



Bullet Journal as a Strategy of Changing Stunting Toddlers' Behavior of Looking After Dental and Oral Health: One Group Pre-Test Post-Test

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ABSTRACT:

Objectives: The stunting toddlers had poor oral hygiene. Bullet journal was believed as an effective media of changing the behavior of looking after the dental and oral health. The research aims to identify and analyse the difference between the stunting toddlers' behavior of looking after the dental and oral health before and after the use of bullet journal.

Methods: The study was pre-experimental research with one group pre-test post-test design. The population was 2396 stunting toddlers aged 36-60 months at Jelbuk Public Health Center, Jember. The sample was 100 toddlers from 6 villages selected by clustered random sampling. The research variable was the behavior of looking after dental and oral health measured by a questionnaire (pre-test and post-test). The media of Bullet Journal was utilised for 28 days. The result was tabulated and analysed using Wilcoxon Signed-rank Test.

Results: The 72% of the respondents were 48-60 months, 59% of the respondents were male, 56% of the respondents had parents with low education, and 91% of the respondents were Madurese. The average score of pre-test was 54.72 ± 13.91 . While the average score of post-test increased to 79.42 ± 9.24 . The Wilcoxon Signed-rank Test resulted p-value 0,000 was less than α (0,05) that meant there was different score between before and after the use of bullet journal.

Conclusion: There was the difference between the toddlers' behavior of looking after their dental and oral health before and after the use of bullet journal.

I. INTRODUCTION

Stunting toddlers are vulnerable to the dental and oral health.^{1,2} 90.72% of stunting toddlers suffered severe caries. The severe caries has an impact on the toddler's growth and quality of life (2). One of the causes of severe caries is a poor oral hygiene and a high plaque index.³ The stunting toddlers' behavior in maintaining dental and oral hygiene is affected by their parents. The dental and oral hygiene status of stunting

toddlers in Enrekang Regency was in the medium category.⁴ This was supported by the parents' awareness of maintaining their toddlers' health.

Stunting toddlers was often ignored due to the low education level and IQ of their family so that the behavior of maintaining dental and oral health was in low category.⁵ 91.9% mothers having stunting toddlers were last educated as primary school students.⁶ Stunting toddlers experienced 7% decrease of cognitive improvement.^{7,8} Stunting toddlers needs



activity repetition to understand something and habituating behavior in order to make behavior changes.^{6,8} The behavior and habit change will be successful if it is repeated everyday for about 21 days.⁹

One of the ways to change the behavior is the health education with behavior change strategy to enhance self-management skill which has good effects. Five stages of behavior change are pre-contemplation, contemplation, action preparation, action, and preservation.¹⁰ The health education conducted was the counseling by the health professional to the health cadre.¹¹ The counseling method is not considered effective to change stunting toddlers' behavior because it is usually performed once. The researchers found the effective counseling media to change the behavior of maintaining dental and oral health that was by using a bullet journal. The study aims to analyse the difference between stunting toddlers' behavior of dental and oral health before and after using bullet journal.

II. METHODS

Pre-experimental study was conducted along with one group pre-test post-test design. The population was 2396 stunting toddlers aged 36-60 months at Jelbuk Public Health Center, Jember regency. Clustered random sampling with Slovin's Formula was performed to take 100 toddlers in six villages, namely Jelbuk, Panduman, Sucopangepok, Sugerkidul, Sukoember and Sukowiryo.

The variable was the behavior of looking after the dental and oral health that was measured by a questionnaire. The questionnaire was distributed twice; in a pre-test, and in a post-test. The media utilised was bullet journal of dental health in form of agenda book containing daily activity regarding dental health, for instance the time and method of brushing teeth, and also the dietary. The toddlers were required to stick the sticker on a provided column in the bullet journal. Besides the daily activity, the bullet journal also contained educational games related to the dental health. The display of the bullet journal was dominated by colorful animations. The bullet journal was distributed to the respondents after the respondents did a pre-test. The bullet journal was filled for 28 days. Then the respondents were given a post-test.

Having managed the license and ethical clearance, the researchers collected the data by doing the procedures as follows:

a. 1st day:

1. The researchers distributed the information and consent form to the respondents and their parents. The information and consent form were signed as a sign that the respondents and their parents are willing to be involved in the research.
2. The researchers distributed the pre-test of looking after the dental health. The respondents answered the test with their parents' help.
3. The researchers explained the procedures of filling bullet journal before the respondents filled it in their own houses.

b. 29th day: The respondents answered the post-test with their parents' help

The data were tabulated and analysed by descriptive statistical test and Wilcoxon Signed-rank Test. A descriptive statistical test was used to analyse the characteristics of the respondents which was displayed in the table of frequency distribution. A Wilcoxon Signed-rank Test was performed to analyse the difference between the stunting toddlers' behavior of looking after the dental and oral health before and after the use of bullet journal. The current study was approved by the Ethics Committee of Faculty of Dentistry, University of Jember with the number of 1601/UN25.8/KEPK/DL/2022.

III. RESULTS

The research data showed the use of bullet journal in changing the stunting toddlers' behavior of looking after the dental and oral health. The respondents' characteristics based on age, gender, parents' education, and ethnicity was available in Table 1.

Table 1 showed that 72% of the stunting toddlers were 48-60 months. 28% of the stunting toddlers were 36-47 months. 59% of the stunting toddlers were male and 41% of them were female. 56% of the stunting toddlers had parents with the last education of primary school. 36% of them had parents with the last education of junior high school. 8% of them had parents with the last education of senior high school. None of



them had parents with the last education of bachelor degree. 91% of them was Madurese. 9% of them was part of Pandhalungan ethnicity. There was no Javanese or other ethnicities. The average score of pre-test and post-test is provided in Table 2.

Table 2 showed the average score of pre-test was $54,72 \pm 13,91$. While the average score of post-test increased to $79,42 \pm 9,24$. The result of Wilcoxon Signed-rank Test to analyse the different score of stunting toddlers' behavior of looking after dental and oral health is showed in Table 3.

Table 3 showed p-value 0,000 was less than $\alpha(0,05)$. There was different score between the toddlers' behavior of looking after their dental and oral health before and after the use of bullet journal.

IV. DISCUSSION

Most of the stunting toddlers (72%) involved in the study was on the age range of 48-60 months. This is in line with the studies that have been conducted in some countries, such as Ghana, Zambia, and Ethiopia. The increase of stunting along with increasing age can be affected by the inappropriate food intake and the increase of morbidity among toddlers aged 12-59 months.¹²

The study conducted in South Asian also found that the 3-5 year old toddlers were more possible to experience stunting than the children aged under of it. This case occurred due to the effect of transition in breastfeeding in which the toddlers were given breastmilk until 24 months. The breastmilk intake gradually decreased along with the increase of the toddlers' age. A poor food intake, limited food variety, bad micronutrient, and lack of animal proteins can cause the stunting risk of the toddlers aged 3-5 years old.¹³⁻¹⁵

The male toddlers were dominant (54%) than the female toddlers. This is in line with the research by Angelina *et al* (2018) that revealed stunting occurrence was experienced more by the male toddlers with the probability of 2.441 times bigger than female toddlers.¹⁶ Gross motor development on male toddlers is faster and more various so that needs more energy.¹⁷ The male toddlers commonly have lower immune system than the female toddlers; consequently, they are more susceptible to the infection. The infection disease relates to the undernutrition issue. The infection disease leads to loss of

appetite, malabsorption of nutrition, and other metabolism disorders that cause undernutrition among male toddlers.¹⁸

Most of the last education of stunting toddlers' parents was primary school (56%). Then there was no parent with bachelor degree. This is also in line with the study by Vollmer revealing that 59% of stunting toddlers' parents were not even graduated from primary school.¹⁹ Parents with a good education level possess sufficient awareness of nutrition and food intake for children. The mothers with a good education level will more understand on Early Initiation of Breastfeeding optimally. The parents with a good education level are more possible having higher income so that can meet their children's health and better access of the health service.^{14,20}

Jelbuk Public Health Center is located in a suburb with 100% rural area where 91% of Madurese lived there. The Madurese really respect their culture and their ancient's belief although it sometimes harms their health.²¹ The Madurese believes that pregnant women are not allowed to consume high protein food (seafood and chicken). They also believe that formula milk can replace breastmilk, the infants under 6 months are fed by lotek (smashed rice with banana), and toddlers are not recommended for immunisation due to a belief that short and thin kids are parent's descendants.^{22,23}

The parents' low education and bad habit of the family caused the behavior of looking after stunting toddlers' dental and oral health was in a bad category. This was proved by the average of pre-test score in 54.72 (low category). Besides having poor physical, the stunting toddlers have also bigger limitation of brain growth, behavior improvement, motor, and cognitive than the normal toddlers. The undernutrition condition in a childhood will cause the decrease of IQ until 10-15 points, thus the children cannot adopt the knowledge well.^{24,25} The lack of dental and oral health awareness is the main factor of the bad behavior.²⁶

The average score of post-test showed significant increase after the use of bullet journal within 28 days. The use of bullet journal is similar to the use of diary book. Bullet journal is one of the visual media in form of innovative encyclopedia. The use of bullet journal in the education has some advantages, namely simplifying and accelerating toddlers' awareness of the message delivered; attracting toddlers' attention because of its colorful animation; and its efficient



and affordable production.^{27,28} Furthermore, the frequency of repetition is important in changing the behavior. The repetition and empowerment are two of the main principles of the instruction, then the other two are the clear purpose and the children's active involvement.²⁹ The attractive media and repetition of the education regularly with parental assistance can change the behavior of looking after the dental and oral health.

There were several differences between the behavior of looking after the dental and oral health before and after the use of bullet journal within 28 days. Providing repeated learning to the toddlers with a low intellectual (e.g. stunting toddlers) will ease them understanding the concept or material taught.³⁰ Besides a mass repetition, the behavior change before and after the giving of bullet journal was also influenced by the parents' knowledge.³¹ Toddlerhood is a critical period in health development.³² The companion of the parents is suggested given to the children until they are 8 years old.³³ The help of the parents in writing the bullet journal can help the toddlers understand the education delivered.

V. CONCLUSION

There was the difference between the toddlers' behavior of looking after their dental and oral health before and after the use of bullet journal.

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TABLES

TABLE I. RESPONDENTS' CHARACTERISTICS BASED ON AGE, GENDER, PARENTS' EDUCATION, AND ETHNICITY.

Age Range (Month)	Frequency (f)	Percentage (%)
36-47	28	28
48-60	72	72
Gender	Frequency (f)	Percentage (%)
Male	54	54
Female	46	46
Parents' Education	Frequency (f)	Percentage (%)
Primary School / Not Completed	56	56
Junior High School	36	36
Senior High School	8	8
Bachelor	0	0
Ethnicity	Frequency (f)	Percentage (%)
Madura	91	91
Pendhalungan	9	9
Java/others	0	0
Total	100	100

TABLE II. THE PRE-TEST AND POST-TEST AVERAGE SCORE OF STUNTING TODDLERS' BEHAVIOR OF LOOKING AFTER DENTAL AND ORAL HEALTH.

	Number of Respondents	Mean	SD
Pre-Test	100	54,72	13,91
Post-Test	100	79,42	9,24



TABLE III. WILCOXON SIGNED-RANK TEST RESULT OF THE BEHAVIOR BEFORE AND AFTER USING BULLET JOURNAL.

	p-value	Description
Pre-Test & Post-Test	0,000	There was difference between the toddlers' behavior of looking after their dental and oral health before and after the use of bullet journal

CONFLICT OF INTEREST

Authors declared no conflict of interest

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