples will be taken according to the established inclusion criteria. The number of samples in this study was determined based on the Taro Yamane formula. Therefore, the number of samples obtained was 50 respondents. In this study, two types of criteria for deciding on respondents were used, inclusion criteria, including being willing to take part in the research and having filled out

an approval sheet to be used as a research sample, and exclusion criteria, including not being ready to be a respondent and not filling in an approval sheet to be used as sample research.

**The instrument for data collection**

The instrument used to measure the variables is a checklist table for brushing actions. It is a modification of the material for a good and corrects brushing step, with a score of 1 if you do it correctly and a score of 0 if you don't get it. And a dental examination sheet to calculate the index debris score on the student's teeth. The result of the validity of the skill instrument is valid, i.e., sig .000 (<0.005). The reliability result was obtained by the reliability of the tooth brushing instrument, namely Cronbach alpha .787 (>0.6). The result of the validity of the skill instrument is valid, i.e., sig .000 (<0.005). The reliability result was obtained by the reliability of the tooth brushing instrument, namely Cronbach alpha .787 (>0.6).

**Intervention**

This research was conducted by applying the behavior change theory for 21 days. The intervention consisted of 2 meeting interventions, including:

1. Meeting days 1 - 21 in early childhood
   a. Introduction
   b. Pre-test measurements include a tooth brushing list check table and a debris index examination sheet.
   c. Mama's Heart Movement Modeling Simulation
   d. Providing education about Modelling Mama's Heart Movement
   e. The practice of brushing teeth together
2. 22nd-day meeting in childhood
   a. Evaluation of students by researchers

**Data collection process**

We divide the data collection procedure into three stages. We processed a permit from the Health Office, Education Office, Community Public Health, and Research Ethics Committee for ethics approval in the first phase. The second stage is conducting interviews with the Head of Community Public Health and principals, conducting surveys or screenings on respondents, conducting pre-tests, and sharing information sheets and consent forms provided for signature by participants to conduct research interventions for 21 days, evaluation. The third stage performs data entry, coding, and data tabulation.

**Data analysis**

Data were analyzed using IBM® SPSS® Statistics 26.0 with a significance value of 0.05.

**Ethical consideration**

The researcher got approved to conduct the study from the committee ethic of Health Polytechnic of the Ministry of Health Semarang 0223/EA/KEPK/2022.

## RESULTS

**Table 1. Expert Validity Test**

| | Expert Validity | | |
|---|---|---|---|
| | N | f (%) | *p-value* |
| Relevant | 10 | 100 | 0.001 |
| Irrelevant | 0 | 0 | |

The results of expert validity show that the *p-value* = 0.001, which means that the Mama's Heart Movement and modules are relevant as models and modules as a strategy to achieve caries-free Indonesia by 2030.

**Table 2. Variable Characteristic Data**

| Variable | Intervention | | Control | | Homogeneous Test Data |
|---|---|---|---|---|---|
| Class | N | % | N | % | |
| Grade 1 | 25 | 50% | 22 | 44% | 0.431 |
| Grade 2 | 25 | 50% | 28 | 56% | |

**Levene test*

Table 2 shows that grade 1 and grade 2 primary schools have homogeneous data, as evidenced by p–value = 0.431 (p>0.05). *Levene Test* results showed *a value of p*>0.05 so it can be concluded that the intervention group and the control group respondents have the same characteristics.

**Table 3. Frequency Distribution of Student Index Debris Scores Before Treatments**

| Respondent Category | f | % |
|---|---|---|
| Good | 10 | 20 |
| Good enough | 28 | 56 |
| Bad | 12 | 24 |

| | | |
|---|---|---|
| Total | 50 | 100 |

Based on table 1, it can be seen that the frequency *of student index debris* scores before treatment, as many as 10 respondents had good criteria (20%), 28 respondents (56%) in medium criteria, and 12 respondents (24%) in insufficient criteria.

**Table 3 Frequency Distribution of Student Index Debris Scores After Treatment**

| Respondent Category | f | % |
|---|---|---|
| Good | 40 | 80 |
| Good enough | 10 | 20 |
| Bad | 0 | 0 |
| Total | 50 | 100 |

Table 3 shows *the frequency of debris index* after counseling treatment, with 40 respondents (80%) with good criteria and 10 respondents (20%) with suitable measures. This shows a decrease in the debris index after being given counseling treatment students.

**Table 4. Test Results of Different Index Debris Scores**

| ***Debris Score Index*** | ***Z*** | ***p-value*** | **Interpretation** |
|---|---|---|---|
| Treatment Groups | -5.860 | 0.000 | Ha accepted |

Based on table 4, it can be seen that the result of *Wilcoxon's p-value* is 0.000. So Ha is accepted, meaning there is a significant change between students' *debris index* scores before and after treatment.

## DISCUSSION

The results of the distribution of data before and after the intervention found that there were significant differences. This is supported by the results of different tests conducted using a Wilcoxon *p-value* of 0.000 which means that Modelling Mama's Heart Movement decreases debris index in elementary school students.

This is in line with a previous study, which stated that counseling is an effort to prevent dental and oral health problems, change unhealthy behaviors to healthy through counseling programs, and can increase public knowledge and awareness so that they participate actively in improving the degree of health (9). This is because students and elementary school children brush their teeth every day for 21 days under parents' monitoring, especially mothers. Actions performed over and over again will become a habit. Elementary school students become skilled at brushing their teeth properly and correctly and brushing them twice a day after breakfast and before going to bed at night.

Implementing health promotion programs can be successful if participants experience increased knowledge through understanding the material, reflected in attitudes and performing skills (10). Modeling Mama's Heart Movement is said to be successful because children are given an understanding of dental and oral health materials and simulate correctly to perform actions that match the information provided.

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