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## POLICY ON PROTECTION OF CHILDREN AND VULNERABLE GROUPS IN COVID-19 PANDEMIC

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**DENTAL HEALTH EDUCATION USING DEMONSTRATION AND  
VIDEOS ON STUDENTS' TOOTHBRUSHING BEHAVIOR  
CHANGES AT SDS AL- AZHAR BUKITTINGGI**

**Aljufri, Yustina Sriani, Yessi Yuzar, Aflinda Yenti, Dewi Rosmalia**

\*Departement of Dental Health, Health Politechnic Ministry of Health Padang

**ABSTRACT**

Dental health education is one of the programs to tackle dental health problems in Indonesia. The selection of the appropriate method in delivering educational material significantly contributes to the achievement of the targeted behavior change. Demonstration is one of the methods commonly used in this process. The demonstration method can be amplified by incorporating audio-visual media. It can be used to deliver the material more interestingly so that learning can be more interactive. This study aims to determine dental health education using demonstrations and videos on toothbrushing behavior changes among primary school students aged 9-12 years old.

This research is quasi-experimental with Pretest-Posttest Group Design. The research samples are students aged 9-12 years old at SDS Al-Azhar Bukittinggi with a total number of 100 students. These samples were collected by simple random sampling. The research procedure started by giving a pre-test followed by a demonstration and video presentation about toothbrushing for different groups. The research then ended with a post-test to find out toothbrushing behavior. The data were analyzed using Wilcoxon and Mann-Whitney test.

From the results of the Wilcoxon test, dental health education with demonstration method and video before and after the treatment obtained a significance value of  $0.000 < 0.05$ . It indicates that dental health education with demonstration method and video effectively improves the respondent's toothbrushing behavior. The Mann-Whitney test showed a significance value of  $0.000 < 0.05$ . It indicates that there is a difference in toothbrushing behavior between the demonstration method and video

Dental health education with the demonstration method is more effective in changing the respondent's toothbrushing behavior. Therefore, it is recommended for school teachers and UKGS officers to conduct dental health education using the demonstration method to change the toothbrushing behavior of elementary school students.

**Keywords:** *demonstration, dental health education, video*

## Introduction

It is necessary to maintain dental health from an early age, but many people still ignore their oral and dental health. The results of the Basic Health Research (Riskesdas) in Indonesia in 2007 (Depkes RI, 2007) revealed that 91.1% of the population, aged ten years and over, performed toothbrushing every day, but only 12.6% of the population performed toothbrushing in the morning and at night, 28.7% of them before bed at night, and 7.3% of them after breakfast and before bed as it is recommended. The results of Riskesdas 2013 indicated that 76.6% of the Indonesian population showed good toothbrushing behavior in the morning and at night, and only 2.3% of them performed toothbrushing in the morning after breakfast and at night before bed (Kemenkes RI, 2013).

The results of 2007 Riskesdas for the province of West Sumatra indicated that 92.7% of the population, aged ten years and over, performed toothbrushing every day; 85.9% of them performed toothbrushing in the morning and at night; only 5.0% of them performed it after breakfast and 20.1% before bed. The results of the 2013 Riskesdas for West Sumatra that 97.3% of the population, aged ten years and over, performed toothbrushing every day; 70.8% of them performed toothbrushing in the morning and at night; only 2.5% of them performed it after breakfast and 21.6% before bed. Based on these data, it can be seen that the toothbrushing behavior among the population aged ten years and over, especially in the province of West Sumatra, is not good.

One of the efforts to prevent and overcome dental health problems is through the Dental Health Education (DHE) approach. Dental health education delivered to individuals or communities is expected to change their dental health behavior. The dental health education program is one of the programs that should be implemented by the Public Health Center (Puskesmas) integrated with other health promotion efforts. It is aimed at individuals who come to the center or community groups in its work area (Budiharto, 2010).

Dental and oral health services for school children are carried out through basic dental, and oral health activities at the Public Health Center integrated with the main activities of the School Health Unit (UKS) in the form of the School Dental Health Unit (UKGS) program. UKGS program is a public health effort aimed at maintaining and improving all students' dental and oral health in the target schools supported by personal health promotion through promotive and preventive measures (Kemenkes RI, 2012). One of the promotive efforts in the UKGS program is providing counseling on dental and oral health about proper and correct toothbrushing, such as the good type of toothbrush and toothpaste, the correct method of toothbrushing, and the correct time and frequency of toothbrushing (Dewanti, 2012).

Behavior changes in knowledge, attitudes, and skills occur because of the interaction between new experiences and previous ones. The learning process involving more senses, for example, by combining the sense of sight hearing, will be more readily accepted and remembered by students than those involving only one sense.

Direct counseling is one of the efforts to improve children's dental and oral health. The counseling method commonly used is demonstration. The demonstration method presents information by showing an object or demonstrating a procedure directly. Visual aids, questions, and answers accompany the presentation of the materials with the demonstration. This method can demonstrate how to maintain dental and oral health by demonstrating the correct way of toothbrushing, using a good toothbrush and dental visual aids (models). The demonstration method can be amplified

with audio-visual media. This method can be used to deliver material more interestingly so that learning can be more interactive (Siahaan et al., 2016).

The study by Maria (2016) (Siahaan et al., 2016) on the effectiveness of the combination of audio-visual and the demonstration method to mothers on reducing children's plaque index showed that the combined audio-visual and demonstration method was more effective than the single demonstration method in lowering children's plaque index. Based on the research by Ridwan et al. (2019) (Febrianta et al., 2019) on the effect of video media on knowledge and attitudes of pregnant women about anemia in the Nanggulan Public Health Center area of Kulon Progo Regency, there was an increase in knowledge and attitudes of pregnant women about the problem of anemia by using video media.

## Method

This study is pre-experimental with a pretest-posttest group design to determine phenomena or effects resulting from specific treatments. With this design, the same questionnaire was tested on the same respondents twice, before the treatment with the demonstration method and videos and after the treatment with the demonstration method and videos. This research was conducted at SDS Al Azhar, Bukittinggi, in October 2018. The population in this study are students aged 9-12 years old at SDS Al Azhar Bukittinggi. The sample size in this study was determined by using the Lemeshow formula (Dahlan, 2014), with a total sample of 100 students for the two groups. Samples were selected through simple random sampling.

The instrument used in this research was a toothbrushing behavior questionnaire, which contained questions regarding knowledge, attitudes, and behavior about toothbrushing (good types of brush and toothpaste, correct toothbrushing methods, toothbrushing time, and frequency). Toothbrushing videos contained sounds and pictures about toothbrushing (good types of brush and toothpaste, proper toothbrushing methods, toothbrushing time, and frequency).

The data were collected by conducting a pre-test using the questionnaire about toothbrushing behavior to Groups I and II to measure their knowledge, attitudes, and toothbrushing behavior. Then, the counseling about toothbrushing was given to group I with the demonstration method and group II with video presentation. Furthermore, the second behavioral measurement after the treatment was performed. Data analysis was carried out using univariate and bivariate analysis. Bivariate analysis was conducted to see a difference between the two groups before and after the treatment. Because the data were not normally distributed, the test used was the non-parametric test, namely the Wilcoxon and Mann-Whitney test to see differences in toothbrushing behavior with the demonstration method and video presentation.

## Findings and Discussion

### 1. Distribution of Respondents by Age and Sex

Table 1. Distribution of Respondents by Age and Sex

Characteristics	Demonstration		Video presentation	
	Number	%	Number	%
Age				
9 years old	3	6	12	24
10 years old	10	20	25	50
11 years old	22	44	12	24

12 years old	15	30	1	2
Total	50	100	50	100
Sex				
Male	22	44	32	64
Female	28	56	18	36
Total	50	100	50	100

Table 1 shows that the sex of most respondents in the demonstration group is female (56%), while the video group is mostly male (64%). Based on the age of the respondents, the demonstration group is mostly 11 years old (44%), while the video group is mostly 10 years old (50%).

## 2. Research Findings on Knowledge with Demonstration and Video presentation

### Table 2. Findings on Analysis of Knowledge with Demonstration and Video presentation

Category	Demonstration				Video presentation			
	<i>Pre-test</i>	%	<i>Posttest</i>	%	<i>Pre-test</i>	%	<i>Posttest</i>	%
Good	28	56	35	70	28	56	28	56
Less	22	44	15	30	22	44	22	44
Total	50	100	50	100	50	100	50	100
<i>P-value</i>	0.000				0.000			

Based on table 2, respondents' knowledge before the demonstration is in the good category (56%), and it is also in the same category after the demonstration (70%). There is an increase of 14% in respondents' knowledge after the demonstration. Meanwhile, in the video group, respondents' knowledge, both before and after the treatment, is in the same category with no change in its percentage (56%). Based on the Wilcoxon test, the significance value of the demonstration and videos is  $0.000 < 0.05$  for both. It indicates a difference in knowledge of toothbrushing before and after dental health education with the demonstration method and video presentation.

Respondents' answers showed that only 1 respondent could correctly answer all questions about toothbrushing in both the demonstration and video group. It happened because students did not understand how to brush their teeth properly and correctly. Based on interviews with UKS teachers at SDS Al-Azhar, Bukittinggi City, dental health workers did not routinely carry out UKGS (School Dental Health Unit) activities at the SDS. The action of toothbrushing at school was not routinely carried out either.

The analysis of the average pre-test score of the demonstration and video group showed no significant difference in the respondents' knowledge between the two groups. The average score for the demonstration group was 8 and 7.5 for the video group. This shows that the knowledge possessed by the two groups of respondents is relatively the same.

Respondents' knowledge about toothbrushing in the demonstration group before the treatment is in the good category (56%) and the good category after the demonstration (76%), so there is an increase of 14%. Based on the Wilcoxon test, a significance value of  $0.000 < 0.05$  was obtained. It shows that dental health education with the demonstration method can increase respondents' knowledge.



These findings align with the research conducted by Usman (2006) (Usman, 2006) at SDN Labuhan Haji, which revealed that dental counseling with the demonstration method effectively increased children's oral health knowledge. There was a difference in children's knowledge before and after the treatment. Children's knowledge before the treatment was 45% in the sufficient category and 55% in the less category. After the treatment with the demonstration, the rate increased to 45% with the good knowledge category, 55% with the sufficient, and no respondent with less knowledge category.

The respondents' knowledge of toothbrushing in the video group before treatment is in a good category (56%) and also 56% after the treatment. However, the obtained positive rank value of 31 indicates thirty one respondents experienced an increase in their knowledge about toothbrushing after the treatment with an average increase of 17.58. Based on the Wilcoxon test, a significance value of  $0.000 < 0.05$  is obtained. It suggests a difference in the respondent's knowledge of toothbrushing before and after the video presentation. It indicates that dental health education by the video presentation can increase respondents' knowledge.

The results of this study are in line with research conducted by Kantohe et al. (2016) (Kantohe et al., 2016) at SDN Kolongan on the comparison of the effectiveness of dental health education using video and flip charts on increasing children's dental and oral health knowledge. This study showed that dental health education using video and flip charts effectively increased children's knowledge of dental and oral health.

Knowledge is the result of someone's knowing about an object through the senses they have. Sensing until producing knowledge is strongly influenced by the intensity of attention and perception towards the object. Most of a person's knowledge is obtained through the sense of hearing and the sense of sight (Notoatmodjo, 2012). Demonstration and videos both use the sense of hearing and sight. Dale (1969) said that the knowledge a person gains is influenced by the senses used; the more senses used to receive something, the clearer the understanding obtained (Adiko et al., 2008).

### 3. Research Findings on Attitude with Demonstration and Video presentation

Table 3. Findings on Analysis of Attitude with Demonstration and Video Presentation

Category	Demonstration				Video presentation			
	<i>Pre-test</i>	%	<i>Posttest</i>	%	<i>Pre-test</i>	%	<i>Posttest</i>	%
Good	33	66	43	86	33	66	38	76
Less	17	34	7	14	17	34	12	24
Total	50	100	50	100	50	100	50	100
<i>P-value</i>	0.000				0.000			

Based on table 3, the attitude of respondents before the demonstration is in the good category (66%), and it is also in the same category after the demonstration (86%). There is an increase of 20% in respondents' attitudes after the demonstration. Meanwhile, in the video group, respondents' attitude before the treatment is in the good category (66%), and it is also in the same category after the treatment (76%). There is an increase of 20% in respondents' attitudes after the video presentation. Based on the Wilcoxon test, the significance value of the demonstration and videos presentation is  $0.000 < 0.05$  for both. It indicates a difference in attitude towards toothbrushing before and after dental health education with the demonstration method and video presentation.

There is an increase of 20% in respondents' attitude with demonstration and 10% with video presentation with a significance value  $0.000 < 0.05$  for both. Thus, it can be said that dental health education with the demonstration and video presentation is equally effective in improving respondents' attitudes towards toothbrushing.

The results of this study are different from those conducted by Hestiani et al. (2017) (Hestiani et al., 2017), which stated that the demonstration method in preventing dental caries was not effective in increasing knowledge, attitudes, and actions regarding the prevention of dental caries in fourth and fifth-grade students of SDN 1 Ranteangin, North Kolaka Regency.

Attitude is the most important concept in social psychology. One thing that must be considered when discussing life and social change is the individuals' attitude. Through attitudes, we can understand the process of consciousness that determines the real actions individuals may take in their social life. One of the determining factors in the formation of attitudes is personal experiences. Personal experiences directly experienced have a stronger influence than indirect experiences (Wawan & M., 2011). Dental health education with the demonstration and video presentation is a method that involves the senses of hearing and the senses of sight. The learning experience provided is a direct experience, in which the students feel the learning atmosphere themselves.

#### 4. Research Findings on Action with Demonstration and Video presentation

Table 4. Findings on Analysis of Action with Demonstration and Video Presentation

Category	Demonstration				Video Presentation			
	<i>Pre-test</i>	%	<i>Posttest</i>	%	<i>Pre-test</i>	%	<i>Posttest</i>	%
Good	28	56	27	54	28	56	37	74
Less	22	44	23	46	22	44	13	26
Total	50	100	50	100	50	100	50	100
<i>P-value</i>	0.001				0.000			

Based on table 2, respondents' action before the demonstration is in the good category (56%) and changes into 54% after the demonstration. Meanwhile, respondents' action before the video presentation is in the good category (56%) and increases to 74% after the video. Based on the Wilcoxon test, the significance value of the demonstration is 0.001 and  $0.000 < 0.05$  for video presentation. It indicates a difference in the action of toothbrushing before and after dental health education with the demonstration method and video presentation.

Table 4 shows respondents' action before the demonstration is in the good category (56%) and changes into 54% after the demonstration, so there is a 2% decrease. It is probably caused by children's tendency to be more interested in audio-visual media such as television and video than the demonstration. However, the obtained positive rank value of 29 indicates twenty nine respondents experienced an increase in their toothbrushing action after the treatment, with an average increase of 20.22.

Meanwhile, respondents' action in the video presentation is in the good category (56%) and increases to 74% after the presentation, so there is an 18% increase. The obtained positive rank value of 29 indicates twenty nine respondents experienced an increase in their toothbrushing action after the treatment, with an average increase of 18.00. The Wilcoxon test obtains a significance value of  $0.000 < 0.05$ . Therefore, it can

be said that dental health education with the demonstration method and videos is equally effective in increasing respondents' toothbrushing action.

These findings are in line with those by Hidayati et al. (2013) (Hidayati et al., 2013), whose study revealed that health education with the demonstration method of SADARI practical skills affected students' SADARI practical skills in SMA Futuhiyyah Mranggen, Demak Regency.

##### 5. Research Findings on Behavior with Demonstration and Video presentation

Table 5. Findings on Analysis of Behavior with Demonstration and Video Presentation

Category	Demonstration				Video Presentation			
	<i>Pre-test</i>	%	<i>Posttest</i>	%	<i>Pre-test</i>	%	<i>Posttest</i>	%
Good	26	52	31	62	31	62	35	70
Less	24	48	19	38	19	38	15	30
Total	50	100	50	100	50	100	50	100
<i>P-value</i>	0.000				0.000			

Based on table 5, respondents' toothbrushing behavior before the demonstration is mostly in the good category (52%), increasing to 62% after the demonstration. Meanwhile, respondents' behavior before video presentation is mostly in the good category (62%), increasing to 70% after the video presentation. Based on the Wilcoxon test, the significance value of demonstration and video presentation is  $0.000 < 0.05$  for both. It indicates a difference in toothbrushing behavior before and after dental health education with the demonstration method and video presentation.

Table 6. Findings on Analysis of Behavior with Demonstration and Video Presentation Using Wilcoxon Test

Group	Ranks		Wilcoxon Test	
	<i>Mean Rank</i>	<i>Sum of Rank</i>	<i>Z</i>	<i>P-value</i>
Behavior before the demonstration-Behavior after the demonstration	26.30	1210.00	-5.956	0.000
Behavior before the video presentation-Behavior after the video presentation	24.09	1060.00	-5.694	0.000

Based on table 6, the Wilcoxon Signed Ranks Test analysis results obtain a p-value of  $0.000 < 0.05$ . Thus, it can be concluded that there is a difference in toothbrushing behavior before and after the demonstration method and videopresentation. The positive mean rank value for the demonstration is 26.30, meaning that twenty six students experienced an increase in their toothbrushing behavior from pre- test to post-test. Meanwhile, for video presentation, the positive mean rank value is 24.09, meaning that twenty four students experienced an increase in their toothbrushing behavior from pre-test to post-test.

These test results prove that the two methods used in this study can improve respondents' toothbrushing behavior. The selection of the appropriate method in delivering educational material significantly contributes to the achievement of the targeted behavior change (Herijulianti et al., 2001). Strategies and methods and learning media used in the educational process will affect the success of an education (Usman,

2006). The research conducted by Ridwan (et al., 2019) (Febrianta et al., 2019) in Nanggulan public health center Kulon Progo showed an increase in knowledge and attitudes of pregnant women about the problem of anemia using video media.

Table 7. Analysis of the Effect of Dental Health Education with Demonstration and Video Presentation Using Mann-Whitney Test

Group	Ranks		Uji Statistik	
	Mean Rank	Sum of Rank	Z	P-value
Toothbrushing behavior with demonstration	64.73	3236.50		
Toothbrushing behavior with video presentation	36.27	1813.50	-4.927	0.000

Based on the Mann Whitney test (table 7), the mean rank value for the demonstration is 64.73 and 36.27 for the video presentation. This suggests that the average increase in respondents' toothbrushing behavior after the demonstration is 64.73, and the average increase in respondents' toothbrushing behavior after the video presentation is 36.27. The significant value of the respondent's toothbrushing behavior after dental health education carried out with the demonstration and video presentation is  $0.000 < 0.05$ . This indicates a difference in toothbrushing behavior between the demonstration method and video presentation. The demonstration method is more effective in improving respondents' toothbrushing behavior than the video presentation.

The research conducted by Ilyas & Putri (2012) (Ilyas & Putri, 2012) on the sixth-grade elementary school students in Padang Loang, Patampanoa, Pinrang Regency revealed that dental and oral health education through the demonstration method was effective in reducing dental plaque index. Another study conducted by Ali et al. (2016) (Ali et al., 2016) at SD GMIM Manado showed that Dental Health Education (DHE), through the demonstration of how to perform toothbrushing properly, was more effective in reducing the debris index than DHE without the demonstration.

Behavior changes in knowledge, attitudes, and skills occur because of the interaction between new experiences and previous ones. The learning process involving more senses, for example, by combining the sense of sight and hearing, will be more easily accepted and remembered by students than those that only involve one sense.

One of the most widely used theoretical bases for media use in the learning process is Dale's Cone of Experience (1969). The cone shows that one's learning outcomes are obtained from direct (concrete) experience, the reality in one's living environment, then through artificial objects, to verbal symbols (abstract). Dale's Cone of Experience shows demonstration is in level four while video/film is in level seven. It means that based on this theory, demonstration has a higher intensity than video in targets' perception of the educational materials given, so it facilitates the absorption of the information conveyed easily (Adiko et al., 2008).

Demonstration presents information by showing an object, process, or procedure directly. The use of visual aids usually accompanies it. The advantage of using this method is that the targets' acceptance process of the educational material is much higher, so they will get a better and perfect understanding of the materials given, especially if they actively participate in the demonstration. The method can also reduce errors more effectively than reading and listening because the targets obtain clear

perception from the results of the direct observation, and the objects used are real, so that the motivation to know more deeply and in detail is developed (Nurbayani & Tauchid, 2014).

### Conclusion and Suggestion

This study concludes that there is a difference in toothbrushing behavior between the demonstration method and video presentation. The demonstration method is more effective in improving respondents' toothbrushing behavior than the video presentation.

It is suggested to the school, especially UKS teachers, to pay more attention to SDS Al-Azhar students' dental and oral health by demonstrating proper toothbrushing at least once a week by using the demonstration method to improve students' toothbrushing behavior. Future researchers are advised to research other methods of dental health education that are more effective in improving toothbrushing behavior.

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## CONSUMEN EXPECTATIONS ABOUT THE MODEL OF VEGETABLE MENU AT RESTAURANTS IN PADANG CITY IN 2020

Andrafikar , Marni Handayani, Safyanti

Health Polytechnic Padang Ministry of Health, Department of Nursing  
Jalan Simpang Pondok Kopi, Siteba, Padang  
email: [Andra\\_fikar@yahoo.com](mailto:Andra_fikar@yahoo.com)

### Abstrak

Based on the 2014 Total Diet Survey (SDT) data, it shows that the average consumption of vegetables and their processed products for the Indonesian population is 57.1 grams per person per day. Meanwhile, the average vegetable consumption for the population of West Sumatra province is 45.4 grams, including the 5th lowest vegetable consumption nationally and very far from the WHO recommendation of 250 grams/day. This condition is supported by the community environment where most Padang restaurants or restaurants provide very limited types of vegetables. Whereas West Sumatra is known as a center for vegetable production. This study aims to obtain a model of the vegetable menu that consumers want in restaurants in the city of Padang. The population in this study are restaurant consumers in the city of Padang. The sample is calculated using the formula for the estimation of the proportion of one population and is taken by simple random sampling with predetermined criteria. Data on consumer opinions and desires about the vegetable menus available in restaurants were obtained by means of interviews conducted by interviewers who previously had equalized perceptions. The data is processed using a computer through the stages of checking, coding, entering data, and cleaning data. Data analysis was carried out descriptively to describe consumer opinions and desires about the vegetable menu at restaurants in the city of Padang and to describe the desired vegetable menu model. The results showed that 60% of restaurant consumers in the city of Padang stated that the types of vegetables/types of vegetable dishes were less varied, 52.5% did not like the vegetables served, 52.5% small vegetable portions, 77.5% no vegetable dishes. specifically, 70% did not choose a restaurant because they did not like the vegetables served, 85 chose spinach/kale as the vegetables provided, and 90% of consumers stated that the type of vegetable dish they wanted was boiled/clear and stir-fried.

Keywords: Consumen, Expectations, The Model, Vegetable, Menu At Restaurants

### Background

Indonesia is a country that has a variety of fruits and vegetables, but people's consumption of fruits and vegetables is very low (Ramayulis 2015). Basic Health Research Data 2013 shows that the population aged 10 years who consume less fruit and vegetables in Indonesia is 93.5% while West Sumatra is 97%, with the fourth rank in Indonesia. (Ministry of Health RI 2013) and Riskesdas 2018 in Indonesia increased to 95.5% and the province of West Sumatra was above the Indonesian average of 96.8% (Riskesda 2018)

Vegetables and fruit are sources of various vitamins, minerals and fiber. Some vitamins, minerals contained in vegetables and fruits act as antioxidants in the body. Vegetables and fruit are also sources of various micronutrients, phytochemicals which are contained in limited quantities in other food groups. (Rita Ramayulis 2015)

The World Health Organization (WHO) generally recommends the consumption of vegetables and fruits for a healthy life of 400 grams per person per day, consisting of 250 grams of vegetables (equivalent to 2 ½ servings or 2 ½ cups of vegetables after cooking or draining) and 150 grams of fruit. (equivalent to 3 medium-sized Ambon bananas or 1. ½ pieces of medium-sized of papaya or 3 medium-sized oranges). (Ministry of Health.2014)

Based on the 2014 Total Diet Survey (SDT), it shows that the average consumption of vegetables and their processed products for the Indonesian population is 57.1 grams per person per day. Of all types of vegetables, leaf vegetables were consumed the most, namely 56.8 grams which contributed 99.5 percent of the average total weight of vegetables consumed by the population. Meanwhile, the average vegetable consumption for the population of West Sumatra province is 45.4 grams, including the 5th lowest vegetable consumption nationally. (Badan Litbangkes, 2014).

This condition is supported by the community environment where most Padang restaurants provide very limited types of vegetables. The types of vegetables that are widely available in restaurants in the city of Padang are cucumber, cassava leaves, cabbage, bean sprouts, long beans and jackfruit vegetables. Even though West Sumatra is known as a center for vegetable production, most of this production is sold outside the region, such as Riau. This has contributed to the low consumption of vegetables for the population of West Sumatra

The research we did in 2019 on the role of stakeholders and restaurant owners regarding the diversification of vegetable menus in restaurants in Padang City still needs to be developed where based on suggestions from stakeholders it is necessary to first explore information from the consumer about the opinions/desires of the vegetable menu available at restaurant

Formulation of the problem

What is the vegetable menu model that consumers expect to be available at restaurants in Padang City?

## **Aim**

### **General purpose**

This study aims to obtain a model of consumer empowerment in diversifying vegetable menus in restaurants in Padang City.



### **Special purpose**

1. It is known that consumers' opinions about the vegetable menu served at restaurants in the city.
2. Knowing the type of vegetable menu that consumers want is served at restaurants in Padang City
3. Obtained a model for empowering restaurant consumers in diversifying the vegetable menu served at restaurants in the city of Padang.

### **Benefit**

As input for making policies in diversifying vegetable menus in restaurants in the city of Padang in particular and restaurants in general and as a basis for planning and improving nutrition problem prevention programs

### **Research Methods**

#### **Research Types and Design**

This research is descriptive with a cross sectional design to describe the opinions and desires of consumers about the diversification of vegetable menus served in restaurants in the city of Padang.

#### **Research Time and Location**

The research was conducted in 2020 which aims to describe the opinions and desires of consumers about the diversification of vegetable menus in restaurants.

#### **Population and Sample**

The population in this study are consumers of restaurants in the city of Padang. The sample is calculated using the sample size formula to estimate the proportion in one population. Sampling will be done by Simple Random Sampling by using a random sampling table with the criteria of being willing to be sampled, at least 2 times a week eating at a restaurant in the city of Padang, domiciled in the city of Padang, and informative

#### **Data collection**

Data on consumer opinions and desires about the vegetable menus available in restaurants in the city of Padang were obtained by means of interviews. Interviews were carried out by interviewers who had previously been carried out by equalizing perceptions.

#### **Data processing**

The data is processed using a computer to find out the opinions, desires and the model of the vegetable menu in the restaurant. Data processing is carried out through the stages of checking, coding, entering data, and cleaning data.

## Data analysis

Data analysis was carried out descriptively to describe consumer opinions and desires about the vegetable menu at restaurants in the Padang city and to describe the desired vegetable menu model.

## Permission and Research Ethics

Before starting the research, ethical clearance was first requested from the ethics committee of the Health Research and Development Agency of the Ministry of Health and informed consent. Research permits were carried out through the Director of Poltekkes, Ministry of Health, Padang and ethical clearance through the Ethics Commission of the Faculty of Medicine, UNAND Padang.

## RESULTS AND DISCUSSION

### Results

The average age of the respondents is 41.3 years, where the youngest age is 30 years old and the oldest is 53 years old with an education level of 60 is high school and 27.5% college and most of them are housewives, namely 75%

### Consumer Opinion about Vegetable Menu in Restauran

**Tabel 1: Frequency Distribution of Respondents' Opinions About Types/Kinds Vegetables in Restaurants in Padang City in 2020**

Types of Vegetables at RM	n	%
Not Varied	24	60
Not attractive	9	22,5
Fine	3	7,5
Not clean	2	5,0
Bad taste	2	5,0
<b>Jumlah</b>	<b>40</b>	<b>100</b>

In the table above, the opinion of respondents that the types of vegetables in restaurants in the city of Padang are mostly not varied, 24 (60%)

**Table 2. Frequency Distribution of Respondents' Opinions on Vegetable Cuisin at Padang City Restaurant in 2020**

Vegetable Cuisine at RM	n	%
Fine	4	10

Enough	12	30
Do not like it much	21	52,5
Do not like	3	7,5
<b>Amoun</b>	<b>40</b>	<b>100</b>

In the table above, most of the respondents think that the vegetable dishes in the Restaurant Less Like 21 (52.5%).

**Tabel 4. Frequency Distribution of Respondents' Opinions About Specific Vegetables in Padang City Restaurants in 2020**

<b>Specific Vegetables at RM</b>	<b>n</b>	<b>%</b>
Yes	9	22,5
No	31	77,5
<b>Amount</b>	<b>40</b>	<b>100</b>

In the table above, it can be seen that most of the respondents said there were no specific vegetables in the restaurant, namely 31 (77.5%)

#### **Reasons for Consumers to Choose Restaurants**

**Table 5. Frequency Distribution of Respondents' Opinions About Choosing a House Eat in Padang City in 2020**

<b>Reasons to Choose RM</b>	<b>n</b>	<b>%</b>
The food is delicious	17	42,5
Clean	3	7,5
Good Service	2	5,0
Near home	5	12,5
Affordable prices	13	32,5
<b>Amount</b>	<b>40</b>	<b>100</b>

The table above explains that the reason why respondents choose a restaurant, the most said is because the food is delicious (42.5%) and the price is affordable 32.5%.

**Table 6. Frequency Distribution of Respondents' Opinions About Choosing RM Because Vegetables in Restaurants in Padang City in 2020**

<b>Chose RM because of vegetables</b>	<b>n</b>	<b>%</b>
Yes	9	22,5

No	31	77,5
<b>Amount</b>	<b>40</b>	<b>100</b>

In the table above, most of the respondents said they chose the restaurant not because of the vegetable menu, which was 77.5%

**Tabel 7. Frequency Distribution of Respondents' Opinions Do Not Choose RM Because Vegetables at a Restaurant in Padang City in 2020**

<b>Choose RM not because of vegetables</b>	<b>n</b>	<b>%</b>
Don't like vegetables	28	70
no variation	2	5
Not attractive	1	2,5
Chose RM because of Vegetables	9	22,5
<b>Amount</b>	<b>40</b>	<b>100</b>

The table above respondents said why they did not choose a restaurant because vegetables are not like vegetables, namely 28 (70%).

#### **Types of Vegetable menus that Consumers Want in Restaurants**

**Table 8. Frequency Distribution of Vegetable Types that Respondents Want in Restaurants in Padang City in 2020**

<b>What kind of vegetables do you want?</b>	<b>n</b>	<b>%</b>
Kangkung	18	45
Spinach	16	40
Sawi	3	7,5
Nangka Muda	3	7,5
<b>Amount</b>	<b>40</b>	<b>100</b>

In the table above, the types of vegetables preferred by the respondents are kale (45%), and spinach (40%).

**table 9. Frequency Distribution of Vegetable Portions Wanted by Respondents in Restaurants in Padang City in 2020**

<b>Serving vegetables at the restaurant</b>	<b>n</b>	<b>%</b>
Not enough	4	10
Enough	27	67,5
Lots	9	22,5
<b>Amount</b>	<b>40</b>	<b>100</b>

in the table above, respondents said that the expected portion of vegetables in a restaurant is sufficient (67.5%).

**Table 10. Frequency distribution of vegetable dishes desired by respondents in Restaurants in Padang City in 2020**

<b>Vegetable Cuisine at Restaurant</b>	<b>n</b>	<b>%</b>
Bening/Rebus	15	37,5
Gulai	3	7,5
Tumis	21	52,5
Lalap	1	2,5
<b>Amount</b>	<b>40</b>	<b>100</b>

In the table above, respondents expect vegetables in restaurants to be served in stir-fry 21 (52.5%), and in clear/boiled form 15 (37.5%).

## **Discussion**

From the results of the study obtained opinions from consumers, namely the type/type of vegetables served did not vary (60%), the vegetable dishes served in restaurants did not like (52.5), the portion of vegetables was less (50%), and the vegetables served were not available. specific (77.5%).

Consumers' opinions about vegetables in Padang City restaurants have not met consumer desires, many restaurants serve vegetables as a complement to the main menu, namely side dishes and even restaurants generally only provide one of the vegetables such as cucumber. young jackfruit cabbage, and cassava leaves so that many consumers do not like the vegetables served because it is not the desire and habit of eating vegetables from consumers. The portion of vegetables served according to consumers' opinions is still lacking, this is not what consumers like from the vegetable menu that is served but a lot because the restaurant

does not serve vegetables. Most of the consumers said that there were no specific vegetables because the restaurant only served simple vegetables. Consumers actually expect there are specific vegetables in the restaurant.

Most of the consumers choose the restaurant not because of the vegetable menu (77.5%) and most of the consumers do not choose the vegetable menu in the restaurant because of the reason they don't like vegetables (70%)

In general, the Indonesian population consumes less food, including vegetables, than the recommended amount. Ideally, the recommended per capita daily consumption of vegetables and fruits is 120 kcal according to the 2000 kcal diet reference and 132 kcal for the 2200 kcal diet. In fact, in 2015 and 2017 the consumption of vegetables for the Indonesian population as a whole was only around 65% and 79% of the recommendation, respectively (according to the 2000 kcal diet pattern) and 59% and 72% (according to the 2200 kcal diet pattern, although in 2017 there was an increase

The situation in the field shows that vegetable consumption behavior in the community is not based on an understanding of the importance of vegetable consumption to meet nutritional needs to support a healthy life, but is influenced by various other factors, namely economic, social, and cultural. These factors either directly or indirectly affect people's knowledge, which does not always support the implementation of a balanced nutritional diet in the community.

From the results of the study, it was found that the desired types of vegetables were kale and spinach (45%). The desired portion of vegetables is a sufficient portion (67.5%). The vegetable menu that consumers want is cooked by sautéing (52.5%) and boiled/clear (37.5%)..

Most consumers want the vegetables in the restaurant to be green and the servings are always varied. Spinach and kale are desirable types of greens. If the vegetables are served according to the consumer's wishes, they can be given in sufficient portions. The portion that is said to be lacking does not mean that the vegetables given are few but the reason is that the vegetables given are not liked and there are no vegetables. Sauteed and boiled are vegetables that consumers want, many at home eat vegetables in curry such as jackfruit and cucumber.

## **CONCLUSIONS AND SUGGESTIONS**

Most of the restaurant consumers in the city of Padang stated that the types of vegetables/types of vegetable dishes were less varied, more than half stated that they did not like the vegetables served and the vegetable portions were small. Consumers expect the types

of vegetables to be served in the form of green vegetables such as kale and spinach with stir-fried/clear types of dishes and larger portions.

It is necessary to disseminate information to restaurant owners and increase the knowledge of restaurant owners in Padang City about the importance of vegetables for the community. This research can be continued with the empowerment of food house owners in making models of vegetable dishes to serve.

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**THE EFFECT OF SPIRITUAL EMOTIONAL FREEDOM  
TECHNIQUE THERAPY ON ANXIETY AMONG THE CORONARY  
HEART DISEASE PATIENT UNDERGO PERCUTANEOUS  
CORONARY INTERVENTION**

**Anis Laela Megasari<sup>1</sup>; Noviyati Rahardjo Putri<sup>2</sup>; Ahmad Eri Setiawan<sup>3</sup>**

<sup>1</sup> **Midwifery Study Program, Vocational School Sebelas Maret University; Indonesia**

<sup>2</sup> **Midwifery Program, Medical Faculty, Sebelas Maret University; Indonesia**

<sup>3</sup> **Dr. Kariadi Hospital; Indonesia**

Corresponding Author Email:

anislaelamegasari@staff.uns.ac.id

**ABSTRACT**

One of the management of coronary heart disease is percutaneous coronary intervention. Percutaneous coronary intervention often causes anxiety in coronary heart disease. Anxiety in coronary heart disease will undergo percutaneous coronary syndrome must intervene because it can have adverse effects such as unstable hemodynamic status. This study aims to determine the effects of SEFT in reducing anxiety in patients with coronary heart. This research used a design of pre-experimental quantitative method with a one-group pre-post test design approach. This research used a saturated sampling method with 30 respondents and was conducted in dr. Moewardi Hospital. SEFT was given to the respondents 15 minutes before percutaneous coronary intervention do. The anxiety of the patient was measured before and after SEFT. Anxiety assesses using the HARS questionnaire. HARS questionnaire has a score of 0-56. The results of this study are the mean score of anxiety decreasing from 28.50 to 20.60 after being given the SEFT intervention. The dependent t-test showed there is an effect of the application of SEFT therapy, it reduces anxiety in coronary heart patients who would undergo percutaneous coronary intervention with a p-value of 0.000. The application Spiritual Emotional Freedom Technique as an alternative to psychotherapy intervention can prevent or reduce anxiety in coronary heart patients who will undergo percutaneous coronary intervention.

**Keywords:** *anxiety, coronary heart disease, percutaneous coronary intervention*



## *Introduction*

Coronary heart disease occurs when there is a plaque accumulation in the coronary arteries, it causes vasoconstriction. This condition causes by several factors such as an unhealthy lifestyle, unhealthy food, smoking, obesity, genetic factor, age, and other comorbidities [1]. World Health Organization (WHO) states that 9.4 million deaths, 45% caused by coronary heart disease. WHO also predicts this number will increase until 2030 [2], the prevalence of coronary heart disease in Indonesia reaches 1.5% of all ages. A survey from Sample Registration System (SRS) stated that the frequency of coronary heart disease reached 12.9% of the total mortality rate [3]. One of the management of coronary heart disease is percutaneous coronary intervention. The percutaneous coronary intervention aims to improve narrowing and blockage of the coronary arteries [4]. This intervention expects to reduce the risk of recurrence so that the health quality of coronary heart disease can increase [5].

Percutaneous coronary intervention often causes anxiety in coronary heart disease and anxiety is caused by fear, worry, and panic if something happens during the percutaneous coronary intervention [6]. Anxiety in coronary heart disease will undergo percutaneous coronary syndrome, and it must intervene because it can have adverse effects such as unstable hemodynamic status, metabolic disorders, inadequate tissue perfusion, and disrupted blood supply. These conditions affect succeeding percutaneous coronary intervention [7]. Interventions that can reduce coronary heart disease anxiety who will undergo percutaneous coronary intervention divide into two, pharmacological and non-pharmacological interventions. The non-pharmacological intervention that we can do is Spiritual Emotional Freedom Technique (SEFT). Spiritual Emotional Freedom Technique (SEFT) is an intervention combination of the energy body system and spiritual healing using the tape method at a certain point. The principle of SEFT therapy is more or less as same as acupuncture and acupressure. All three seek to stimulate key points along the twelve body energy pathways. Compared to acupuncture and acupressure, the technique of SEFT is spiritual and safety, because SEFT only uses tapping [8]. SEFT is a combination technique of the energy body system and spiritual healing using the tapping method at particular points on the body. SEFT intervention is safety, easy, fast, and simple intervention for reducing anxiety [9].

Scientific research of SEFT has been carried out in Indonesia by Bakara, et al. In this study, SEFT was used to reduce anxiety and depression with acute coronary syndrome. The results showed a significant difference between the average anxiety level of the control group and the intervention group after the intervention, the z value was -5.639, and the p-value was <0.05. Based on this, it showed that, there is an effect of SEFT intervention reducing anxiety in acute

coronary syndrome patients. Previous research has shown that SEFT can reduce anxiety. This research supports the previous research that SEFT intervention can reduce depression, anxiety, and stress in non-percutaneous coronary intervention in coronary heart disease. It proves by a p-value of 0.001 ( $<0.05$ ) [10]. In another study, Masyitah explained that the application of SEFT can reduce anxiety in hypertension patients, with a p-value of 0.001 ( $<0.05$ ) [11]. Therefore, researchers are interested in conducting research related to SEFT on coronary heart disease patients who will undergo percutaneous coronary intervention. The goal is patient does not experience anxiety. So, the success of the percutaneous coronary intervention program is maximum.

### *Method*

This study used a pre-experimental design with a one-group pretest-posttest design. There are two variables of this study, namely the independent variable and the dependent variable. The independent variable of this study is SEFT then the dependent variable is the anxiety level of patients with coronary heart disease who will undergo percutaneous coronary intervention. The respondents of this study are patients with coronary heart disease who will undergo percutaneous coronary intervention in Dr. Moewardi Hospital. The purpose of this study is to reduce the anxiety of patients with coronary heart disease who will undergo percutaneous coronary intervention, the sample is obtained based on inclusion and exclusion criteria. The inclusion criteria were coronary heart disease patients who never had experience; patients who do not have moderate, severe anxiety, panic; and conscious patients. The exclusion criteria were coronary heart disease patients who give anti-anxiety medicine and patients who failed to do percutaneous coronary intervention due to certain conditions. The subject of this study used a non-probability sampling technique with a saturated sampling method. There were 30 respondents in this study.

This study only had one group that gave the SEFT intervention. SEFT intervention gave to respondents before percutaneous coronary intervention did for 15 minutes. It did measure the anxiety of patients before and after the SEFT application. It was measured using the Hamilton Rating Scale for Anxiety (HARS) questionnaire. The HARS questionnaire tested for validity and reliability with result  $r$  count = 0.57–0.48 and  $r$  table = 0.349. Ethical considerations of this study have received approval from the Health Research Ethics Commission of RSUD. All respondents have provided information related to the research process. In addition, the respondents have asked to sign a consent form. Statistical analysis research of this research used a Dependent t-test.

## Result and Discussion

The result of this study consists of univariate and bivariate analysis

### 1. The Result of Analysis Univariate

#### a. Table 1. Frequency Distribution of Respondents

Characteristics	Frequency	Percentage (%)
Age		
35-59	26	86.7
>59	4	13.3
Gender		
Man	24	80
Woman	6	20
Education		
No school	2	6.7
Elementary School	7	23.3
Junior High School	6	20
Senior High School	8	26.7
College	7	23.3

Based on table 1, we know that the most respondents are 39-59 years which is 26 respondents (86.7%), with the gender domination is male with 24 respondents (80%), and education domination is senior high school with 08 respondents (26.7%).

#### b. Table 2. The Average score of anxiety before and after Spiritual Emotional Freedom Technique Therapy

	minimum	maximum	Average $\pm$ SD
Pretest	21	36	28.50 $\pm$ 4.28
posttest	16	29	20.60 $\pm$ 3.29

Table 2 shows that the average score of anxiety of the respondent after SEFT intervention is lower than the previous score. It showed that SEFT is proven can reduce anxiousness. Some patients are with coronary heart disease have experienced anxiety during percutaneous coronary intervention. The emergence of fear can cause by various things, such as pain anxiety, environmental changes of the hospital, lack of knowledge about procedures, and the threat of death [12][13]. Physiologically, it makes the hypothalamus activate the endocrine system, especially releasing the hormone Corticotropin-Releasing Hormone (CRH). Corticotropin-

Releasing Hormone is responsible for secreting Adrenocorticotropin Hormone (ACTH) through the anterior pituitary gland. ACTH increasing can increase the secretion of the hormone glucocorticoid and cortisol. These hormones can give negative feedback that stimulates the hypothalamus to secrete the Thyrotropic Hormone (TH) and Thyroxin Hormones. The increasing of thyroxin hormone can cause the changing of the hemodynamic status of the patients, such as changing in increasing heart rate, respiratory rate, Basal Metabolic Rate (BMR), blood pressure, free fatty acids, and anxiety [14]

## 2. The Result of Analysis Bivariate

**Table 3. The Statistical Result Test**

<b>Anxiety</b>	<b>Average</b>	<b>P-value</b>
Pretest	28.50	0.000*
posttest	20.60	

Based on the analysis result, the anxiety value before being given SEFT therapy was 28.50 while after being given SEFT therapy was 20.60, results of the statistical test are gotten t- test obtained a p-value of 0.000. Based on this result, it can conclude that there is an effect of SEFT therapy on anxiety in a patient with coronary heart disease undergoing percutaneous coronary intervention, comparing to previous studies that EFT administration can affect the anxiety level of patients undergoing percutaneous coronary intervention, with a difference score of 2.883 with a p-value of 0.001 [15]. Anxiety is an excessive negative emotion. One of the interventions that can reduce anxiety is SEFT. SEFT is a psychotherapeutic intervention that can reduce anxiety through three stages. These are, set up, tune in, and tap. The setup stage is to pray to God sincerely, surrender, and be sincere with whatever will happen. In this stage, the patient is led to placid the conditions and take action. The Tune stage is where the patient is asked to feel the pain is experienced and train the pain into the mind to surrender to God. Tapping is tapping on the energy points of the body meridians and setting up of giving positive affirmations to the patient. The combination of setup, tune in, and tapping expects to make the patient calmer. So, it stimulates the hypothalamus to produce the hormone Corticotropin- Releasing Factor (CRF). The increasing of CRV hormones production can reduce the hormone ACTH so that cortisol secretion decreases. When the cortisol hormone decreases, the body will reduce anxiety levels and slowly release negative emotions [16].

In addition, the application of SEFT in coronary heart disease patients who will undergo percutaneous coronary intervention is to maintain hemodynamic status. SEFT can prevent sympathetic and parasympathetic nervous system activity. This condition also averts the secretion of epinephrine and norepinephrine in the blood. It can stabilize the hemodynamic of patient status as stability of blood pressure, pulse, prevents bronchial dilatation, and prevents increased mental activation. SEFT also includes prayer activities. Prayer is part of surrender ourself to God. With this recognition, a sense of comfort and security will arise. The prayer has functions in lowering blood pressure, respiratory rate, heart rate, blood pressure, and anxiety. The tapping stage on the SEFT can stimulate the secretion of the hormone endorphins. The role of endorphins at the synapse of nerve cells can decrease pain sensation and psychological symptoms of anxiety. The endorphin hormone is a neurotransmitter that resembles morphine. This hormone is produced naturally by the body and has specific binding receptors in the brain. When the patient is given SEFT, especially in the tapping stage, endorphins will bind to opioid receptors in neurons. This condition can inhibit the extrication of neurotransmitters and ultimately block pain signals to the brain. When the pain decreases of the patient, the anxiety will also decrease [17].

### **Conclusion and Suggestion**

Based on the study, SEFT can reduce anxiety in a patient with coronary heart disease who undergo percutaneous coronary intervention with a difference score of 7.9 and the results of the dependent t-test test obtained a p-value of 0.000. This shows that SEFT is proven to reduce anxiety in coronary heart disease patients who will undergo percutaneous coronary intervention. Since the results of this study demonstrate that SEFT can affect reducing anxiety, especially in coronary heart disease patients who undergo percutaneous coronary intervention, it is necessary to make policies and Standard Operational Procedure (SOP) so that they can apply in hospitals. The limitation of this study is the small number of samples so that future researchers are expected to increase the number of samples studied. In addition, future researchers are expecting to modify research on SEFT therapy and deepen the scope of their research by using SEFT therapy in other rooms or patients other than coronary heart disease patients who undergo percutaneous coronary intervention and expand the research area.

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# COMMUNITY PARTICIPATION IN THE IMPLEMENTATION OF POLICY TO PREVENT AND REDUCE THE POSITIVE RATE OF COVID 19 IN THE PERIOD NEW ADAPTATION (NEW NORMAL) IN THE CITY OF PADANG IN 2021

Asep Irfan<sup>1\*</sup>, Darwel<sup>2</sup>

<sup>1,2</sup> POLTEKKES KEMENKES PADANG, Indonesia

\*Coressponding Author Email:  
delima.irfan.dea@gmail.com

## ABSTRACT

The low level of community participation in preventing and decreasing the positive rate for COVID-19 since this disease only appeared in the city of Padang in early March 2020 until the new adaptation period (new normal) people's ignorant attitude, unwilling to maintain social distancing, physical distancing, lazy To do hand washing with soap or not wanting to wear a mask is an unsolved problem at this time in the city of Padang. This study uses a descriptive method which was conducted in March – November 2021 in the city of Padang. The sampling technique used purposive sampling technique so that the number of samples in this study was 60 respondents. The results showed that 55.8% of respondents avoided shaking hands, respondents' opinions about the effectiveness of running procedures to avoid crowds were 56.3% and respondents' opinions about the reasons people did not comply in carrying out health care programs were mostly the price of masks, face shields, hand sanitizers or PPE. Others tend to be expensive, which is 66.7%. While the responses of respondents to the community infected with Covid 19 were mostly close people, neighbors and their environment providing support, namely 86.7%. It is hoped that the government, both at the city and regional levels, can increase public participation in health protocols through education in community action movements to break the COVID-19 chain.

**Kata Kunci:** Community participation, Covid-19, Health Protocol.

## INTRODUCTION

Disease is a pathological condition in the form of functional and/or morphological abnormalities of an organ and/or tissue of the body. (Achmadi). The environment is everything that is around it (living, inanimate, real, abstract) and the atmosphere that is formed due to the interaction between the elements in nature. (Sumirat'). Environmental-Based Disease is a pathological condition in the form of functional or morphological abnormalities of an organ caused by human interaction with everything around it that has the potential for disease. Disease is a pathological condition in the form of functional and/or morphological abnormalities of an organ and/or body jar (Achmadi). everything that is around it (living, inanimate, real, abstract) and the atmosphere that is formed because of the interaction between the elements in nature. (Sumirat'). Environmental-Based Disease is a pathological condition in the form of abnormal function or morphology of an organ of the body caused by human interaction with everything around it that has the potential for disease.

Corona virus Diseases 19 (Covid-19) is an environment-based disease caused by Novel Coronavirus (2019-nCoV) which is a new type of virus, with symptoms of acute respiratory disorders such as fever, cough and shortness of breath to severe cases causing pneumonia, respiratory syndrome acute, renal failure and even death.

The spread and addition of Covid-19 cases globally was quite fast, the initial handling of cases began with the announcement by the President of the Republic of Indonesia, Mr. Joko Widodo, in early March 2020, cases number 1 and number 2 in our country. Furthermore, the Padang City Government responded to this condition through massive socialization about COVID-19 to all levels of society through print and electronic media. Over time, Covid-19 colored life in Padang City, after the Mayor of Padang, Mr. Mahyeldi Ansyarullah, announced an extraordinary event ( The outbreak of covid-19 cases which was the first case, which was followed by the addition of fluctuating covid-19 cases until August 2020 in a span of 6 (six) months with a total of 920 confirmed cases in Padang City.

Based on this problem, the authors are interested in taking the title of the study: "Public Participation in Reducing the Positive Rate of Covid 19 in the City of Padang".

The purpose of this research is to realize research activities in the health sector that are capable of being competitive and innovative at the National and Regional levels. This research was carried out based on the research strategic plan of the Poltekkes Kemenkes Padang in 2020-2024, where the results of this research will be in line with the research policies of the Poltekkes Kemenkes Padang which are focused on community-based environmental Health Technology, with topics covering environmental-based diseases and Health Promotion and Community Empowerment.

## METHODS

This study uses a descriptive method, which is finding facts with interpretation by accurately describing the nature of several group or individual phenomena derived from the findings. The sampling technique in this study was purposive with sample criteria, namely the Padang City Community representing the three Andalas, Kuranji, and Surau Gadang sub-districts, active Covid 19 practitioners at the village level and active Covid 19 practitioners at the Padang City level. This research was conducted in March – November 2021 in the city of Padang so that a total sample of 60 respondents was obtained. Data analysis is presented in the form of univariate analysis and the data is processed computerized using SPSS 24.

## RESULT

Based on Community Behavior in Carrying Out Health Care Programs, Padang City Community Opinions about the effectiveness of Health Care Programs, Respondents' Opinions about the Reasons for Disobedient People in Carrying Out Health Care Programs and Respondents' Responses to Communities Infected with Covid 19, the following results were obtained:

**Table 1**

Variable	Score	%
<b>Community Behavior in Implementing Health Protocols</b>		
Wearing Masks	256	85,3
Using Hand Sanitizers	212	70,7
Washing hands for 20 seconds with soap	200	66,7
Avoid shaking hands	134	55,8
Avoiding crowds	176	58,7
Maintain a minimum distance of 1 m from other people when outside the house	211	70,3
<b>Public opinion of Padang City about the effectiveness of health protocols</b>		
Wearing Masks	256	85,3
Using Hand Sanitizers	232	77,3
Washing hands for 20 seconds with soap	197	65,7
Avoid shaking hands	185	61,7
Avoiding crowds	169	56,3
Maintain a minimum distance of 1 m from other people when outside the house	196	65,3
<b>Respondents' opinions about the reasons people do not comply with health protocols</b>		



Prices of masks, face shields, hand sanitisers or other PPE tend to be expensive	40	66,7
The work is becoming It is difficult if you have to implement Health Protocols properly	28	46,7
The apparatus or leadership does not set a good example	12	20
Follow others	4	6,7
There are no sanctions if you do not follow good health protocols	24	40
Maintain a minimum distance of 1 m from other people when outside the household	4	6,7
<b>Respondents' responses to Communities Infected with Covid 19</b>		
Close people, neighbors and their environment provide support	52	86,7
No response, (does nothing)	4	6,7
Isolate, (gives negative stigma)	4	6,7
Health Protocols are carried out strictly in the environment	20	33,3

Based on the table above, 55.8% Respondents Avoid Shaking Hands, Respondents' Opinions About The Effectiveness Of Running Health Protocols Avoiding Crowds As Much As 56.3% And Respondents' Opinions About The Reasons For People Who Disobeyed In Running Health Protocols Most Are The Prices Of Masks, Face Shields, Hand Sanitizers Or Other PPE Tends To Be Expensive, That's 66, 7%. While the responses of respondents to the community infected with Covid 19 were mostly close people, neighbors and their environment providing support, namely 86.7%.

## DISCUSSION

The results of this study show that 55.8% of respondents avoid shaking hands, respondents' opinions about the effectiveness of running health care programs to avoid crowds are 56.3% and respondents' opinions about the reasons why people don't comply in carrying out health care programs are the prices of masks, face shields, hand sanitizers Or other apds tend to be expensive, which is 66.7%. While the responses of respondents to the community infected with Covid 19 were mostly close people, neighbors and their environment providing support, namely 86.7%. This result is in line with the study conducted by Lim et al (2020) on community compliance in the application of precautionary standards which found that 53.5% of the total 332 respondents were obedient in the use of PPE. In addition, research conducted by Almutairi et al (2020) found that during the COVID-19 pandemic, 53.3% did not comply with physical distancing behavior.

According to WHO in Nasronudin (2007), universal precautions are guidelines established by the Centers for Disease Control and Prevention CDC Atlanta and the Occupational Safety and Health Administration (OSHA), to prevent the transmission of various diseases that are transmitted. Vaismoradi et al (2020) in their research also said that public compliance with the use of safety precautions is relevant to breaking the COVID-19 chain. Compliance with the use of personal protective equipment during the COVID-19 pandemic remains the main concern, the use of personal protective equipment in accordance with standards is one of the efforts to prevent virus transmission (Song et al, 2020). Compliance with health protocols is one part of individual safety (Panayi et al, 2020).

Community compliance in implementing universal precautions plays a role in reducing the incidence of COVID-19 infection (Song et al, 2019). Non-compliance in implementing health protocols, PPE must be identified and analyzed to provide targeted training to the community on the correct and indicated use of PPE (Panayi et al, 2020). Communities can protect themselves from contact with COVID-19 patients if they have knowledge of the process and proper barrier protection (Potter, 2010). If people have low compliance with the use of personal protective equipment, it can have a negative impact on themselves and others (Porto et al, 2016).

The importance of strict infection control measures for the community, not only to reduce transmission but also to limit public anxiety, which will result in better compliance, but also reduce the risk of transmitting COVID-19 to their own families (Temsah et al, 2020). People who do not comply with the use of personal protective equipment have a 30% chance of developing an infection, which means at least one out of every three people who do not comply with PPE will be infected with COVID-19 (Asaad et al, 2019).

Community participation is the active involvement of the community in the process of making and implementing decisions (WHO, 2002). Viewed from the health context, participation is the participation and partnership of the community and facilitators (government, NGOs, development partners) in decision making, planning, implementation, monitoring and assessment of health activities and programs, as well as obtaining benefits from their participation in the context of building community independence (Permenkes No. 65/2013).

According to Pretz J. (1995 in Agus, 2010), there are seven characteristics of the typology of participation, which are successively closer to the ideal form, namely: 1) Passive or manipulative participation, that is, people receive notifications of what is and has happened; 2) Informative participation, ie the community only answers questions for the project but is not given the opportunity to be involved; 3) Consultative participation, that is, the community participates in consultation while others are only listeners; 4) Participation incentives, namely the community provides sacrifices and services to obtain rewards; 5) Functional participation, ie the community forms groups as part of the project; 6) Interactive participation, where the community plays a role in the analysis process for planning activities and establishing institutions; 7) Independent (self mobilization), namely the community takes their own initiative freely to change the system that is upheld. And there are other forms of community participation, namely: 1) Co-option; 2) Co-operation; 3) Consultation; 4) Collaboration; 5) Co-learning; 6) Collective actions.

The continuous increase in confirmed cases has made people aware of how to prevent COVID-19. This public awareness will make the transmission of this disease decrease and it is hoped that there will be no more new cases. Prevention of COVID-19 can be done independently by the community in their respective homes and is expected to be done with their own awareness. The development of social media and education in the community can be a positive medium for the community to prevent COVID-19 (Lenny and Erika, 2020).

In maintaining a person's health, there are two main factors that affect health, namely behavioral factors and non-behavioral factors. According to B Bloom, there are three domains of behavior, namely knowledge, attitude, and practice (Notoatmodjo, 2014 in Jesica and Rizma, 2020). Meanwhile, according to L. Green, health behavior is influenced and determined by three factors, namely predisposing factors, enabling factors, and reinforcing factors (Notoatmodjo, 2014 in Jesica and Rizka, 2014). 2020). When viewed from predisposing factors, the community has sociodemographic factors such as differences in age, gender, education, occupation, educational/occupational background and area of origin. The description of these sociodemographic characteristics can affect people's behavior and the outcomes of public health (Widayati, 2012 in Jesica and Rizma, 2020).

Knowledge is the ability to receive, retain, and use information, which is influenced by experience and skills. Most of the knowledge a person has comes from education, both formal and informal, personal experience and other people, the environment, and the mass media (Siltrakool, 2012 in Jesica and Rizma, 2020).

Bloom's taxonomy theory which has been revised especially in the cognitive domain by Anderson and Krathwohl divides knowledge into six levels, namely remembering, understanding, applying, analyzing, evaluating, and creating. (create). This taxonomic concept describes a higher pattern of thinking at a higher level of knowledge. At the third level in the form of applying, cognitive processes use a procedure to solve problems. According to

Notoatmodjo (2014 in Jesica and Rizma, 2020), knowledge is influenced by one's experience and the environment which can then be expressed and believed to give rise to motivation.

In theory, a person's level of education will affect his level of knowledge. If the level of education and knowledge is good, the behavior will also be good (Lenny and Erika, 2020). However, it is also possible to find people with high education but the behavior of the level of prevention of COVID-19 is still lacking and conversely, education is low but the level of education is good. In addition to education, there are other factors that can influence a person in preventing disease, such as gender. Based on research (Central Bureau of Statistics, 2020 in Lenny and Erika, 2020) it is explained that women tend to be better at implementing COVID-19 prevention than men. In addition, work also affects, for example housewives with low levels of education but high prevention because they aim to protect their families.

Efforts to prevent COVID-19 can be seen from a person's attitude towards the infection. The first attitude assessment is to ask directly about the attitude that papa should have in responding to news about covid-19. The next assessment of the attitude component is to ask whether with the Covid-19 case, the respondent has increased his efforts in maintaining personal health (Jesica and Rizma, 2020).

According to Noatmodjo, knowledge is a cognitive domain that is very influential in shaping one's actions. Acceptance of new behavior will be more lasting if it is based on knowledge, while the behavior will not last long without being based on knowledge (Silalahi, 2013 in Jesica and Rizma, 2020). A new behavior is formed, especially in adults, starting in the cognitive domain in the sense that the subject knows in advance about the stimulus in the form of material or external objects, giving rise to new knowledge and will be formed in attitudes and actions. Patients' knowledge about preventing COVID-19 by complying with the use of masks has an important role in anticipating repeated incidents. Patients must recognize, study, and understand all aspects of the COVID-19 disease including signs and symptoms, causes, triggers, and management. Knowledge has a close relationship with the decisions that will be taken, because with knowledge a person has a basis for making choices (Prihantana, et al, 2016 in Devi and Nabila, 2020).

According to the Head of the Tambun Health Center in Bekasi Regency, Arie M. Noer, the participation of the Grand Wisata residents can be a role model for the community in breaking the chain of the spread of the COVID-19 virus. In Grand Wisata, a Covid-19 Task Force was formed to handle positive cases of COVID-19 in the Grand Wisata environment. This group took the initiative to find and record residents who had contact with patients and ensured that ODPs did not leave their homes at all. During monitoring the task force team ensures food supplies for people under monitoring (ODP) so that OPD feel protected and comfortable because their food supply is always available and makes other residents feel safe. Not only ensuring that residents suspected of being exposed to COVID-19 self-isolate, residents also took the initiative to make masks. In addition, they also carry out environmental disinfection independently twice a day (Sri, 2020).

The Mayor of Padang, Hendri Septa, said that to overcome and end the spread of COVID-19, cooperation and support from various parties were needed, including the involvement of ustadz, ulama, and religious leaders. Currently the City of Padang is at Level 2 status, it requires the achievement of COVID-19 vaccination above 70 percent. If it is out of PPKM Level 2, it will provide flexibility in activities (Rahma, 2021).

The Mayor of Padang also said that monitoring was carried out on the adequacy of the Bed Occupancy Rate (BOR), a significant decrease in active cases, and the achievement of vaccinations above 50 percent of the total population targeted for vaccination. The role of the Covid-19 Task Force for Urban Villages throughout the city of Padang which consists of the Lurah along with RW/RT, Bhabinkamtibmas, Babinsa, LPM and all community components so that during PPKM Level 4 they can carry out isolation and checks for people who enter or

come to their respective neighborhoods with mandatory show some requirements. The Wako also continued, during the checks in several urban villages, he had asked the Kelurahan Covid-19 Task Force to carry out their duties according to the fixed procedures (protap) determined according to the Mayor's SE. Likewise at the border post, BPBD personnel are still asked to supervise people entering and leaving the city of Padang (Noli, 2021).

## CONCLUSION AND SUGGESTION

Based on the results of the study, it can be concluded that there is still a lack of community participation in the implementation or implementation of the COVID-19 health protocol in the new normal period of the city of Padang. It is hoped that the government, both at the city and regional levels, can increase public participation in health protocols through education in community action movements to break the COVID-19 chain.

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## ANALYSIS OF THE IMPLEMENTATION OF EXCLUSIVE BREASTFEEDING IN BREASTFEEDING MOTHERS COVID 19 PANDEMIC PERIOD

**Deharnita ,Titin Sumarni , Yudistira Afconneri**

*Poltekkes Ministry of Health Padang*

[deharnita@gmail.com](mailto:deharnita@gmail.com)

### ABSTRACT

The impact of Covid on health services is that it is difficult for the community to obtain basic health services such as the implementation of the posyandu, classes for pregnant women, and classes for mothers under five. This results in low rates of maternal visits to posyandu, immunization, low achievement of family planning programs and exclusive breastfeeding, as well as prevention and control of stunting. Research purposes obtained description Implementation of Exclusive Breastfeeding for Breastfeeding Mothers During the Covid-19 Pandemic. Qualitative research design which aims to obtain an overview of the implementation of Exclusive Breastfeeding for Breastfeeding Mothers during the Covid-19 Pandemic, carried out in Solok City in 2021. Data were collected using in-depth interviews and data were processed and analyzed. The results showed that all mothers said that exclusive breastfeeding was very good. Most mothers said they were happy and satisfied if they could breastfeed their babies for up to 6 months. Most mothers said that the supporting factors in exclusive breastfeeding were beliefs and understanding about exclusive breastfeeding. the mother said that the inhibiting factor in breastfeeding was not smooth breastfeeding, stress. some mothers get information about exclusive breastfeeding from experienced people and are sought after on social media, most mothers expect information about exclusive breastfeeding to be obtained through social media. Based on the results of the study, it is suggested that you can design and create applications to increase the knowledge and abilities of mothers, especially about exclusive breastfeeding through tele-counseling and digital IEC.

Keywords : Keywords: exclusive breastfeeding, breastfeeding mothers

### **Introduction**

WHO declared Covid-19 a pandemic on March 11, 2020, and Indonesia declared Covid-19 a national disaster on March 14, 2020. The Covid-19 pandemic that hit almost all countries in the world had an impact on various health and non-health sectors. During the Covid-19 pandemic, public health efforts were still carried out by taking into account the priority scale ( Djalante, Lassa, Setiamarga, Mahfud, Sudjatma, A., Indrawan, M., ... & Gunawan, LA, 2020).

The impact of Covid on health services is that it is difficult for the community to obtain basic health services such as the implementation of the posyandu, classes for pregnant women, and classes for mothers under five. This results in low rates of maternal visits to posyandu, immunization, low achievement of family planning programs and exclusive breastfeeding, as well as prevention and control of stunting.

The United States is the country with the most positive cases of Covid-19 in the world. According to data from New York City Health, it was found that 9 (0.06%)

children who were confirmed positive for Covid-19 died (Worldmeters, 2020). Covid-19 positive patients (Covid-19 Task Force, 2020). In the case of Covid-19, infants are susceptible to contracting Covid-19 because the body's immune system is still weak. Babies can be infected with Covid-19, namely direct contact with Covid-19 sufferers, both sufferers who have symptoms and do not have symptoms. One of the early prevention of the spread of Covid-19 is exclusive breastfeeding for babies because exclusive breastfeeding is the main source of protection and nutrition for babies. Breast milk contains antibodies to bacteria and viruses, especially the level of secretory IgA antibodies and macrophages in colostrum which is relatively high and can even inhibit microorganisms (Pradana, Cayman & Nuraini., 2020)

Public Health Efforts carried out by the Puskesmas are basic services to meet the community's need for health services. The implementation of public health efforts (UKM) is one of them by increasing the literacy and capacity of cadres, toma, toga, and health care groups to support efforts to mobilize and empower families in preventing Covid-19. Improving literacy and capacity can be done through online media such as WhatsApp/SMS/Video Call/telephone or direct interaction by paying attention to PPI and *Physical Distancing*.

Social media can be used as a research and tracking tool in public health related to Covid-19. With so much publicly available information about various diseases and other public health issues, there is great potential to use social media as a data mining resource for the development of the Covid-19 pandemic disaster response (Ferraz dos Santos, L., Borges, R., and de Azambuja, D., 2020).

## **METHOD**

The qualitative research design that aims to obtain an overview of the implementation of Exclusive Breastfeeding for Breastfeeding Mothers during the Covid 19 Pandemic, was carried out in Solok City in 2021. Data were collected using in-depth interviews with informants of breastfeeding mothers, those in charge of Nutrition and MCH, Persons in Charge of Nutrition for Health Centers, the Head of PPSDK, and the Head of the Department of Health. All processes of qualitative data collection are recorded and then transferred to a written format (transcription) and analyzed. Data is processed and analyzed

## **Results and Discussion**

### **A. Result**

#### **1. Exclusive Breastfeeding**

The results of interviews with informants of breastfeeding mothers showed that all mothers said exclusive breastfeeding was very good and needed for the growth, development of babies and can improve baby's health.

*"Exclusive breastfeeding is very important for babies, baby's health, and baby's development so babies must get exclusive breastfeeding"*

*"If possible, this breastfeeding should not be mixed because it functions for the child's immune system"*

The above is in line with the results of the interview with the head of the Health Office who said that exclusive breastfeeding is important and is an indicator of health



*"Although in the city of Solok the target has been achieved, this is a very important thing to pay attention to, especially during the Covid-19 pandemic because it is a health indicator"*

**Table 1. Construction of Mother's Opinion Interview Results on Exclusive Breastfeeding**

<b>informant</b>	<b>Meaning Unit</b>	<b>Conclusion</b>	<b>Indicator</b>
Inf 1, 2, 3, 4, 5, 6,7,8	Mother's Opinion on Exclusive Breastfeeding	important for baby	Exclusive breastfeeding
Info 9	exclusive breastfeeding	important thing	Exclusive Breastfeeding

**2. Mother's experience in exclusive breastfeeding**

The results of interviews with breastfeeding mother informants about experiences in exclusive breastfeeding are that most mothers say they are happy and satisfied if they can breastfeed their babies for up to 6 months, even though there are still those who state that breast milk does not come out stressed mothers

*" When the baby was born, he didn't want to breastfeed, I was automatically stressed because the milk didn't want to come out, and I kept trying to get the milk to come out, when the milk came out I was happy"*

*"It's fun, instead of helping milk, breast milk is better"*

**Table 2. Construction of Interview Results Mother's Experience in Exclusive Breastfeeding**

<b>informant</b>	<b>Meaning Unit</b>	<b>Conclusion</b>	<b>Indicator</b>
Info 1, 3, 5, 6,7,	Mother's experience in exclusive breastfeeding	happy and satisfied	Breastfeeding

**3. Supporting factors for mothers in exclusive breastfeeding**

The results of interviews with breastfeeding mother informants about the supporting factors in exclusive breastfeeding are: Most mothers said that the supporting factors in exclusive breastfeeding were beliefs and understandings about exclusive breastfeeding such as nutritious food, adequate rest and drinking lots of water.

*"Eat nutritious foods, get enough rest" self-confidence, understanding of exclusive breastfeeding.*

*"Nutritional foods such as fruit, vegetables and drink lots of water"*

The results of interviews with the informants of the Head of the PPSDK (Health Promotion and Resource Services) City of Solok said that the factors supporting exclusive breastfeeding were inter-sectoral work in the Solok city health office.

*"Organizationally it is attached to the PPSDK field and programmatically attached to the Public Health Sector which is under the cation of nutrition and MCH"*

**Table 3. Construction of Interview Results Factors supporting mothers in exclusive breastfeeding**

informant	Meaning Unit	Conclusion	Indicator
Inf 1,2,3,5,6,8	supporting factors in exclusive breastfeeding	nutritious food, get enough rest and drink lots of water	Supporting factors
inf 10	inter-sectoral work in the health office of the city of Solok	Collaboration with Nutrition and KIA	Supporting factors

#### 4. Inhibiting factors for mothers in exclusive breastfeeding

The results of interviews with informants of breastfeeding mothers about the inhibiting factors in exclusive breastfeeding are that most of the mothers said that the inhibiting factors in breastfeeding were not smooth breastfeeding, stress

*"The thing that hinders is mainly because of thoughts or stress, then because of work demands / being too busy at work, breast milk is reduced"*

*"Because breast milk is not fully given, the baby is not full, and fussy"*

In line with the results of interviews with the person in charge of nutrition at the puskesmas, he said that the inhibiting factor in exclusive breastfeeding was that there were still mothers who lacked knowledge about exclusive breastfeeding.

*"Mothers don't want to breastfeed for up to 6 months because they don't understand the benefits of breastfeeding, sometimes when there's not enough milk, they add formula milk, especially when they're busy working."*

**Table 4. Construction of Interview Results Barriers to mothers in exclusive breastfeeding**

informant	Meaning Unit	Conclusion	Indicator
Inf 1,2,3,4,5,6,7,8	Causes of not giving breast milk	Breast milk is not smooth, stress	Obstacle factor
Info 12	inhibiting factors in exclusive breastfeeding	lack of knowledge about exclusive breastfeeding	Factors inhibiting the achievement of the target

#### 5. Information about Exclusive Breastfeeding

Interviews with informants of breastfeeding mothers obtained the following results, some of the mothers said that before the covid 19 pandemic, information was obtained from attending pregnancy classes from health workers, cadres during posyandu, counseling but some informants said that now, information is asked to people who are experienced and searched on social media

*" It used to be from counseling health workers, posyandu workers, mother's class "*

*" if I now ask people who have experienced before"*

The results of the interview with the informant in charge of the Nutrition Program at the Health Office said that information about exclusive breastfeeding was provided through leaflet distribution counseling, while the application was used for reporting.

*"For the dissemination of information provided by health workers at the puskesmas and cadres at the posyandu still use leaflets, the reverse sheet is for reporting using the application"*

In line with what was conveyed by the informant in charge of the Nutrition program at the Puskesmas information on exclusive breastfeeding was carried out at the posyandu through counseling and giving leaflet. During the Covid 19 Pandemic, counseling is not currently being carried out.

*"Information was given before the COVID-19 pandemic by giving out leaflets, sticking posters at the posyandu but for now the counseling is not being carried out because gatherings are not allowed."*

**Table 5 Construction of Interview Results Information on Exclusive Breastfeeding Exclusive**

<b>informant</b>	<b>Meaning Unit</b>	<b>Conclusion</b>	<b>Indicator</b>
Inf 1,2,3,6,8	Obtaining information about exclusive breastfeeding before the pandemic	counseling from health workers, posyandu workers	Exclusive breastfeeding information
Info 11	information about exclusive breastfeeding	Through leaflet distribution reporting already using the application	Exclusive breastfeeding information
Info 12	information about exclusive breastfeeding during the Covid 19 pandemic	counseling is not carried out.	Exclusive breastfeeding information

## **6. Expectations of mothers to obtain information about exclusive breastfeeding**

From the results of interviews with informants of mothers of children under five, it was found that most mothers expected information about exclusive breastfeeding to be obtained through social media. Even so, there are mothers who say that hopefully, the pandemic will end quickly so they can discuss with health workers

*"Hopefully we can interact with health workers through social media"  
One of the social media is sharing on Google "*

This is in line with what was conveyed by the informant from the Head of the PPSDK City of Solok, the hope is that mothers can obtain information through social media because gatherings are prohibited for now.

*" We hope that in the future there should be an application that can facilitate mothers to obtain information about health, especially regarding exclusive breastfeeding"*

**Table 6. Construction of Interview Results Expectations of mothers to obtain information about exclusive breastfeeding**

informant	Meaning Unit	Conclusion	Indicator
Inf 1,2,3,6,8	Expectations of obtaining information about exclusive breastfeeding	of social media	Exclusive breastfeeding information
inf 10	information about exclusive breastfeeding	social media	Exclusive breastfeeding information

## B. Discussion

### 1. Exclusive breastfeeding

Mother's milk for infants is the perfect food where the nutritional content is in accordance with the needs for optimal growth and development. Breast milk contains substances for the development of intelligence, immune substances (prevents various diseases) and can establish a loving relationship between mother and baby, delaying pregnancy reduces the risk of breast cancer and is special happiness for the mother. Meanwhile, from an economic point of view for the family, it is reducing the cost of buying milk. ( Siti Erniyati, 2020)

The results of the interview showed that all mothers said exclusive breastfeeding was very good and needed for the growth, development of the baby and can improve the health of the baby. This is because characteristically most of the respondents have high school education and above

Breastfeeding will ensure that babies stay healthy and start living in the healthiest way. Breastfeeding is not only an opportunity for babies to grow up to be physically healthy human beings but also smarter, more emotionally stable, positive spiritual development and social development. good. (Utami Rusli, 2020)

Exclusive breastfeeding is expected to be given for up to 6 months. Breastfeeding properly will be able to meet the needs of six months, without complementary foods. After the age of 6 months, babies need additional food but breastfeeding can be continued until the child is 2 years old (World Health Organization, 2016). The implementation of exclusive breastfeeding is influenced by several factors such as knowledge, attitudes, family support, especially husbands, mother's motivation, work status, and support from health workers (Hinson et al., 2018; Marwiyah & Khaerawati, 2020; Yang et al., 2019).

Efforts to increase the implementation of exclusive breastfeeding are carried out with various activities starting from pregnant women to mentoring after giving birth. One of the government programs is the implementation of classes for pregnant women by health workers. The class for pregnant women is a means of group learning about the health of pregnant women, aiming to increase knowledge and skills, and change attitudes and behavior of mothers regarding pregnancy, childbirth, postpartum care, and newborn care. However, during the Covid 19 pandemic, the class program for pregnant women was difficult to do face-to-face due to restrictions on gathering activities in the community during the pandemic.

### 2. Inhibiting factors and supporting factors in exclusive breastfeeding

The results showed that the majority of mothers said that the supporting factors in exclusive breastfeeding were nutritious food, adequate rest, and drinking lots of water,

although there were also those who said they had confidence and understanding about breastfeeding information.

Meanwhile, the results of the inhibiting factors in exclusive breastfeeding are that most mothers say that the inhibiting factor in breastfeeding is not smooth breastfeeding, stress

Actually breastfeeding, especially exclusively, is a natural way of feeding babies. However, mothers often lack information that they often get wrong information about the benefits of exclusive breastfeeding about how to breastfeed properly, and what to do if difficulties arise in breastfeeding their babies. Breastfeeding is an art that must be re-learned for successful breastfeeding, no tools are needed. -Special tools and expensive costs that are needed are only awareness, time, little knowledge about breastfeeding, and lack of a supportive environment from the husband. (Utami Rusli, 2020)

Mother's milk is the most perfect food whose nutritional content is suitable for the baby's needs. High-quality nutrients in breast milk are abundant in colostrum. Colostrum contains protein, vitamin A, carbohydrates, and low fat. Breast milk also contains essential amino acids which are very important for increasing the number of brain cells. babies related to infant intelligence (image Aziza, 2019)

The results of the research by Rudiawan, Muh, 2019 that the factors that encourage mothers to give exclusive breastfeeding are factors of knowledge, attitudes, beliefs, health services, and parental support, while the inhibiting factors based on research variables do not exist. For mothers who do not give exclusive breastfeeding, the inhibiting factors are trust, health services, and family support and the driving factors are knowledge and attitudes. The driving and inhibiting factors of mothers giving exclusive breastfeeding are influenced by the stimulus; knowledge, attitudes, beliefs, health services, and family support  
(: <http://repository.unhas.ac.id/id/eprint/3041> )

### **3. the need for health information about exclusive breastfeeding**

From the results of interviews with mothers of children under five, it was found that most mothers expected information about exclusive breastfeeding to be obtained through social media. The results of Rini Rahmayanti's research, 2021 show that there is an influence of FCMC-based online education on postpartum mothers' self-efficacy in breastfeeding. Health services are expected to facilitate FCMC-based online education programs to increase self-confidence in breastfeeding.

The above is in line with the Directorate of Community Nutrition in the 2020 health minister report. To respond to the Covid-19 pandemic and large-scale social restrictions, the Directorate of Community Nutrition has carried out a series of activities in order to increase the coverage of exclusive breastfeeding. Among them are: 1) Conducting online socialization in the form of webinars in the context of World Breastfeeding Week, webinars about the importance of continuing to breastfeed during the Covid-19 pandemic, and about the practice of providing healthy complementary foods (MPASI). 2) Create nutritional service guidelines and balanced nutrition guidelines during the Covid-19 pandemic as well as posters and booklets related to breastfeeding during the Covid-19 Pandemic. The Guidelines for Nutrition Services during the pandemic provide guidance to the health office and puskesmas to continue to provide nutrition services, including counseling to pregnant and lactating mothers in need, through tele-counseling or home visits if possible, in accordance with local government regulations regarding social restrictions. 3) Developing digital IEC information media related to breastfeeding, webinars and tele-counseling are expected to provide information to the public that

breastfeeding is very important, especially during this pandemic to provide immunity to babies, and to achieve the target of exclusive breastfeeding coverage.

### Conclusion and Suggestion

1. Exclusive breastfeeding is very important
2. The inhibiting factor in exclusive breastfeeding is the mother's lack of understanding about the benefits and overcoming problems when breastfeeding.
3. Mother's hope in obtaining information about exclusive breastfeeding is through social media

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# A LITERATURE REVIEW OF THE PSYCHOSOCIAL DEVELOPMENT OF PRESCHOOL CHILDREN

**Delima, Tisnawati, Herwati**

Health Polytechnic Padang Ministry of Health, Department of Nursing  
 Jalan Simpang Pondok Kopi, Siteba, Padang  
[delima.irfan.dea@gmail.com](mailto:delima.irfan.dea@gmail.com)

## ABSTRACT

The development of each child is different both in talents, interests, creativity, emotional maturity, personality, physical and social health. The purpose of this study was to determine how the psychosocial development of pre-school age children from various literatures. This study uses a Literature Review research design with a traditional type of review using the PICO strategy. Articles were searched using the electronic database Science Direct, Research Gate, NCBI Pubmed, Semantic Scholar, Wiley Online Library, Google Scholar, and Clinical Key for Nursing. The results of this study, found as many as 6589 journal articles and as many as 7 journal articles that the author can analyze further based on the PRISMA selection flow. Based on the research, it can be concluded that the psychosocial development of preschool-aged children is that children like to fantasize and be creative, children have the initiative in playing with tools at home, children who like to play with peers will easily be separated from their parents, children understand better what is right and what is wrong. wrong, children learn to string words and sentences, children recognize various colors, children help with simple homework, children recognize their gender, learn new skills through games. Nurses are expected to be able to carry out appropriate stimulation according to the stage of psychosocial development of pre-school children.

**Keywords:** Child Development, Preschool, Psychosocial

## INTRODUCTION

Naturally, the development of each child is different in terms of talents, interests, creativity, emotional maturity, personality, physical and social health (Windasari, Hasan, 2019). currently tend to like to play with gadgets, has many negative impacts on children's development, from several studies found children who are accustomed to using gadgets will have an impact on their thinking and creativity skills, can result in damage to morals and religious values, gadgets cause children's social interaction with the environment around is reduced, making children tend to be lazy to move and rarely do motor activities, gadgets can also have an impact in developing children's speaking skills and social development (Itqan, 2018).

Preschoolers usually tend to be happy with new things they get through play activities. It is not uncommon for children to play and satisfy their curiosity through online educational media in the form of gadgets, because gadgets are an interesting thing for them, especially when coupled with online game applications found on these gadgets, so most of them spend all day playing gadgets. Even though children their age have to play and mingle with their peers (Pebriana, 2017).

Furthermore, children who like to play gadgets, children's social abilities are not too important in this modern game, instead they tend to be ignored (Pebriana, 2017). The lack of socialization of children in socializing causes them to be afraid and awkward in crowds. (Yenti & Nurrizati, 2018).

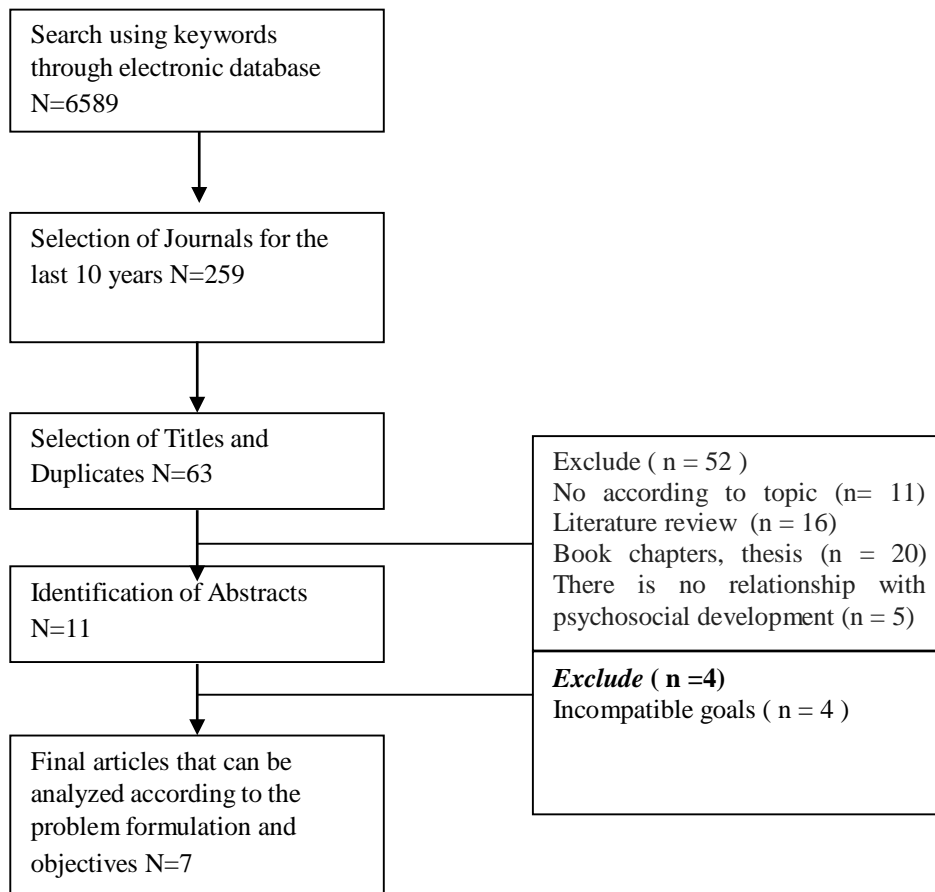


The results of this previous study found that 26.7% of children experienced delays in psychosocial development in children aged 2-3 years in the Kuranji area. This condition will have an impact on children's social relationships with the world around them, and can even have an effect on children's psychosocial problems in the future (Delima., Metti, Elvia., Irfan, 2018). Therefore, it is necessary to know how the psychosocial development of pre-school children is.

The purpose of writing this literature review is to find out how the psychosocial development of pre-school aged children (4-6 years).

## METHODS

This study uses a Literature Review research design or a literature review with a traditional type of review research. In searching the literature, this research uses the PICO strategy. The journal or article search method used is a search through the electronic database Science Direct (2011-2020), Research Gate (2011-2020), NCBI Pubmed (2011-2020), Semantic Scholar (2011-2020), Wiley Online Library (2011-2020). 2020), google scholar (2011-2020) and Clinical Key for Nursing (2015-2020). Researchers use keywords in article searches. The flow of article selection using PRISMA is described in the schema below:



**Figure.1 Article Selection Flow**

## RESULT AND DISCUSSION

The number of searches by entering the keyword "Psychosocial development, pre-school" through an electronic database found as many as 6589 journal articles, including Science Direct 2334 articles, with Research Gate as many as 2043 articles, with Google Scholar 1901 and with PubMed found as many as 311 articles. After the selection of journal articles in the last 10 years, 6330 journal articles were excluded, leaving 259 journal articles.

Furthermore, the authors made further selection of journal titles and duplicates and excluded 198 journal articles, so that the remaining 63 journal articles were excluded. Of the 63 journal articles, only 11 journal articles were eligible for abstract identification and 52 other journal articles were excluded on the grounds of not being on topic as many as 11 journal articles, Literature review as many as 16 journal articles, Book chapters, thesis as many as 20 journal articles and there is no relationship with There are 5 journal articles on the psychosocial development of children. Furthermore, 4 of the 11 articles were excluded on the grounds that the research was non-experimental / non-interventional and the objectives were not congruent. So that we get 7 journal articles that the authors can analyze further.

After selecting the study, the authors extracted data consisting of 7 journal articles that matched the inclusion criteria. The results of data extraction are as follows:

**Table. 1 Data Extraction Results**

No	Pengarang, Tahun	Judul	Nama Jurnal	Tujuan Penelitian	Metode Penelitian	Hasil Penelitian
1	Yorita Febry Lismanda, 2017	Pondasi perkembangan psikososial anak melalui peran ayah dalam keluarga	Jurnal Pendidikan Islam	The aim of this study is to determine the father's role in the development psychosocial of children.	This scientific article data collection method uses a literature study of the listening technique, where one of the listening techniques is the note-taking technique. The note-taking technique is a data collection technique by using literature books, or library materials, then taking notes or quoting the opinions of experts in the book to strengthen the theoretical basis in writing scientific articles.	The results of the study are the role of fathers in the family through parenting involvement direct, regular, and active positive impact on the development of cognitive, emotional, and social development so as to make the child can pass through the stages of psychosocial very critical in infancy, toddler, preschool, and school
2	Monika Caterina, Ria Setia Sari, Febi Ratnasari (2021)	Kajian Literatur: Peran Orang Tua yang Bekerja dengan Perkembangan Sosial Usia Prasekolah	Jurnal Keperawatan	this study aims to determine how the relationship role working parents with the social development of school-age children	Search from several journals that have been published inform <i>full text</i> PDF using several sites, namely <i>Google Scholar</i> , <i>ProQuest</i> , <i>Ebsco</i> and <i>Springer</i> . In the search for this literature review, the keywords " <i>Social development</i> " and social development, " <i>working parents</i> " and " <i>working parents</i> " were used. The search criteria were articles using Indonesian and English, respondents were preschoolers and parents, social	The results of the study are Based on the 20 journals that have been discussed, it can be concluded that the role of working parents affects the social development of preschool-aged children. The positive impact of working parents can improve socio-economic status to improve children's social development. However, the negative impact is that the busyness of parents at

					development, and a period of 5 years (2015-2020). The synthesis analysis in this literature review uses a synthesis matrix consisting of <i>input</i> , <i>process</i> and <i>output</i> .	work causes the attachment that is built between parents and children to be less than optimal, namely in building children's trust with their environment which affects the child's social development..
3	Aisyiah, Tommy Wowor, Ira Mustika 2017	Pengaruh stimulasi tumbuh kembang terhadap perkembangan anak usia Prasekolah di Raudhatul Athfal An-Nur Jagakarsa, Jakarta Selatan	Journal Educational	To determine the effect of growth and development stimulation on children's development	The design of this study was a quasi-experimental One group with pre-test-post-test design. The sampling technique used inclusion criteria using the KPSP form in measuring the development of respondents.	The average child development after the intervention with the provision of stimulation for child development has increased to 9.23 with the lowest score of 8 and the highest score of 10. The result of the research is that there is an influence of growth and development stimulation on children's development including their psychosocial development.
4	Stella Maria Hartinger, et all 2016	Impact of a child stimulation intervention on early child development in rural Peru: a cluster randomised trial using a reciprocal control design	<i>Palliative</i>	To evaluate the effects of developmental stimulation on the development of age months in Peru	Qualitative research using random sampling technique using the 6-35 integrated household intervention package (IHIP) intervention and early child development (ECD) Intervention	The results of the research on the effect of developmental stimulation interventions on children under 3 years of age, among others: Developmental stimulation affects children's motor development by using interventions early child development (ECD). Developmental stimulation intervention has an effect on children's motor development (62%) with odds ratio = 2.6 95% CI.
5	Wuri Utami, Nurlaila2, Riska Qistiana 2017	Hubungan tipe pola asuh orang tua dengan perkembangan psikososial anak usia prasekolah di TK Pertiwi 1 Desa Purbowangi	Jurnal Kesehatan Keperawatan	This study aims to determine the relationship between parenting patterns and the psychosocial development of preschool-aged children in TK Pertiwi 1 Purbowangi	The method used in descriptive correlation research uses a cross-sectional approach. Data analysis using non-parametric statistics with Spearman Rank test. Respondents were 70 parents of preschool age children using a questionnaire	The results of this study have a significant influence on the type of parenting style of parents with the psychosocial development of preschool-aged children in Pertiwi 1 Kindergarten, Purbowangi Village, Buayan District,

		Kecamatan Buayan Kabupaten Kebumen		Village, Buayan District, Kebumen Regency.		Kebumen Regency, p value 0.001
6	Heri Saputro dan Yufentri Otnial Talan 2017	Pengaruh Lingkungan Keluarga Terhadap Perkembangan Psikososial Pada Anak Prasekolah	Journal Of Nursing Practice	This study was to determine the effect of the family environment on psychosocial development in children aged 4-6 years in Tosaren Village	The research design is an observational study with a cross sectional approach. The simplification technique used is random sampling. The population in this study were all children aged 4-6 years in Tosaren Village as many as 147 respondents, a sample of 108 respondents.	The results of the study show that almost all families apply authoritarian family environment (83.3%). The results showed that 75 children (69.4%) with developmental psychosocial guilt and 33 children (30.6%) with initiative psychosocial development. There is an influence of the family environment on psychosocial development in children aged 4-6 years
7	Nurwijayanti, Andriyani Mustika Iqomh, Muhammad Khabib Burhanuddin 2018	Intervensi Keperawatan Anak Pada Anak Usia Pra Sekolah di Kecamatan Weleri Dalam Upaya Pencapaian Tumbuh Kembang	Jurnal Ilmiah Ilmu Keperawatan Indonesia	This study aims to determine the effect of fine motor stimulus on the psychosocial development of pre-school age children.	This study uses a Quasi . design experiment with pre post test without control group. The population in this study were all pre-school age children who attend 6 ABA Kindergartens in Weleri District. The research sample is 211 children	The results of the statistical analysis test using the Wilcoxon test, got a p value of 0.000 ( $p < 0.05$ ). There is an influence of motor stimulation on the psychosocial development of pre-school age children in ABA Kindergarten, Weleri District

Based on the results of the journal analysis, there are 7 articles that discuss the psychosocial development of children. The results of Yorita Febry Lismanda's research in 2017, concerning the role of fathers in the family through direct, regular, and active parenting involvement have a positive impact on children's cognitive, emotional, and social development so that children can pass through very critical psychosocial stages at infancy, toodler , preschool, and school. Stimulation at this age of a child's life greatly affects the physical structure and brain of a child. If this is disturbed, it will be difficult to repair in later life times, which will have an impact on the child's motor development, as well as the child's psychosocial development.

Furthermore, research by Monika Caterina, Ria Setia Sari, Febi Ratnasari (2021) Literature Review: The Role of Working Parents with Preschool Age Social Development, obtained based on 20 journals, it can be concluded that the role of working parents affects the social development of preschool age children. The positive impact of working parents can improve socio-economic status to improve children's social development. However, the negative impact is that the busyness of parents at work causes the attachment that is built between parents and children to be less than optimal, namely in building a child's sense of trust with their environment which affects the child's social development.

Aisyiah, Tommy Wowor, Ira Mustika 2017, found that there was an effect of stimulating child development on increasing children's development, including their psychosocial development. The need for stimulation or efforts to stimulate children to introduce new knowledge or skills

is very important in increasing children's intelligence (Delima & Tisnawati, 2021). One of the important developments of children to monitor during this period is psychosocial development because much of cognitive performance is rooted in successful psychosocial development.

Utami's research, W. (2017), found that there was a significant effect of the type of parenting style on the psychosocial development of preschool-aged children in TK Pertiwi 1, Purbowangi Village, Buayan District, Kebumen Regency with a p value of 0.001. At preschool age children begin to experience fairly rapid development because children at this age show the ability to move more activities, develop curiosity, and explore objects around them. Other studies say that there is an influence of the family environment on psychosocial development in children aged 4-6 years. Excessive pressure or expectations that are too high exceed the capacity to make children lie or cheat in order to be accepted in their social groups (Saputro & Talan, 2017). The factors that influence the high level of psychosocial problems in children in Tosaren Village are because parents always prohibit and scold children when they do something. Factors that influence the personal social development of preschool children include family factors and child maturity. Preschool children will usually imitate what is taught by parents, either directly or indirectly. So that parents must be able to increase their knowledge and abilities in creating a conducive family environment and conditions to support the process of child development (Saputro & Talan, 2017).

Research (Nurwijayanti & Iqomh, 2018) shows that there is an effect of providing fine motor stimuli in the form of drawing, cutting and coloring with psychosocial development ( $p = 0.000$ ). In this study, preschool children were not ready to engage in games with rules, so children at this stage tended to play according to their egos. Preschool age children are children aged 3-6 years, where children are ready to learn and get to know the wider external environment. The family environment is the first and main aspect in influencing the development of children. children will spend more time in the family environment, so the family has a role in shaping the child's personality, setting an example. Parents who behave well, children will tend to imitate good behavior. In line with other studies that the family environment has an influence on the psychosocial development of children (Saputro & Talan, 2017).

Other factors that influence the psychosocial development of children aged 3-6 years are: games where by playing a child, engaging in fun activities contributes to all aspects of development. Through play, children stimulate the senses, learn to use their muscles, coordinate vision and movement, gain body control, and acquire new skills. help children achieve optimal growth and development, including children's psychosocial development (Nurwijayanti & Iqomh, 2018).

Psychosocial is a term used to describe the relationship between a person's social condition and mental/emotional health (Ministry of Social Affairs, 2018). Psychosocial is a condition that occurs in individuals that includes psychological and social aspects or vice versa. Psychosocial refers to the dynamic relationship between psychic and social factors, which interact and influence each other. Psychosocial itself comes from the word psycho which refers to the psychological aspects of the individual (thoughts, feelings, and behavior) while the word social refers to the individual's external relationship with the people around him. The term psychosocial means alluding to social relations that include psychological factors.

There are many theories regarding psychosocial development, the most widely adopted is the psychosocial theory of Erik Erikson. Erikson's psychosocial theory includes eight successive stages throughout life. The outcome of each stage depends on the previous stage, and the successful resolution of each ego crisis is essential for the individual to be able to grow optimally. The ego must develop different abilities to cope with each adjustment demand from society (Scania, 2018). Psychosocial development greatly affects the quality of one's ego consciously. This ego identity will continue to change due to new experiences and information gained from daily interactions with other people. In addition to ego identity, competition will

motivate the development of behavior and action. In simple terms, if someone is handled well, then he will have good ego strength and qualities as well. However, if this handling is managed poorly, it will emerge a feeling of inadequacy (Ministry of Social Affairs, 2018).

Preschool age children have considerable potential to develop immediately, this potential will continue to grow, if children continue to be trained to be given stimulation (Keliat in Siti, 2019). Preschool age children will experience psychosocial development to learn to interact with others, fantasize and take initiative, recognize gender identity, imitate (Siti, 2019).

At the stage of psychosocial development of preschool children, children begin to show their power and control over the world through the direction of games and social interactions (Ministry of Social Affairs, 2018). At this stage children learn how to plan and carry out their actions. Unsuccessful resolutions from this stage will make the child afraid to take the initiative or make decisions for fear of making mistakes. Children have low self-esteem and do not want to develop expectations when they grow up. If the child manages to get through this period well, then the ego skills gained are having a purpose in life (Scania, 2018).

Soetjningsih in Siti, (2019) states that the growth of preschool age children can be optimal if children are given stimulation to stimulate all aspects of child development. Phases of psychosocial development in preschool children are initiative and guilt. This development is obtained by exploring the surrounding environment. The development of preschool age children can experience deviations if not given stimulation. Children must get stimulation so that they can develop according to their stages of development. Stimulation is one of the environmental factors that affect the growth and development of children. Stimulation is a child's learning process that begins early in life. Children who receive directed and regular stimulation will develop faster than children who do not or do not receive stimulation (Delima & Tisnawati, 2021).

Psychosocial development of preschool age children, namely children like to fantasize and be creative, children have the initiative to play with tools at home, children like to play with peers, children are easy to separate from parents, children understand what is right and wrong, children learn to string words and sentences, children recognize various colors, children help with simple homework, children recognize their gender, learn new skills through games (Siti, 2019). Thus, it can be understood that in playing there are activities that are bound by rules to achieve certain goals.

Characteristics of children 4-6 years old are: 1) physical development, children are very active in various activities so that they can help develop children's muscles, 2) language development is getting better when children are able to understand other people's speech and are able to express their thoughts, 3) cognitive development ( thinking power) very rapidly indicated by the child's curiosity about the surrounding environment. Children often ask about what they see, 4) the form of children's games is still individual even though children do it together (Nur, 2020).

A very fun time for children when he gets a new toy. For children, their imagination begins to develop, any object or item can be a means of playing, it turns out that playing has many benefits for children's development, especially, fine motor development, gross motor skills, as well as children's psychosocial development (Delima & Tisnawati, 2021).

Patterns of play in general can support the development of children both in terms of physical, psychological and social. The most supportive pattern in socially nuanced games is games that involve interaction from peers, which basically can be found in the form of traditional games. Where in traditional games, more than one person will usually play so that children can be invited to gather and get to know their friends and help them train their physical and psychological development during the game.

## **CONCLUSION AND SUGGESTION**

Based on the literature review, it can be concluded that the psychosocial development of preschool-age children is that children like to fantasize and be creative, children have the initiative in playing with tools at home, children who like to play with peers will easily part with their parents, children understand what is right and what is wrong, children learn to string words and sentences, children recognize various colors, children help with simple homework, children recognize their gender, learn new skills through games. Nurses are expected to be able to carry out appropriate stimulation according to the stage of psychosocial development in preschool children.

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## **THE EFFECTIVENESS OF TOOTH BRUSHING EDUCATION ON REDUCING PLAQUE INDEX (PATIENT HYGIENE PERFORMANCE INDEX) IN MENTALLY RETARDED CHILDREN**

**Eka Sukanti, Muhammad Faisal, Zulfikri, Arnetty**

Health Polytechnic Padang Ministry of Health, Department of Nursing' Jalan Simpang  
Pondok Kopi, Siteba, Padang  
[ekasukanti@gmail.com](mailto:ekasukanti@gmail.com)

### **ABSTRACT**

The main cause of caries and periodontal disease is plaque. Plaque can be removed by brushing your teeth. Children with mental disabilities or mental retardation have limitations in functioning themselves and adjusting to the environment. The prevalence of caries is 30% higher than normal children and poor oral hygiene is a problem faced by mentally retarded children. The purpose of this study was to analyze the effectiveness of tooth brushing education on reducing plaque index (Patient Hygiene Performance Index) in mentally retarded children at SLB N 02 Padang. The research design used was a Pre-Experimental One Group Pre and Posttest design with an initial plaque index examination (pretest) and a plaque index examination after brushing education (posttest), with a population of 86 people, the sampling technique was purposive sampling, obtained a sample of 45 person. The study was conducted at SLB N 02 Padang in 2019. The results showed a higher difference in the PHP index, namely for moderate mental retardation at 1.3 while the difference in numbers for mild mental retardation was 1.28. Data analysis using statistical tests with paired sample t-test showed that there was a significant difference between the PHP index before and after education about brushing teeth in children with mild and moderate mental retardation. It is recommended to respondents to always apply the brushing technique that has been given, and brush their teeth at least twice a day, ie in the morning after breakfast and at night before going to bed and guide the mentally retarded children one by one when brushing their teeth.

**Keyword** : *Tooth brushing education, plaque index, mentally disabled*

### **Introduction**

Teeth have an important role in children's growth, including as a means of chewing food, helping to crush food in the mouth and functioning in helping the digestive system so that food can be absorbed by the body properly. [1]. A child is said to be healthy if his oral hygiene is maintained. If oral hygiene is not maintained, various dental problems will arise, such as cavities or caries [2]. The prevalence of caries in Indonesia still tends to be high, namely 90.90%, where the main cause of caries is the

accumulation of plaque associated with poor oral hygiene. [1] [3]. Plaque is a soft layer consisting of 80% water and the remaining 20% are components such as proteins, lipids, and mineral components, namely calcium and phosphorus [4].

Efforts to clean plaque can be done by brushing your teeth, the goal is to clean food debris from the surface of the teeth and massage the gums [5]. The habit of brushing teeth should be introduced to children from an early age [6]. Difficulty carrying out proper oral cleaning procedures is found in children under 5 years of age as well as in children with mental disabilities [7]. Children with mental disabilities or known as mental retardation have limitations in functioning themselves, adjusting to the environment [8].

The caries prevalence is 30% higher than normal children and poor oral hygiene is a problem faced by mentally retarded children [9] [10]. Lack of motivation and ability to concentrate makes it difficult for mentally retarded children to carry out activities related to dental hygiene [9]. Mental retardation has an IQ below 68-54 with an IQ range of 50-75%, but mentally retarded children have the ability to be educated [11]. Based on the results of the 2013 Basic Health Research (RISKESDAS) survey, it was stated that there were 0.14% of mentally retarded children, this is the second highest percentage after physical disabilities [12].

Based on previous research on the description of the independence of mentally retarded children in brushing their teeth before brushing their teeth, it was found that 15 children were still not independent in brushing their teeth and the description of the independence of mentally retarded children in brushing their teeth after brushing their teeth was found to be 9 children who were not independent in brushing their teeth. at SLBNegeri Semarang. In conclusion, not many mentally retarded children can brush their teeth independently even though they have received brushing practice [13].

SLB N 02 Padang has 120 students with special needs, consisting of 86 mentally retarded students consisting of 46 mild and 40 moderately impaired students, 3 blind students, 14 deaf students, 8 physically handicapped and 9 autistic people. The initial survey regarding dental and oral hygiene with the PHP index of mild and moderate mentally retarded children, namely from 9 mentally retarded children who had their dental and oral hygiene checked, they consisted of 5 mild and 4 moderately mentally retarded children, two children with a score of 3.5, three children children with a score of 3.7, and two children with a score of 3.9, and two other children with a score of 2.1.

The results of interviews conducted with children with mild and moderate mental retardation found 5 children brushing their teeth twice a day and 4 children only once. The results of interviews conducted on 8 parents of mentally retarded children, data obtained from 6 parents stated that their children liked to consume foods such as bread, sweets, and cold and sweet drinks, and 2 other parents stated that their children did not like to consume cold and sweet drinks, but likes to eat sweets. Based on the observations of researchers, there are 2 canteens at SLB N 02 Padang, both canteens sell sweet foods such as bread, biscuits, chocolate, sweets and cold drinks. This study aims to determine the effectiveness of education about brushing teeth to reduce plaque index (Patient Hygiene Performance Index) in mentally retarded children at SLB N 02 Padang in 2019.

## Method

This study uses an experimental design that uses a pre-experimental one group pre and posttest design with an initial plaque index examination (pretest) and after

brushing education is carried out by checking the final plaque index (posttest). The study was conducted in August 2019. The study population was all mentally retarded students at SLB N 02 Padang. The sampling technique in this study was carried out by purposive sampling. The sample was taken with the inclusion criteria, namely the criteria that need to be met by each member of the population that can be taken as a sample. Based on research considerations with inclusion criteria, namely: 1) mild and moderate mentally retarded patients; 2) willing to be a respondent; 3) have index gear. Data was collected by observing and examining the plaque index directly on the research subjects with predetermined conditions.

The initial examination was carried out before brushing education was carried out, the research subjects were instructed to brush their teeth in the usual way, then the PHP plaque index was examined. Then the researchers conducted education on brushing teeth by way of counseling, demonstrations and exercises a combination of vertical techniques, fone's techniques and horizontal techniques every day for 2 weeks. After two weeks, the researcher came in the morning and gave the same food, before the break the research subjects were instructed to brush their teeth according to the education that had been given for two weeks. After that, a final PHP plaque index check was carried out. The data that has been obtained were analyzed by univariate and bivariate. Bivariate analysis was carried out by using paired sample t-test.

## Result

Based on research conducted on research subjects, the average PHP index index of mild and moderate mentally retarded children before and after brushing education is shown in the following table:

Tabel 1. Average PHP index ("Patient Hygiene Performance") of Mild Mentally Impaired Children Before and After Tooth Brushing Education at SLB N 02 Padang

Type of mental retardation	PHP Index		PHP Index Difference
	Before	After	
Mild mental retardation	3,15	1,87	1,28

Tabel 2. Average PHP index ("Patient Hygiene Performance") Children with moderate mental retardation Before and After Tooth Brushing Education at SLB N 02 Padang

Type of mental retardation	PHP Index		PHP Index Difference
	Before	After	
Mild mental retardation	3,13	1,83	1,3

Tabel 3. Differences in Average Plaque Index (“Patient Hygiene Performance”) Before and After Dental Brushing Education for Mild and Moderate Mentally Impaired Children at SLB N 02 Padang

Type of mental retardation	PHP Index		PHP Index Difference
	Before	After	
Mild mental retardation	3,15	1,87	1,28
moderate mental retardation	3,13	1,83	1,3

Tabel 4. Statistical Test Results Dependent T-Test/ Paired T-Test Effectiveness of Toothbrushing Education on the Decrease of Plaque Index (Patient Hygiene Performance) in Mild and Moderate Mentally Impaired Children at SLB N 02 Padang

Variable	N	Average $\pm$ SD	mean difference $\pm$ SD	IK95%	P
PHP Index before	45	3,14 $\pm$ 0,76	1,28 $\pm$ 0,87	1,02 – 1,55	0,000
PHP Index after	45	1,85 $\pm$ 0,71			

Based on the table of statistical test results T-Test dependent / paired T-Test obtained P value "value" of 0.000 ( $0.000 < 0.05$ ) then  $H_a$  is accepted which means there is a significant difference between the PHP index before and after education about brushing teeth in mild and moderate mentally retarded children.

## Discussion

The average PHP index before education about brushing teeth in mild mentally retarded children was 3.15 moderate criteria and the PHP index after education about brushing teeth was 1.87 moderate criteria with a difference of 1.28. According to researchers, this is because children with mild mental retardation do not brush their teeth with the recommended technique and are not done regularly. Another thing that makes the PHP index number high in mild mentally retarded children is that mentally retarded children do not receive guidance on how to brush their teeth properly.

This is reinforced by the theory which states that the technique of brushing teeth must be understood and must be carried out regularly, therefore brushing teeth if only done sparingly, it will not get optimal results. The best way to brush one's teeth for a person can be determined by dental health professionals such as dentists and dental therapists [14]. Mild mentally retarded children can still be educated and trained because generally mild mentally retarded children do not experience physical disorders, physically look like normal children in general [15]. This study is in line with previous studies regarding the plaque index number after 6 weeks of training can reduce the plaque index number with a weekly average of 7 [13].

The average PHP index before education about brushing teeth in children with moderate mental retardation was 3.13 moderate criteria, and after education about brushing teeth was 1.83 moderate criteria with a difference of 1.3. According to researchers, this happens because the brushing technique provided is simple and can be understood by moderately mentally retarded children, basically mentally retarded children can be trained by paying attention to various things, and supported by a strong desire, considering that moderately mentally retarded children are different from normal children in general. Tooth brushing education was carried out for 2 weeks, and the participation of the mentally retarded was very large so they did it seriously.

The theory states that the easy-to-understand and simple brushing technique is the fones and vertical technique, the fones technique is performed by placing the bristles perpendicular to the buccal and labial surfaces with the teeth in occlusion, the brush being moved in large circles so that the jaw teeth the upper and lower jaws were cleaned at once [14]. Health education is different from general education because in theory and practice health education is carried out at almost the same time, the theory obtained is directly put into practice to see the development of students' mastery of the material that has been delivered [16]. This study is in line with other studies where after receiving training in brushing teeth using the bass and horizontal methods, the plaque index of mentally retarded children decreased by 0.80 with good criteria [14].

The average PHP index before and after brushing education for children with mild and moderate mental retardation showed a higher plaque index difference, namely for moderately mentally retarded children of 1.3 while the lowest decline was in mild mental retardation of 1.28. This is reinforced by the results of statistical tests which state that the p "value" is 0.000 ( $0.000 < 0.005$ ), so there is a significant difference between the PHP index before education about brushing teeth and after education about brushing teeth in children with mild and moderate mental retardation.

According to the researcher, this occurs because mentally retarded children are different from normal children in general and have an IQ below the average of normal children in general. Children with mental retardation are less adaptive in carrying out mass tooth brushing activities and the researchers also do not guide one by one the mentally retarded children when brushing their teeth mass. Mild mentally retarded children have a higher IQ than moderate mentally retarded children, but in the educational process about brushing teeth given for 2 weeks, the enthusiasm of mild mentally retarded children is lower than moderate mentally retarded children, moderate mentally retarded children have high desire and enthusiasm, so that can beat the situation where the intellectual disability IQ is lower.

According to the theory, mild mentally retarded children have a higher IQ of 69- 55 while those with moderate mental retardation are 51-36. Children with moderate mental retardation can learn to read, write and count simply, with good guidance and education, and are supported by the high desires of mentally retarded children. Generally, mild mentally retarded children do not experience physical disorders, physically look like normal children in general, therefore it is rather difficult to distinguish them from normal children [16].

Children with mental retardation are very difficult and can't even learn academically such as writing, reading and arithmetic even though children with mental retardation are still able to write socially such as writing their own names. Children with moderate mental retardation can still be taught to take care of themselves such as bathing, dressing, eating and drinking, children with mental retardation are in need of

continuous supervision and simple steps in their training to improve their health status [15]. The results of this study also support previous research on the results of the paired T-Test test before and after brushing education showed a p value of 0.000 and this value was below 0.05 ( $p < 0.05$ ) so that it could be said that there was a significant difference between the index plaque before and after tooth brushing treatment, with the average plaque index before and after treatment was 3.88 and 3.03 [17].

Another researcher said that the results of statistical tests showed that the mean value of plaque index before counseling on how to brush teeth was 1.53 in the medium category and after being given counseling on how to brush teeth the average value was reduced to 0.43 in the good category [18].

### Conclusion

The average PHP index before and after education about brushing teeth in children with mild and moderate mental retardation. It can be seen that the difference in the PHP index is higher for moderate mental retardation of 1.3 while the difference in numbers for mild mental retardation is 1.28. The results of the dependent sample T- Test/paired T-Test test showed that the P "value" was 0.000 ( $0.000 < 0.05$ ), so there was a significant difference between the PHP index before and after education about brushing teeth in children with mild and moderate mental retardation. It is recommended to respondents to always apply the brushing technique that has been given, and brush their teeth at least twice a day, ie in the morning after breakfast and at night before going to bed and guide the mentally retarded children one by one when brushing their teeth.

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# PREVENTION OF SEXUAL VIOLENCE AND TRACT INFECTION REPRODUCTION THROUGH INFORMATION COMMUNICATION ACTIVITIES EDUCATION TO YOUTH IN CITY DISASTER RISK AREA PADANG IN 2020

**EldaYusefni, Neni Fitra Hayati, Yefrida Rustam<sup>3</sup>**

Health Polytechnic Padang Ministry of Health, Department of Nursing  
Jalan Simpang Pondok Kopi, Siteba, Padang

## *ABSTRACT*

Indonesia is an area prone to various disasters, according to the 2018 BNPB, the most dominant hydrometeorological disasters such as 605 tornadoes, 506 floods, 353 forests, and land fires, 319 landslides, 55 volcanic eruptions, 33 tidal waves and abrasion, 1 tsunami. The impact is greater especially on vulnerable groups such as women and children, including adolescents. The most frequent impacts experienced by adolescents are sexual violence and harassment such as rape, personal hygiene disorders, the risk of contracting STIs, and trafficking. The purpose of this study was to determine the effectiveness of IEC in preventing the incidence of violence and ISR among adolescents in disaster-affected areas in 2020.

This type of research is a quasi-experimental, one-group pre and post-test research design. This research was conducted at the Midwifery Department of Padang. The study was conducted from September to November 2020. The population of this study was students of 1 d3 Midwifery in Padang. Sampling by consecutive sampling, totaling 92 people. Manual data processing and univariate data processing with frequency distribution, bivariate analysis with Mc Nemar.

The results showed that the number of incidents of sexual violence/harassment before and after IEC was 6.5% and 4.3%, respectively. The incidence of ISR before and after IEC was 12% and 7.6%, respectively. Adolescent readiness before and after Information Education Communication was 47.8% and 72.8%. The results of statistical tests before and after IEC on the incidence of sexual violence/harassment with p-value > 0.500. The results of statistical tests before and after IEC on the incidence of ISR with p-value > 0.125.

The conclusion of this study is the effectiveness of IEC on the prevention of sexual violence and the incidence of ISR there is no difference before and after IEC. It is suggested to the local government to increase activities to prepare for disasters such as socialization, simulation, provision of adequate infrastructure for youth so that disaster risks to health and safety can be minimized.

*Keywords: IEC effectiveness, sexual violence, reproductive tract infection*

## **Introduction:**

The National Disaster Management Agency (BNPB) noted that during 2018, 1,999 disasters occurred in Indonesia. Of all the disasters that occurred in 2018, BNPB noted that hydrometeorological disasters were the most dominant. Number of tornado occurrences 605 incidents, 506 floods, 353 forest, and land fires, 319 landslides, 55 volcanic eruptions, tidal waves, and 33 abrasions, 1 destructive earthquake, and 1 tsunami.<sup>(1)</sup>



According to Sutopo Purwo Nugroho (2018), the high danger of disasters, such as earthquakes, tsunamis, volcanic eruptions, floods, landslides, droughts, forest and land fires, nipples pickaxes, extreme weather, as well as high vulnerability and low capacity lead to high disaster risk.<sup>(2)</sup> Disaster emergencies are accompanied by risks that increase youth vulnerability against violence, poverty, separation from family, sexual violence, and exploitation. These factors can disrupt family and social protective structures, peer networks, school, and religious institutions and can greatly affect the ability of adolescents to practice safe reproductive health behaviors. In a new environment, they can also be violent, stressed, and/or unhealthy. So a role is needed midwives in dealing with adolescent reproductive health.<sup>(3,4)</sup>

The impact of the disaster was reported to be very large. Recorded 3,548 people died and missing, 13,112 people were injured, 3.06 million people were displaced and affected disaster, 339,969 houses were heavily damaged, 7,810 houses moderately damaged, 20,608 houses lightly damaged, and thousands of public facilities were damaged. The trend of disasters also tends to increase every year.<sup>(5)</sup> The impact of disasters is getting bigger, especially for vulnerable groups such as women and children, including adolescents. The impacts that are most often experienced by teenagers are sexual violence and harassment such as rape, personal hygiene disorders, risk of contracting STIs, and trafficking.<sup>(3,4)</sup> The purpose of this study was to find out to determine the effect of Information Communication and Education (IEC) on the Prevention of Sexual Violence and Adolescent Reproductive Tract Infections in Disaster Risk Areas in Padang City year 2020.

#### **Methods :**

This type of research is a quasi-experimental, one-group pre and post-test research design. This research was conducted at the Midwifery Department of Padang. The study was conducted from September to November 2020. The population of this study was students of 1 d3 Midwifery in Padang. Sampling by consecutive sampling, totaling 92 people. Manual data processing and univariate data processing with frequency distribution, bivariate analysis with Mc Nemar.

#### **Result and Discussion :**

The results of research conducted on adolescents about the influence of communication Information and education on sexual violence and reproductive tract infections can seen in the table below:

Tabel 1  
Distribution Frekuensi of the Incidence Sexual Violence at Adolescents  
in Risk Areas Disaster in Padang City in 2020

Sexual Violence	Before IEC		After IEC	
	f	%	f	%
Ever	6	6,5	4	4,3
Never	86	93,5	88	95,7
Amount	92	100	92	100

Based on the table above, it can be seen that the incidence of sexual violence after KIE is as much as 4.3%. Seen here is a decrease in the number of events by 2.2%. As for violence/harassment experienced by teenagers in the form of being watched while bathing, being held on ass, same-sex harassment, and catcalling. In a disaster situation, the potential for sexual violence or harassment can occur increase. This increase in cases is due to the instability of various sectors of life, which can lead to the emergence of social complications. according to UNFPA Coordinator, Ita Nadia F, 2019 said that there were 57 case reports of gender-based sexual violence during disaster emergencies in Central Sulawesi. At that time there were 57 cases of physical and sexual abuse including rape reported during the rapid assessment of gender-based violence from November 2018 to January 2019.<sup>(6)</sup> According to Ita F,2019 events The rape and attempted rape took place in the toilet washing bath facility, area dark and isolated, and refugee camps and tents. Disasters have a significant impact on reproductive health conditions affected people, especially women, children, and youth. Sexual violence have long-term physical and psychological effects and can be life-threatening if not handled properly. Sexual violence has the potential to occur in various places, for example in refugee camps when accessing public toilets and water needs clean for domestic use. Groups at risk of violence sexual health crises are women who have lost family members, women as heads of families, sons/daughters who lost family members, men/women with special needs (people with disability) etc. <sup>(3,4,21)</sup> Given the serious impact on reproductive health problems then Prevention and handling of cases of sexual violence is one of the priorities to ensure an emergency response that addresses women's vulnerabilities from the start crisis and adequate safeguards in the event of violence. But in during disaster management efforts carried out by the government and institutions related, there is one central issue that generally escapes discussion. The issue is a reproductive health service in an emergency.<sup>(20)</sup> Steps that must be taken in preventing and handling sexual violence in refugee areas are advocating BPBD and social services through the health cluster coordinator for support in preventing sexual violence through the management of safe refugee camps. sanitation, involving women in evacuation, etc.<sup>(11)</sup>

## 2. Incidence of Reproductive Tract Infections and Actions Taken by Adolescents

Incidence of reproductive tract infections in adolescents before IEC activities and after can be seen in the table below:

Tabel 2.

Distribution Frekuensi of the Incidence Reproductive Tract Infections at Adolescents According to Symptoms Experienced in the Disaster Risk area in the city of Padang in 2020

The symptoms Experienced of Adolescents	Before IEC		After IEC	
	f	%	f	%
Mild	81	88.0	85	92.4
Severe	11	12.0	7	7.6
Amount	92	100	92	100.0

Based on table 2, it can be seen that the incidence of Reproductive Tract Infection is symptomatic of infection with mild complaints (whiteness, fishy and colorless) as many as 88%, with complaints of severe symptoms (colored discharge, odor, and itching) as much as 12%. From table It can be seen that reproductive tract infections with complaints of severe symptoms experienced. Adolescents experienced a decrease in symptoms after IEC, from 12.0% to 7.6%. Reproductive tract infection is an infection that attacks the organs of the reproductive system genitalia and can be experienced by both men and women. There are three types of infection reproductive tract, namely sexually transmitted infections, such as chlamydia, gonorrhea and HIV, an endogenous infection, caused by an overgrowth of the organism which under normal conditions are iatrogenic, caused by errors in medical procedures, such as an inappropriate abortion or an inappropriate delivery done right. Reproductive tract infection is a condition that can be prevented.<sup>(25,26,27)</sup>

According to WHO, 2008 stated that there were 499 new cases of ISR which curable, while STIs that cannot be cured, such as infections It is estimated that as many as 536 million cases and human infection (HPV) suffered by 291 million women. Most STI incidences are found in developing countries. Asia Southeast (including Indonesia) and South Asia, top the list, followed by Sub-Saharan Africa, Latin America, and the Caribbean.<sup>2,3</sup> Based on WHO data (2005), the number of cases of chlamydia, gonorrhea, 70.8 million.<sup>4</sup> In Indonesia, according to data from 12 Hospital (RS) during the period 2007-2011, found 3 STDs The most common are condyloma acuminata, gonorrhea. Non-specific genital infection Based on data from the World Health Organization (WHO) in 2010, adolescents (35%-42%) have the highest incidence of reproductive tract infection (ISR) in the world, and young adults (27%-33%) candidiasis prevalence (25-50%), bacterial vaginosis (20-40%) and trichomoniasis (5-15%). Indonesia has 43.3 million young women aged 10-14 years who have very poor hygiene behavior based on statistical data in Indonesia in 2012. Indonesia has a hot and humid climate, so that Indonesian women are more prone to ISR.<sup>(12,13)</sup>

Other impacts of reproductive health services are in a responsive situation an emergency is not implemented immediately, including the increase in maternal mortality and neonatal, increased risk of cases of sexual violence and subsequent complications, increased transmission of sexually transmitted infections (STIs), the occurrence of pregnancy unwanted and unsafe abortions and the increased risk of The incidence of infectious diseases including infections in the genital area.<sup>(6,12,13)</sup>

Adolescents are one of the groups susceptible to infection in the urinary tract reproduction of the results of the study obtained knowledge of adolescents about urinary tract infections reproduction in a disaster situation which includes the definition of reproductive tract infection including STIs, modes of transmission, and the type of infection. As for the research results It was found that there were still teenagers who did not know about ISR as much as 7.9%, about how to do it ISR transmission that did not know was 11% and the type of ISR/STI was 9.3%. The results of the study also found that adolescents' knowledge about problems health workers who may be experienced during a disaster with less understanding as much as 36.6%, The impact of the problem of the lack of understanding of the problem of health care as much as 12.7% and preparation adolescents overcame the problems of pro-professionals who did not understand as much as 52.2%. Otherwise Every individual should demand information and services that are

comprehensive so that they can learn and protect themselves from the consequences of unwanted consequences, including how to prevent infection in the reproductive tract.

### 3. Effectiveness of Educational Information Communication (IEC) activities for adolescents prevention of sexual violence/harassment in disaster risk areas 2020.

The effectiveness of IEC activities carried out on adolescents in affected risk areas disasters in preventing incidents of sexual violence/harassment in 2020 can seen in the table below :

Table 3  
The Effectiveness of IEC on Adolescents in Disaster Risk Areas in Prevention  
Sexual violence/harassment in 2020

Before IEC	After IEC	
	Tidak pernah	Pernah
Never	86	0
Ever	2	4

*p value* = 0,500

The results of statistical tests obtained a *p*-value > 0.005 which proves that the activity KIE has not been effective in preventing sexual violence/sexual harassment in adolescents, From the table, it can be seen that the incidence of violence/harassment has decreased by 2 people (2.2 %). Sexual harassment/violence is one of the serious impacts on post-natal care disasters. In disaster situations, sexual violence against vulnerable groups such as women and children has increased. Violence can happen anywhere, anytime only, and to anyone. Some cases of sexual violence that are less well-received the concern is sexual violence that occurs in disaster situations. Victim of Sexual violence can happen to anyone. In the post situation disaster usually, someone has greater pressure, so it requires an emotional or sexual outlet. While victims of sexual violence the person will usually feel injustice, misery, or suffering physical, sexual, psychological to victim (1,2,3).

Victims of sexual violence in emergency or disaster situations are rare report the case. Whereas sexual violence is a serious and threatening problem soul safety. Meanwhile, UNFPA Representative Melania Hidayat said: that the changing times do not reduce the number of sexual violence because there are still many people who are not gendered sensitive. According to him, gender-based violence can happen at any time. Incidence of sexual violence continues to increase not only in women and girls, but boys can also experience the same thing.<sup>(6)</sup>

According to Komnas Perempuan's 2020 Records, within 12 years, violence against women increased by 792% (almost 800%) meaning violence against women in Indonesia over the past 12 years has increased almost 8 times fold. Violence is an iceberg phenomenon. The condition of Indonesian women far experiences an insecure life. Komnas Perempuan also stated that that there is violence against girls (KTAP) soared by 2,341 cases, the previous year as many as 1,417. The increase from the previous year occurred as much as 65% and the most are cases of incest and added with cases of sexual violence (571 cases). Sexual violence against women with disabilities compared to last year, increased by 47% and the most victims were people with disabilities intellectual.<sup>(19)</sup>

According to the Deputy for Child Protection at the Ministry of Empowerment Women and Child Protection (Kemen PPPA), 2020 the Covid-19 pandemic It also harms the parent-child relationship. Children experience violence and exploitation from parents who experience economic difficulties as a result of this Covid-19 pandemic. Children are vulnerable to violence and exploitation, because at home easily distracted, communication with parents is not smooth eventually tantrums and this triggers parents to commit violence against children, from January to July 31, 2020 There were 4,116 cases of violence against children in Indonesia. From that figure, Most experienced by children is sexual violence. From the number of cases of this violence (4,116 cases), the highest figure is the number of victims of sexual violence. The details of the cases are 2,556 victims of sexual violence, 1,111 victims of violence physical, 979 victims of psychological violence.<sup>(27)</sup>

These special findings need to get serious attention from the state as a responsibility to protect women and girls, especially policies related to sexual violence, both in terms of prevention, protection, as well as handling, including in the realm of the internet, to create space safe for women and girls..<sup>(19)</sup>

#### 4. The Effectiveness of IEC on Adolescents in Disaster Risk Areas in Prevention

Sexual Reproductive Tract Infection in 2020.

The Effectiveness of IEC on Adolescents in Disaster Risk Areas in Prevention Sexual Reproductive Tract Infection in 2020 based symptoms can seen table below :

Table 4  
Effectiveness of IEC on Adolescents in Disaster Risk Areas in Prevention  
Sexual Reproductive Tract Infection (STI) in 2020

Before IEC	After IEC	
	Mild	Severe
Mild	81	0
Severe	4	7

*p value* 0,005

Based on table 4 explains that as many as 81 respondents experienced mild symptoms of STI before and after IEC, there are no respondents before KIE experienced mild STI symptoms and after KIE experienced severe STI symptoms, there were 4 respondents before KIE experienced severe symptoms of STI and after IEC experienced mild symptoms of STI, 7 respondents experienced severe symptoms of STI before IEC and after IEC. There was a 4.4% decrease in cases with severe symptoms. Test results statistics show the p-value of 0.125 means the p-value 0.05 so that concluded that there is no difference between before and after IEC.

Reproductive tract infection is one of the most serious health problems often experienced by teenagers. Based on data from the World Health Organization (WHO) in 2010, adolescents (35%-42%) have a high incidence of reproductive tract infections (ISR) is the highest in the world, and young adults (27%-33%) have candidiasis prevalence (25-50%), bacterial vaginosis (20-40%) and trichomoniasis (5-15%). In Indonesia, there are 43.3 million adolescent girls aged 10-14 years who have very good hygiene behavior bad based on statistical data in Indonesia in 2012. Indonesia has a climate that is hot and humid so that Indonesian women are more susceptible to ISR. In the United States, youth ages 15-17 and young adults 18-24 years old

is the highest age group for STI sufferers compared to other age groups. Meta-analysis of various publications on Medline worked on by Chacko, et al. 2004, suggested that the prevalence of chlamydia in women aged 15 - 24 years in family planning (KB) clinics are 3.0 -14.2% and gonorrhoea 0.1% - 2.8%. In Thailand, in 1999 Paz-Bailey, et al. researched three schools of vocational training in Chiang Rai Province. They reported that out of 359 adolescent girls aged 15-21 years who have had sexual intercourse, with examination polymerase chain reaction (PCR) laboratory, 22 people (6.1%) were positively infected with chlamydia and 3 people (0.3%) infected with gonorrhoea.<sup>(25,26)</sup>

Reproductive tract infections can occur not only because of transmission through only sexual intercourse, but also because of hygiene/hygiene issues and care which is not good, in addition to external factors that influence it. Teenager It is important to make various efforts to avoid reproductive tract infections such as seeking information about reproductive health, maintaining unsex behavior free, maintain personal hygiene, and increase body immunity through the application of healthy life.

## CONCLUSIONS AND SUGGESTIONS

### A. Conclusion

1. Incidents of sexual violence/harassment before KIE as many as 6 cases (6.5%) and after IEC as many as 4 cases (4.3 %) in adolescents in affected risk areas the disaster of 2020.
2. Incidence of reproductive tract infection with complaints of severe symptoms before IEC as many as 11 cases (12%) and after IEC as many as 7 cases (7.6%) in adolescents in disaster-affected risk areas in 2020.
3. There is no difference between before and after IEC on prevention sexual violence/harassment in adolescents, but there is a decrease in the number of cases as much as 2.2%.
4. There is no difference between before and after ISR prevention of ISR in adolescents, but there was a decrease in complaints of severe symptoms 4.4%

### B. Suggestion

1. There needs to be an increase in socialization to adolescents about reproductive health especially in efforts to prevent health problems during disasters, either through simulations, training, and activities in the community.
2. There needs to be good preparation by the local government of facilities and infrastructure adequate in disaster preparedness, especially for prevention of sexual problems in adolescents.
3. Further research is needed on the most appropriate efforts in preparation of youth to face the impact of disasters.

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## KNOWLEDGE AND PRACTICE IN THE MALARIA PREVENTION IN COMMUNITY OF KUPANG CITY AND KUPANG DISTRICT

Elshaday Yunita Lona, Wanti, Ety Rahmawati, Oktovianus Sila, Siprianus Singga,  
Johannes Pitreyadi Sadukh

Poltekkes Kemenkes Kupang, NTT Province, Indonesia  
[trivena78@yahoo.com](mailto:trivena78@yahoo.com)

### ABSTRACT

Malaria is a public health problem in the world, including in Indonesia and Nusa Tenggara Timor (NTT) Province. Kupang District was including the highest malaria cases in NTT in the last 3 years. Kupang City was including the lowest malaria cases in the last 3 years. This study aims to determine the level of knowledge about malaria and community actions in malaria prevention in Kupang City and Kupang District. This descriptive survey was conducted with variables were knowledge about malaria and practice in malaria prevention. The samples in this study were people in Kupang City and Kupang District, with inclusion criteria: 17 years old or older, able to read and write, domiciled in Kupang City or Kupang District and can fill out the google form link that was distributed. The sample size is 100 people in each selected district or a total of 200 people with accidental sampling technique. The results of the study on the level of public knowledge about malaria in Kupang City and Kupang District were different, namely for the Kupang City it was 79 people in the good category (79%) and for Kupang District it was in the sufficient category, namely 40 people (40%). Community actions in malaria prevention in Kupang City and Kupang District are included in the poor category, namely for Kupang City 56 people (56%) and for Kupang Regency 72 people (72%). It is hoped that the community will further increase actions in malaria prevention. For puskesmas to provide counseling to the community more often.

**Keywords:** *Knowledge; Practice; Prevention; malaria*

### Introduction

Malaria is still a public health problem in the world, even being ranked first in the tropics. Malaria can have an impact on socio-economic problems, such as economic loss, poverty and underdevelopment.<sup>1</sup> Malaria puts sufferers into an unfortunate cycle of disease, suffering and poverty. Reducing malaria will provide great support for global equality. There needs to be support for the whole community by protecting household incomes from the cost of seeking care and loss of income due to not being able to work because of the malaria disease.<sup>2</sup>

Malaria is caused by Plasmodium which is transmitted through the bite of an infected female Anopheles mosquito. Parasites in the human body multiply in the liver which can then infect erythrocyte cells,<sup>3</sup> so that in severe malaria it can also have an impact on the occurrence of anemia with a hematocrit <20%.<sup>4</sup>

Malaria in Indonesia is still endemic every year where until now there are still high endemic districts/cities with the top 3 highest cases being Papua, West Papua and NTT.<sup>5</sup> The number of malaria cases in NTT Province in 2017 was 30,232 cases with an Annual Parasite Incidence (API) of 0.57‰, in 2018 there were 18,053 cases (API 0.34‰) and in 2019 there were 12,909 cases (API 0.23‰). Although malaria cases in NTT from 2017-2019 tend to decrease, nationally, NTT Province is still among the 3 highest malaria cases in Indonesia.<sup>5</sup>

Kupang Regency in 2017-2019 was ranked in the top 3 highest malaria cases in NTT Province, while the districts with the lowest malaria cases in the last 3 years were Manggarai, East Manggarai, and Kupang City, even in 2020 Kupang City was declared malaria-free. The incidence of malaria in Kupang Regency is caused by people who still use houses made of bebak and planks besides that the roofs of houses are made of reeds or palm leaves and the location of people's houses which are close to Anopheles breeding places, namely rice fields and lagoons. Unfavorable environmental conditions can cause the growth of disease vectors that bring harm to humans.<sup>6</sup> In addition, the knowledge, attitudes and actions of the community in preventing malaria transmission also determine the malaria morbidity rate. For this reason, malaria control in addition to the need for environmental management that is closely related to malaria vector control, it is also necessary to increase community knowledge and actions in malaria prevention.<sup>7</sup> which is usually local specific. To give importance knowledge and action of malaria prevention so this study aims is to determine the knowledge and actions of the community in malaria prevention in malaria-free and malaria-endemic areas.

## Methods

This descriptive survey research was conducted in Kupang District and Kupang City. The population is all people living in Kupang City and Kupang Disitric, with a sample of 100 people in Kupang City and 100 people in Kupang Regency, with inclusion criteria: 17 years old, able to read and write, domiciled in Kupang City and Kupang Regency and can fill out the questionnaire in the google form link that is distributed. The sampling technique used is accidental sampling. The research variables are knowledge and community actions in malaria prevention. Data was collected by interview using a questionnaire in Google Form which was distributed via WhatsApp, Facebook, Twitter, e-mail, and Instagram with the target community in Kupang City and Kupang District. The data obtained were analyzed descriptively, namely to see the distribution of frequencies and percentages of the level of knowledge and community actions.

## Result and Discussion

Based on age, most of the respondents are 17-26 years old, and those aged 46 years are at least in Kupang City and Kupang District. Based on the level of education, the majority of respondents' education in Kupang City and Kupang Regency is high school, while the least is junior high school education, as shown in Table 1.

**Table 1. Characteristics of Respondents by Education and Gender in Kupang City and Kupang Disitric in Year 2021**

Characteristics of Respondents	City Kupang		Kupang District		Total	
	f	%	f	%	F	%
<b>Age (year)</b>						
17 – 26	85	85	63	63	148	148
27 - 36	10	10	17	17	27	27
≥ 46	5	5	10	10	15	15
<b>Education</b>						
No School/ Elementary School	1	1	10	10	11	6
Junior High School	0	0	10	10	10	5
Senior Hihg School	70	70	55	55	125	63
Diploma	9	9	13	13	22	11
Bachelor	20	20	12	12	32	16

<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	200	100
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Based on table 2, it is known that the level of community knowledge about malaria is 50% in the good category, where in Kupang Cit is 79% and in Kupang District is only 21%. On the other hand, the category of sufficient knowledge in Kupang District is higher, namely 39% in Kupang District and only 7% in Kupang City.

**Table 2. Knowledge About Malaria in Kupang City and Kupang District in Year 2021**

Level Knowledge	City Kupang		Kupang District		Total	
	f	%	f	%	f	%
Good	79	79	21	21	100	50
Enough	14	14	40	40	54	27
Low	7	7	39	39	46	23
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>200</b>	<b>100</b>

Based on the results obtained, it is known that the level of knowledge of 100 respondents in Kupang City is greater than respondents who answered correctly about checking malaria, namely 99 people (99%). The level of public knowledge of 100 respondents in Kupang Regency was greater than respondents who answered correctly about checking malaria, namely 91 people (91%). The level of knowledge of respondents can be seen in table 3:

**Table 3. Level of Community Knowledge About Malaria in Kupang City and Kupang Regency in Year 2021**

Variable	Kupang City		Kupang District		Jumlah	
	Right	%	Right	%	Total	%
Malaria transmission through the bite of Anopheles	68	68	69	69	<b>137</b>	<b>69</b>
Malaria mosquito bites at night	81	81	39	39	<b>120</b>	<b>60</b>
Malaria mosquitoes breed in stagnant water	85	85	33	33	<b>118</b>	<b>59</b>
Malaria mosquitoes like to rest on dirty clothes hanging	49	49	69	69	<b>118</b>	<b>59</b>
Clinical Symptoms of Malaria: high fever, chills, headache, nausea and vomiting	89	89	30	30	<b>119</b>	<b>60</b>
Using mosquito nets at night can prevent malaria transmission	95	95	33	33	<b>128</b>	<b>64</b>
Malaria treatment by taking malaria medicine completely and until it runs out	67	67	35	35	<b>102</b>	<b>51</b>

Table 3 shows that in general, community knowledge about Malaria is better in Kupang City than in Kupang District. Good knowledge about Malaria in Kupang City includes the habit of Malaria mosquitoes biting at night, breeding grounds for Malaria mosquitoes, clinical symptoms of malaria, and the benefits of using mosquito nets.

**Table 4. Community Practice in Malaria Prevention in Kupang City and Kupang District in Year 2021**

Level of Practice	Kupang City		Kupang District		Total	
	f	%	f	%	f	%
Good	29	29	16	16	45	23
Enough	15	15	12	12	27	14

Low	56	56	72	72	128	64
Total	100	100	100	100	200	100

Table 4 shows that community practices in malaria prevention in Kupang City and Kupang District are mostly in the poor category, namely 56 people (56%) in Kupang City and 72 people (72%) in Kupang District.

**Table 5. Community Practices in Malaria Prevention in Kupang City And Kupang District in Year 2021**

Variable	Kupang City		Kupang District		Total	
	Yes	%	Yes	%	Yes	%
Using mosquito nets at night	80	80	73	73	<b>153</b>	<b>77</b>
Put on gauze wire in the house ventilation	42	42	27	27	<b>69</b>	<b>35</b>
Using mosquito repellent at home	49	49	49	49	<b>98</b>	<b>49</b>
Use mosquito repellent (repelen)	45	45	47	47	<b>92</b>	<b>46</b>
Clean the grass and bushes around the house	67	67	46	46	<b>113</b>	<b>57</b>
Cover with soil unused stagnant water with soil	67	67	43	43	<b>110</b>	<b>55</b>
Do not hang used clothes	77	77	54	54	<b>131</b>	<b>66</b>
Clean the pile of garbage regularly	78	78	57	57	<b>135</b>	<b>68</b>
Wear long pants and long sleeves when going out at night	31	31	56	56	<b>87</b>	<b>44</b>

Based on table 5, it can be seen that community practices in malaria prevention in Kupang City which are included in the good category include using mosquito nets at night, not hanging used clothes, and cleaning piles of garbage regularly, while most of community practices in Kupang District are not good.

## Discussion

This study showed that most of the respondents in Kupang City had good knowledge, namely 79 people (79%) of the total respondents. This is different from that in Kupang District where most of the respondents have a sufficient level of knowledge, namely 40 people (40%) and many who lack knowledge, namely 39 people (39%).

Knowledge is a very important domain for the formation of one's behavior.<sup>8</sup> The high incidence of malaria is influenced by the low level of knowledge, attitudes and actions of families towards malaria prevention and eradication. Seeing this condition, it is necessary to increase public knowledge through health education and promotion about malaria and its prevention.

In general, community knowledge about Malaria is better in Kupang City than in Kupang District. Good knowledge about Malaria in Kupang City, among others, 81% know that the habit of Malaria mosquitoes bite at night, 85% know that the breeding place for Malaria

mosquitoes is in puddles of water, 89% know the clinical symptoms of malaria are high fever, chills, headache, start and vomit. In addition, people in Kupang City already know that using mosquito nets at night can prevent malaria transmission. This is different from knowledge in Kupang Regency, where many respondents' answers include lack of knowledge, including: modes of transmission of Malaria, breeding sites for Malaria mosquitoes, clinical symptoms of Malaria, benefits of using mosquito nets when sleeping at night, and good treatment methods. Rendahnya pengetahuan tentang Malaria ini juga didukung oleh penelitian sebelumnya antara lain: 12,1% tidak tahu gejala Malaria dan 1,4% tidak memberikan jawaban; hanya 32% yang tahun bahwa Malaria bisa disembuhkan.<sup>6</sup> Likewise, research in Buea Health District Cameroon where 8.1% of respondents answered incorrectly and 4.1% said they did not know.<sup>9</sup> Likewise, there is still a lot of knowledge about how to transmit and when to bite mosquitoes.<sup>6,9</sup> Research in Halaba Town also found that only 791.1% correctly answered Anopheles breeding sites, and only 63% knew Malaria was transmitted through mosquito bites<sup>10</sup> and even in the village of Northwest Tanzania, 49.1% of the respondents answered correctly how malaria was transmitted.<sup>11</sup>

The results of this study as well as previous studies indicate that there are still many people who do not have the correct knowledge about Malaria, so that this lack of knowledge has an impact on the inaccuracy and lack of community participation in preventing malaria transmission. So here it is necessary to take action on sustainable health promotion in order to increase public knowledge about malaria.

Based on the results of research conducted on respondents in Kupang City and Kupang District, it was found that community practices were still lacking with the percentage for Kupang City as much as 56 (56%) and for Kupang Regency 72 (72%). It can be said that the respondent has not taken the proper preventive action as it should.

Respondents' actions in preventing Malaria in this study were still found to be not good. Previous research on pregnant women in Cross River State found that their actions were better, namely cleaning shrubs only 86%, installing wire netting 85%, covering puddles (92% and sleeping under insecticide-treated mosquito nets (92%).<sup>12</sup> However, it turns out that malaria prevention measures are also still available even though it is in health students, namely only 52.4% who clean shrubs, only 34.8% who cover puddles, and only 46.5% who use mosquito nets while sleeping.<sup>13</sup>

The respondent's action on malaria prevention is an effort that can be done to prevent or control malaria. The action variable was the important influential factor in malaria. Action occurs starting with the experiences of individuals and factors outside the individual (environment), both physical and non-physical, which are then known, perceived, believed to give rise to motivation, intention to act and finally happens embodiment of that intention in action.<sup>14</sup>

This study and previous studies show that there are still many people who lack good knowledge and actions in malaria prevention, so this is also a risk factor in Malaria transmission and increases the risk of Malaria incidence. Likewise in the City of Kupang and Kupang Regency, where the high number of cases in the Regency is lacking because it is supported by low knowledge and prevention of Malaria, and conversely, knowledge and prevention of Malaria in Kupang City are already good so this has an impact on cases which are also low and have even been declared Malaria free by 2020. The level of knowledge and action in preventing Malaria must be maintained or improved for the better because if community action and also health program actions in preventing Malaria are negligent, it is possible for Malaria cases to increase again and endemic even though previously it was already declared malaria free.

## Conclusion and Suggestion

Community knowledge in Kupang City about the causes of malaria, symptoms, modes of transmission, prevention and treatment were most in the Good category, and for Kupang District were most just in the sufficient category. The attitude of the people in the City of Kupang in the prevention and treatment of Malaria in Kupang City and in Kupang District were most in the poor category.

It is hoped that the community will further increase malaria prevention measures by taking more frequent actions related to malaria prevention, need read and understand more about malaria, especially how malaria is transmitted and how to prevent the transmission. In order to provide more health promotion about malaria for people in Kupang City and Kupang District and provide explanations about what can be done to prevent malaria.

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# NEWBORN APGAR SCORE IN TERMS OF PRENATAL SCREENING RESULTS

Elvia Metti, Delima

Health Polytechnic Padang Ministry of Health, Department of Nursing  
Jalan Simpang Pondok Kopi, Siteba, Padang

Email: *elmetty@yahoo.co.id*

## ABSTRACT

Pregnancy is part of the period of a woman's life. However, in pregnancy there are often unwanted complications. Complications or high risk in pregnancy estimated by 20% of pregnant women. The risk of the pregnancy developing into complications can be life-threatening. However, most complications can be prevented and managed if, the pregnant woman immediately seeks help from health workers and health workers are able to identify complications early. This study was conducted with an analytic cross sectional design at the BPM Working Area of Health Center the Kuranji Padang from July to November 2018. Research respondents were involved in total sampling, there were postpartum mothers within a span of three months after giving birth. The results of the screening were analyzed in relation to the APGAR score of newborns. The results showed that there was no significant difference in the mean of APGAR scores in the first and fifth minutes between mothers who had normal and abnormal blood pressure, weight gain, and uterine fundal height. There was a significant difference in the mean of APGAR scores in the first and fifth minutes between mothers who had normal and abnormal fetal movements and fetal heart rate. Birth status was the factor that has the greatest influence on the APGAR score of newborns. This study recommends the need for uniformity and completeness of data documentation by BPM in early detection of pregnant women and can provide integrated data to the Public Health Center so that the condition of pregnant women with high risk can be identified for further treatment.

**Keywords:** *APGAR score, prenatal screening*

## INTRODUCTION

The process of pregnancy can be a risk for a pregnant woman and can even develop into complications if not detected and handled properly. Complications or high risks in pregnancy estimated by WHO, are experienced by 20% of pregnant women (Kemenkes RI, 2015). Based on the Indonesian Demographic and Health Survey (IDHS) in 2012, the Maternal Mortality Rate/MMR (related to pregnancy, childbirth, and the postpartum period) was 359 per 100,000 live births. The infant mortality rate/IMR that most contributed was the neonatal mortality rate (0-28 days), which was 59%. Meanwhile, the government target for reducing MMR in 2030 is 70/100,000 live births (Kemenkes RI, 2015).

Maternal mortality in Indonesia is still dominated by three main causes, namely bleeding, hypertension in pregnancy, and infection. However, the proportion has changed, where bleeding and infection tend to decrease while the proportion of hypertension in pregnancy is increasing. More than 25% of maternal deaths in Indonesia in 2013 were caused by

hypertension in pregnancy (Kemenkes RI, 2015). Cases of maternal mortality in the city of Padang have increased to 20 mothers in 2016. The highest direct cause is eclampsia and the indirect cause is related to risk factors and high risk in pregnant women (Dinas Kesehatan Kota/DKK Padang, 2017).

Risky pregnancy conditions such as anemia, hypertension, diabetes mellitus, bleeding can have an impact on the health of the fetus/baby and can be life-threatening. These risks include preterm or premature labor, low birth weight, premature rupture of membranes and stunted fetal growth (Johns & Jauniaux, 2006; Oppenraaij, et al., 2009; Leveno, et al., 2009). Low birth weight can not only occur in premature babies, but also in term babies who experience growth retardation during pregnancy (Kemenkes RI, 2015)

However, most complications can be prevented and managed if, the pregnant woman immediately seeks help and health workers are able to identify complications early. There are three types of intervention areas that are carried out to reduce maternal and neonatal mortality and morbidity, one of which is the improvement of antenatal services that are able to detect and adequately handle high-risk cases. The government has also set criteria for quality standards nationally regarding efforts to provide maternal health services, including pregnant women or antenatal services. The importance of maternal health and the optimization of maternal health services are important factors that determine the safety of the mother and fetus/infant so that pregnant women are not in a high-risk pregnancy (Kemenkes RI, 2015). Detection of high-risk pregnant women aims to find out whether pregnant women during pregnancy, childbirth or postpartum are not in a condition of complications and safe in childbirth (DKK Padang, 2017).

According to the American Pregnancy Association (2016), prenatal screening is not only based on the results of blood tests but can also be compared from risk factors, which are not aimed at diagnosing but only as a guide for further action. The Washington State Health Care Authority developed the MSS Prenatal Screening Tool. This instrument identifies various risk factors such as race, age, nutrition, prenatal visits, medical conditions including history of diabetes, hypertension, multiple pregnancies, history of birth of a baby, substance addiction, and mental health. According to Cunningham (2017), a study conducted by Victorian Clinical

Genetics Services at the Murdoch Children's Research Institute and Illumina's Northern California Services Laboratory on 90,000 pregnant women using prenatal screening showed an average accuracy of almost 99% in detecting Down syndrome from 10 weeks of gestation.

The study by Raharjo, Ngo, and Muhyi (2021) showed that there was a correlation between the incidence of apgar score below 7 with prolonged labor, and there was no correlation

between the incidence of apgar score below 7 with mother's age, parity, and anemia. The study by Widarta, et al (2015) at dr. Soetomo Hospital Surabaya found that all cases of maternal death contained elements of risk factors in Kartu Skor Poedji Rochjati (KSPR) and factor of four was late. KRST was the group with the most risk factors (55.2%), followed by KRT 39.7% and KRR 5.2%. Factors that were late in detecting danger signs were found to be 82.8%, late in making decisions to refer 56.9%, and late arrival at the referral place 15.5%.

The target of high-risk pregnant women is 20% of the total number of pregnant women. In 2016, it was estimated that there were 3,688 high risk/complicated pregnant women out of 18,439 pregnant women. High risk pregnant women found and treated was 2,582 (70.01%). This coverage increased from 2015 as many as 1,544 (41.7%). The pregnant women recorded in Kuranji District which includes three working areas of the Public Health Centre (Kuranji, Belimbing and Ambacang) is large, from 2837 pregnant women it is estimated that as many as 568 pregnant women are at risk (DKK Padang, 2017).

This study was to determine the relationship between monitoring the health of pregnant women through prenatal screening on the health condition of the baby at birth, namely the APGAR score in the Kuranji District, Padang.

## **METHODS**

This study was conducted with an analytic cross sectional design at the active independent practice (BPM) at the Kuranji District Padang which are the working areas of the Kuranji, Belimbing and Ambacang Public Health Centers. It was done from July to November 2018. Research respondents were involved in total sampling, there were postpartum mothers within a span of three months after giving birth. Data was collected after coordinating with BPM officers regarding data on mothers giving birth and based on visit/delivery reports. The results of the screening were analyzed in relation to the APGAR score of newborns starting from univariate to multivariate analysis with linear regression analysis.

## **RESULT AND DISCUSSION**

Bivariate analysis was conducted to determine the relationship between the dependent variable and the independent variable. It was performed on prenatal screening variables (blood pressure, weight, uterine fundal height, fetal heart rate and fetal movement) with APGAR scores in the first and fifth minutes. The result as shown in Table 1 to Table 5

**Table 1. The Mean of APGAR Score in First and Fifth Minute Newborns Based on Mother's Blood Pressure**

Variable	Blood Pressure	Mean	SD	SE	<i>p value</i>	<i>N</i>
First minutes of APGAR score	Normal	7,88	0,589	0,051	0,387	134
	Abnormal	7,60	0,966	0,306		10
Fifth minutes of APGAR score	Normal	8,90	0,573	0,050	0,307	134
	Abnormal	8,70	0,949	0,300		10

Table 1 shows there is no significant difference in the mean of APGAR scores in the first and fifth minutes between mothers who had normal and abnormal blood pressure (*p value* 0.387 and 0.307 in first and fifth minute).

**Table 2. The Mean of APGAR Score in First and Fifth Minute Newborns Based on Mother's Weight**

Variable	Mother's Weight	Mean	SD	SE	<i>p value</i>	<i>N</i>
First minutes of APGAR score	Normal	7,87	0,590	0,056	0,822	113
	Abnormal	7,84	0,735	0,132		31
Fifth minutes of APGAR score	Normal	8,89	0,573	0,054	0,853	113
	Abnormal	8,87	0,718	0,129		31

Table 2 shows there is no significant difference in the mean of APGAR score in the first minute and fifth minute between mothers who had normal and abnormal weight gain (*p value* 0.822 and 0.853 in first and fifth minute).

**Table 3. The Mean of APGAR Score in First and Fifth Minute Newborns Based on Mother's Uterine Fundal Height**

Variable	Uterine Fundal Height	Mean	SD	SE	<i>p value</i>	<i>N</i>
First minutes of APGAR score	Normal	7,86	0,596	0,056	0,921	113
	Abnormal	7,87	0,718	0,129		31
Fifth minutes of APGAR score	Normal	8,89	0,573	0,054	0,853	113
	Abnormal	8,87	0,718	0,129		31

Table 3 shows there is no significant difference in the mean of APGAR score in the first minute and fifth minute between mothers who had normal and abnormal uterine fundal height (*p value* 0.921 and 0.853 in first and fifth minute).

**Table 4. The Mean of APGAR Score in First and Fifth Minute Newborns Based on Fetal Heart Rate**

Variable	Fetal Heart Rate	Mean	SD	SE	<i>p value</i>	<i>N</i>
First minutes of APGAR score	Normal	7,91	0,477	0,040	0,000	141
	Abnormal	5,67	2,082	1,202		3
Fifth minutes of APGAR score	Normal	8,94	0,451	0,038	0,000	141
	Abnormal	6,67	2,082	1,202		3

Table 4 shows there is significant difference in the mean of APGAR score in the first minute and fifth minute between mothers who had normal and abnormal fetal heart rate (*p value* 0.000 in first and fifth minute).

**Table 5. The Mean of APGAR Score in First and Fifth Minute Newborns Based on Fetal Movement**

Variable	Fetal Movement	Mean	SD	SE	<i>p value</i>	<i>N</i>
First minutes of APGAR score	Normal	7,91	0,477	0,040	0,000	141
	Abnormal	5,67	2,082	1,202		3
Fifth minutes of APGAR score	Normal	8,94	0,451	0,038	0,000	141
	Abnormal	6,67	2,082	1,202		3

Table 5 shows there is significant difference in the mean of APGAR score in the first minute and fifth minute between mothers who had normal and abnormal fetal movement (*p value* 0.000 in first and fifth minute).

The multivariate analysis was carried out to determine which variable had greatest influence on the APGAR scores of the first and fifth minute scores. It was delivery/birth status (beta value = 0.170). The result as shown in Table 6.

**Table 6. Factors Affecting the Mean of APGAR Score in the First and Fifth Minutes of Newborns**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	9.271	2.158		4.296	.000
	Mother's age	-.022	.010	-.193	-2.206	.029
	Birth status	.165	.085	.170	1.929	.056
	Fetal movement	-2.122	.318	-.489	-6.679	.000
	Gestational's age	.028	.054	.039	.524	.601

This study indicate that based on prenatal screening data, the mother's condition is mostly normal. However, there are still mothers with abnormal prenatal screening data. According to Trotter, Chang and Thomson in Reeder, et.al (2012), one of the risk factors that can affect the final pregnancy outcome is prenatal factors such as maternal age, gestational age, parity status

and also includes examination of the mother's pregnancy condition. Study done by Raharjo, et.al (2021) also about a correlation between the incidence of apgar score below 7 based on maternal risk factors (prolonged labor, mother's age, parity, and anemia). Study done by Sinuraya, Nisa, Lokajaya & Puri (2017) showed that blood pressure is a very important indicator for detecting PE (preeclampsia) as a specific biomarker. Study done by Kasliwal, Kabra & Yadav (2021) also showed about low risk pregnancies to maternal condition and fetal outcome specifically in premature rupture of membrane.

High risk pregnancy also impact to neonatal conditions that shown in APGAR score newborn. Study done by Fajarriyanti (2017) showed there were several factors that influence the incidence of neonatal asphyxia at PKU Muhammadiyah Bantul Hospital, namely maternal age, parity, gestational age, delivery history and nutritional status. The incidence of infants with an APGAR score of 4-6 (moderate asphyxia) was more (85.4%). The results showed that the factor that was significantly related was maternal age ( $p= 0.019$ ).

This study showed that the fetal heart rate and fetal movement has a significant difference. This study also showed that the factor with the greatest influence on the APGAR score of newborns was delivery/birth status. Birth status is included in prenatal status as one of the risk factors that need to be detected in pregnant women (Reeder, et.al, 2012). The data also shows that the highest parity of mothers is multipara (58.3%) even 16.7% with grandmultipara. Kasliwal, et.al (2021) study's showed there was 8% of babies were low birth weight up to 100<sup>th</sup> pregnant woman who had premature rupture of membrane. There was also showed 30% of neonatal morbidity including early onset sepsis (15%), neonatal jaundice, neonatal infection, hypoglycemia, respiratory distress. Assessment of the baby's condition based on the APGAR score is one important indicator of the success of the baby to be able to survive shortly after birth (Wong, 2009; Piliteri, 2010; Reeder, et. al., 2012). Fetal heart rate and fetal movements are direct indicators that indicate the condition of the fetus/baby to be born.

Widarta, Laksana, Sulistyono & Purnomo (2015), early detection of risk factors for pregnant women can use the Poedji Rochjati Score Card (KSPR) and prevention of factor four being late. Of the four late factors, the late factor in detecting danger signs occurs the earliest and affects the other four late factors sequentially. Danger signs can be detected from an increase in blood pressure above normal values, excess body weight, uterine fundal height that is not appropriate for gestational age, fetal heart rate and fetal movement above/below normal values. The role of health workers such as at independent practice (BPM) in assessing and fully

documenting patient data is very important to help identify risk conditions that may be experienced by pregnant women.

## CONCLUSION AND SUGGESTION

Risky pregnancy conditions can have an impact on the health of the fetus/baby and can be life-threatening. The detection of high-risk pregnant women is very important because it aims to determine whether the pregnant woman is in a condition during pregnancy, childbirth or postpartum, is not in a condition of complications and is safe in childbirth. Therefore, the need for uniformity and completeness of data documentation in early detection of pregnant women and can provide integrated data to the Public Health Center so that the condition of pregnant women with high risk can be identified for further treatment. It's necessary to develop research on other risk factors that also influence the APGAR score newborn.

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## **Food Consumption and Safety Patterns of Stunted Children Aged 06-59 Months in the Working Area of Ophir and Sukamenanti Health Center of West Pasaman Regency in 2020**

**Eva Yuniritha, Nadia Fadhila, Kasmiyetti**

<sup>1</sup>Department of Nutrition of Polytechnic Health of the Ministry of Health, Padang, Indonesia  
[yunirithaeva2010@gmail.com](mailto:yunirithaeva2010@gmail.com)

### **ABSTRACT**

Consumption patterns are not appropriate and food safety is a risk factor that is widely found and has a significant effect on the incidence of stunting in toddlers. Balita in food insecure households has a 2.62 times greater risk of suffering from stunting compared to food-safe households. The purpose of this study is to find out the Picture of Food Consumption and Safety Patterns in Stunted Toddlers Aged 06-59 Months in the Working Area of Ophir Health Center and Sukamenanti West Pasaman Regency in 2020. Research with *cross-sectional study* design was conducted in the working area of Ophir Health Center and Sukamenanti Health Center of West Pasaman Regency. The sample was a stunted toddler aged 06-59 months as many as 35 people taken by *means of simple random sampling*. The data collected are anthropometric data, dietary data (types and frequencies of basic foodstuffs) and food safety data with the Food Frequency *Questionnaire* (FFQ) method, conducted by researchers and 2 team members. The data obtained is analyzed descriptively. The results of this study describe the consumption patterns of children under five for basic food types 62.8%, animal protein 54.3%, vegetable protein 65.7%, vegetables 57.1%, fruits 54.3% unsalized with a staple food frequency of 85.7% and animal protein 68.6% good, vegetable protein 54.3% vegetables 51.4%, and fruit 97.1% is still lacking. Food safety risks unsafe judging from the types of snacks that are most commonly consumed is *snacks* (91.4%) with the amount of consumption of  $\geq 6$  types and frequency of consumption of snack foods as a whole category often (100%). The results showed that the consumption patterns of stunted toddlers in the working area of Puskesmas Ophir and Sukamenanti were less diverse in all types of foodstuffs and the frequency of vegetable, vegetable, and fruit protein was still lacking. Respondents often consume snacks and the most commonly consumed type is snacks. Dexpect respondents and families of respondents can pay more attention and regulate consumption patterns and pay attention to food safety from snack food respondents.

Keywords: Stunting Child, konsumsi pattern, food safety

### **INTRODUCTION**

One of the health indicators that are considered success in the MDGs is the nutritional status of children under five. The period of toddlers is a vulnerable group experiencing malnutrition one of which is stunting (Nasikhah and Margawati 2012, 56). Stunting is a chronic condition characterized by poor child condition or stunted growth of the child liner due to the accumulation of various factors that can be seen based on the z-score of height or length of the body according to age less than -2 standard deviation (SD) (WHO 2010).

Stunting in children usually develops during the first two years of a child's life and is largely caused by nutritional deficiencies and infectious diseases (Masrul 2019). Stunting that occurs to children can result in slowing or failure of the growth of children under five such as height that is not in accordance with their age, decreased productivity as adults, and for girls can cause a decrease in birth weight for their offspring (Fahulpa 2019).

The prevalence of stunted toddlers in Indonesia according to Riskesdas 2013 amounted to 37.2%, with a percentage of 19.2% of short children and 18.0% very short. In 2018 the stunting rate decreased to 30.8% (Riskesdas 2018). The prevalence of stunting children in West Sumatra Province according to Riskesdas data in 2018 reached 30.6%. One of the cities / regencies with the highest prevalence of *stunting* toddlers in West Sumatra is West Pasaman, which is 32.1%. Stunting prevalence is above 20%, according to WHO is a public health problem (WHO 2012). Data above makes West Pasaman Regency one of the districts that are a priority for handling *stunting* (TNP2K 2017).

Stunting is caused by a variety of interrelated factors including direct and indirect causal factors. Direct causative factors are inadequate food intake characteristics of toddlers including age, gender, birth weight and birth length and the presence of recurrent infectious diseases. Indirect causal factors are food availability, parenting patterns and the reach and quality of public health services (Damayanti RA, 2016).

One of the factors that affect inadequate food intake is the parenting given by the mother (Fahulpa, 2019). Parenting is an interaction carried out by the mother to her child related to feeding practices that include the way the mother gives and provides her child's food (Istiani et al, 2013). Toddlers in their infancy are a group that is susceptible to changes in food consumption intake. Excess or less food intake than needed will affect its nutritional status (Permaesih et al. 2000).

The pattern of consumption of stunting children according to the type of food is still not diverse, can be known from the lack of variety of menu every day/meal. M will be consumed still tend to eat staple foods, side dishes, and vegetables, while fruit and milk are still very less consumed (Siska Ristiana 2009). Research author Yuli Laraeni et al (2018) stated that children who have inappropriate consumption patterns, more (58.1%) are found in stunting children, while children whose consumption patterns are more commonly found in non-stunting children (64.5%). Preview of food consumption in stunted children averaged 3x / week while in the group of children non stunting the frequency of food consumption averaged 3-4x / week. This shows that the frequency of food consumption in non-stunting children is more than stunting children (Laraeni et al. 2018, 481).

Stunting cases are also motivated by poverty conditions, which cause families to experience limited ability to get access to food in quantity and quality. Food safety and quality are also closely related to the quality of human resources (Agustina, Destriatania, and Rahmiwati 2014). Household food safety is a significant risk factor for stunting in toddlers. Toddlers in food insecure households have a 2.62 times greater risk of stunting compared to baduta in food-safe households (Masrin, Paratmanitya, and Aprilia 2016). Households with food safe categories have family

members who have access to food, both in number and quality and this will have an impact on the fulfillment of the nutritional needs of toddlers so as to achieve optimal nutritional status (UNICEF, 2009). Toddlers who are in a food safe household condition have a good level of energy and protein adequacy. In contrast to toddlers from food insecure families who experience delayed growth due to lack of access to food (Hayati AW, 2012).

This study aims to see "The Picture of Food Consumption and Safety Patterns in Stunted Toddlers Aged 06-59 Months in the Working Area of Ophir and Sukamenanti Health Centers of West Pasaman Regency in 2020".

## METHODS

Research with *cross-sectional study* design was conducted in the working area of Ophir Health Center and Sukamenanti Health Center of West Pasaman Regency. The sample was stunted toddlers aged 06-59 months as many as 35 people taken by simple random sampling. The data collected are anthropometric data, dietary data (types and frequencies of basic foodstuffs) and food safety data with the Food Frequency *Questionnaire* (FFQ) method, conducted by researchers and 2 team members. The data obtained is analyzed descriptively.

## RESULT AND DISCUSSION

The characteristics of respondents in this study were 97.1% aged 12-47 months and 60% were female. The average respondent's paternal and maternal education was high school graduation, most (68.6%) of father jobs worked as farmers/fishermen/laborers and 80% of mom's jobs were housewives. A total of 77.1% of respondents had short nutritional status and 22.9% had very short nutritional status according to Height by Age. The characteristics of the respondents are fully visible in table 1.

**Table 1. Distribution of Frequency characteristics of respondents in the Working Area of Ophir And Sukamenanti Pasaman Barat 2020**

Characteristic	Region				Total	
	Ophir		Likes to replace		n	%
	n	%	n	%	n	%
<b>Age</b>						
12 - 47 months	16	45.7	18	51.4	34	97.1
48 - 66 months	1	2.9	0	0.0	1	2.9
<b>Gender</b>						
Man	7	20	7	20	14	40
Woman	10	28.6	11	31.4	21	60
<b>Father's Education</b>						

Characteristic	Region				Total	
	Ophir		Likes to replace		n	%
	n	%	n	%		
End of SD	4	11.4	6	17.1	10	28.5
Finish junior high school	6	17.1	3	8.6	9	25.7
High school finish	6	17.1	7	20.0	13	37.1
End of PT	1	2.9	2	5.7	3	8.6
<b>Mother's Education</b>						
Never school	0	0.0	1	2.9	1	2.9
Not finished SD	1	2.9	1	2.9	2	5.7
End of SD	5	14.3	2	5.7	7	20
Finish junior high school	6	17.1	3	8.6	9	25.7
High school finish	3	8.6	8	2.9	11	31.4
End of PT	2	5.7	3	8.6	5	14.3
<b>Father's job</b>						
PNS/Polri/TNI	0	0	1	2.9	1	2.9
Farmer/fisherman/laborer	14	40	10	28.6	24	68.6
Private merchants/employees	3	8.6	7	20	10	28.6
<b>Mother's job</b>						
PNS/Polri/TNI	2	5.7	1	2.9	3	8.6
Private merchants/employees	1	2.9	3	8.6	4	11.4
RT's Mother	14	40	14	40	24	80
<b>Total</b>	<b>17</b>	<b>48.6</b>	<b>18</b>	<b>51.4</b>	<b>35</b>	<b>100</b>

Table 1 explains that respondents in this study as many as 97.1% aged 12- 47 months are female with a percentage of 60%. The average respondent's paternal and maternal education was high school with a father percentage of 37.1% and a mother of 31.4%. Most (68.6%) of respondents' father jobs were farmers/fishermen/laborers and 80% of respondents' mother jobs were housewives.

### 3. Nutritional Status

Based on the data analysis, the distribution of the frequency of nutritional status of respondents according to TB / U in the following table:

Table 2. Distribution of Nutritional Status Frequency of Respondents According to TB /U in the Working Area of Puskesmas Ophir and Sukamenanti 2020

Nutritional Status Category	Ophir		Likes to wait		Total	
	n	%	n	%	n	%
Very short	5	14.3	3	8.6	8	22.9
Short	12	34.3	15	42.9	27	77.1
Total	17	48.6	18	51.4	35	100

Table 2 explains that as many as 27 respondents with a percentage of 77.1% have short nutritional status and 8 respondents with a percentage of 22.9% have very short nutritional status according to TB / U.

#### 4. Consumption Patterns

Consumption pattern is a food arrangement that includes the type and frequency of average foodstuffs per person per day, which are commonly consumed / eaten by the population within a certain period of time. The variables of consumption patterns measured in this study include the type and frequency of food consumption as outlined below:

Table 3. Distribution of Frequency of Respondents Based on Food Types in Ophir health center and Sukamenanti Pasaman Barat in 2020

Food Type Category	Ophir				Likes to wait				Total	
	Diverse		Not diverse		Diverse		Not diverse		n	%
	n	%	%	n	%	n	%			
Staple Food	7	41.2	10	58.8	7	38.9	11	61.1	35	
Animal Protein	8	47.1	9	52.9	8	44.4	10	55.6	35	
Vegetable Protein	4	23.5	13	76.5	8	44.4	10	55.6	35	
Vegetable	8	47.1	9	52.9	7	38.9	11	61.1	35	
Fruit	8	47.1	9	52.9	8	44.4	10	55.6	35	

The results of this study showed most types of food consumed by stunted toddlers were less than average and most stunted toddler respondents consumed types of staple foods, animal proteins, vegetable proteins, vegetables, and fruits that were not diverse. The average stunted toddler consumes 5 types of staple foods (rice, bread, noodles, corn, potatoes). Animal protein as many as 5 types (chicken meat, chicken eggs, sea fish, pond fish, dried fish). Vegetable protein as many as 3 types (tofu, tempeh, peanuts). Vegetables as many as 7 types (spinach, kale, carrots, bean sprouts, tomatoes, long beans, mustard green). Fruits as many as 6 types (banana ambon, papaya, sweet orange, watermelon, rambutan, salak). The principle of feeding to infants by the mothers of

respondents did not prioritize the nutritional needs of infants and nutritional content that is important for the growth and development of toddlers. The habit of society in general in the principle of feeding is that children are fed to be full and not fussy. Feeding to babies is also adapted to what adults eat. Infants and children in general are not a feeding priority. In infancy, i.e. in the golden period, optimal nutritional fulfillment is needed. Parenting eating like this if it lasts a long time will cause *stunting* so that the solution of nutritional problems cannot be eliminated (Loya and Nuryanto 2017). The type of food consumption determines the nutritional status of a child, good quality food if the daily menu provides a nutritious, balanced, and varied menu composition according to his needs (Welasasih, 2012). The pattern of consumption of *stunting* children according to the type of food is still not diverse, it can be known from the lack of variety of menu at every meal. As for the frequency of eating still tends to eat staple foods, side dishes, and vegetables, while fruit is still very less consumed. Data from the 2014 Individual Food Consumption Survey (SKMI) also showed the intake of children >6 months tended to be less diverse in consuming food, most consuming only 95% of the cereal group (carbohydrates), very less than the protein, fruit, and vegetable group (Siska Ristiani, 2009).

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# **DIFFERENCES IN THE EFFECTIVENESS OF DRY AND WET CUPPING TO REDUCE DYSMENORRHEA AMONG TEENAGER AT NGENEMPLAK SLEMAN YOGYAKARTA**

**Fajarina Lathu Asmarani, Sindi Fazri Fatmasari, Endang Lestiwati  
Respati of Yogyakarta University ; Indonesia**

Email: [fajarinalathu@respati.ac.id](mailto:fajarinalathu@respati.ac.id)

## **ABSTRACT**

The prevalence of dysmenorrhea worldwide ranges from 15.8 to 89.5% and Indonesia was 64.25%. Dysmenorrhea was experienced by young women aged 18 to 24. The teenagers at Wedomartani, Ngemplak, Sleman, Yogyakarta reported that they experienced dysmenorrhea at 18 to 20 years old. Dysmenorrhea might affect daily activities. Pain can be managed using non-pharmacological methods such as dry and wet cupping therapies. The goal of this study is to find out the differences in the effectiveness of dry and wet cupping to reduce dysmenorrhea among teenagers at Wedomartani, Ngemplak, Sleman, Yogyakarta. This is quantitative quasi-experimental research with a pretest-posttest without control group design. This research used a random sampling technique. thirty teenagers became respondents. The research instruments were questionnaires, a numerical scale, a cupping set, and observation sheets. Data were analyzed using the paired t-test and independent t-test. The paired t-test on dry cupping therapy showed a p-value of 0.000. The pretest score was 4.67 then the post-test was 2.93. The analysis of wet cupping therapy showed a p-value of 0.000. A decrease in dysmenorrhea can be seen at the pretest score of 5.53 and the posttest of 3.20. The independent t-test showed a p-value of 0.704 after receiving dry and wet cupping therapies. So we can dry and wet cupping therapy is equally effective in reducing dysmenorrhea pain in adolescents in Wedomartani, Ngemplak, Sleman, Yogyakarta dan Wet cupping is more effective than dry cupping. Teenagers can use wet cupping to relieve menstrual pain.

**Keywords:** Teenagers, Dysmenorrhea, dry cupping, and wet cupping

## **Introduction**

Dysmenorrhea or menstrual pain is the main problem among women during puberty (Andriyani, 2013). According to the World Health Organization (WHO), the incidence of dysmenorrhea, throughout the world, is high. The average occurrence of dysmenorrhea in women is between 16.8-81%. The incidence of dysmenorrhea in Indonesia reaches 64.25%, where 54.89% primary dysmenorrhea and 9.36% secondary dysmenorrhea (Muflih, 2012). Meanwhile, the prevalence of adolescents in Yogyakarta who reported dysmenorrhea pain was around 52% and reported can not do carry out daily activities properly when dysmenorrheal pain (Andriyani, 2013).

Some impacts will occur if it is not treated immediately. There are disturbances in activities of daily living, anxiety, depression, retrograde menstruation or menstruation that moves backward, infertility or infertility, undetectable pregnancy, ruptured ectopic, ruptured

cyst, uterine perforation of the uterus. IUDs and infections. Common disorders among women while menstruating are menorrhagia and dysmenorrhea (Sugiyanto & Luli, 2020). Dysmenorrhea in teenagers and can cause emotional conflict, tension, and anxiety. It can cause Learning activities disrupted, concentration decreases, or absence in class. So, Women who experience dysmenorrhea cannot receive learning materials well. (Lestari, 2013)

Menstrual pain can be treated by pharmacological and non-pharmacological methods. Consuming analgesic drugs is an example of pain management through pharmacology (Maksum, 2019). Consumption of drugs continuously and without consulting a doctor can cause side effects such as abdominal pain, skin bruising, nausea, vomiting, etc (Elysia, 2017). Whereas, the non-pharmacological methods that can be used to reduce menstrual pain are the use of warm compresses or warm baths, acupuncture or acupressure, cupping and taking herbal medicines, as well as practicing relaxation techniques (Maksum, 2019). Complementary therapies have safe side effects compared to side effects side effects of chemical drug reactions (Trisnawati and Jenie, 2019).

Cupping therapy is a traditional treatment using bloodletting in the back area with a certain point that can be able to cure the disease. Cupping therapy is done when a person is menstruating, not before menstruation (Armini, 2019). Cupping itself has benefits for the body experiencing circulatory disorders and pain; 1) Cupping increases the elasticity of the erythrocyte walls for capillaries to deliver O<sub>2</sub>; 2) Cupping can increase natural antioxidants; 3) Cupping stimulates erythropoiesis (production of red blood cells) in the bones or kidneys; 4) Cupping increases the number of macrophages; 5) Increase natural killer cells; 6) Increases CD8<sup>+</sup> and 7 T lymphocytes, reduces free radicals (Maksum, 2019).

Damayanti (2012) mentioned that cupping therapy is divided into two types, namely dry cupping therapy and wet cupping therapy. Taherpour et al., (2018) said that dry cupping significantly reduced the severity and duration of primary dysmenorrhea. Cupping therapy can reduce pain because of the strong suction of the cupping apparatus on the nerve pathways that signal the brain about pain so that the stimulus that reaches the brain makes the pain no longer felt by the patient. Thus, there is no significant result between dry cupping therapy and wet cupping therapy to reduce dysmenorrhea pain.

Based on the description above, researchers are interested in researching the difference in the effectiveness of dry and wet cupping therapy on reducing dysmenorrhea pain in adolescents in Wedomartani, Ngemplak, Sleman, Yogyakarta. This study was conducted to determine the difference in the effectiveness of dry and wet cupping on reducing dysmenorrhea pain in teenagers in Wedomartani, Ngemplak, Sleman, Yogyakarta

### **Methods (Times New Roman 12 pt Bold)**

This research is a quantitative study using a quasi-experimental research design Pre and Post Test Without Control. The sample in this study was teenagers in Wedomartai, Ngemplak, Sleman, Yogyakarta who experienced dysmenorrhea, amounting to 30. They were divided into two groups, the dry cupping therapy and the wet cupping therapy group. The selection of research subjects using a random sampling technique. According to Prasanjaya & Ramantha (2013), the sample random sampling technique is a random sampling technique that provides equal opportunities for all sample groups to be designated as research subjects.

The inclusion criteria in this study were healthy teenagers who are willing to be respondents, teenagers who experience dysmenorrhea pain, and teenagers who follow all treatments. The exclusion criteria in this study were teenagers who have acute infections (asthma attacks, ARI, fractures, and burns), teenagers who take anticoagulant drugs (drugs that prevent blood clots, such as trisodium citrate, heparin, and sodium oxalate), teenagers who have a history of chronic disease (heart disease), there was an inflammation of the skin at the cupping point and also there was an open wound in the cupping point area.

This research was conducted from June to July 2021. The research instruments used were: (1) Questionnaire, (2) Dysmenorrhea Pain Scale, using a numeric pain scale, (3) Cupping Therapy SOP. Cupping is given at one point in the right and left-back area, then one point in the right and left calf area, (4) Observation sheet, consisting of pretest and posttest sheets. Data analysis was analyzed using Paired t-test and an independent t-test.

### **Result and Discussion (Times New Roman 12 pt Bold)**

The results and discussion of this research will be presented in the narratives form and tables. The explanation will be started from the dysmenorrhea pain scale before and after dry cupping therapy. Then the dysmenorrhea pain scale before and after the wet cupping was followed. After that, we will discuss the difference between the pain scale on dry cupping therapy and wet cupping therapy. And at the last, We will look for differences in the effectiveness of dry cupping and wet cupping therapy to reduce dysmenorrhea pain.

**Table 1. Respondents Pain Scale Before and After in the Dry Cupping Therapy Group at Teenagers in the Wedomartani, Ngemplak, Sleman (N = 15)**

Result	Mean	SD	Min-Max	$\alpha$
Pre-Test	4.67	1.676	1-7	0.000

Post Test	2.93	1.710	0-7
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The dysmenorrhea pain scale among teenagers in the Wedomartani, Ngemplak, Sleman, Yogyakarta had an average value of 4.56 for Wet cupping therapy group. The minimum value was one and the maximum value was seven. Three respondents showed mild pain (1-3 scale pain), Ten respondents showed moderate pain (4-6 scale pain) and two respondents showed severe pain (7-10 scale pain). After dry cupping therapy, it can be seen that the average posttest value of dry cupping is 2.93. It included the mild pain scale. Two respondents reported no pain, eight respondents showed mild pain, then four respondents reported moderate pain and only one respondent showed severe pain.

According to the theory, dysmenorrhea is pain during menstruation. It is usually experienced by some women. Dysmenorrhea was caused by an imbalance of the hormone progesterone in the blood and psychological factors (Salamah (2019). Ilham (2020) said that primary dysmenorrhea occurs in adolescents after menarche or during the ovulatory cycle. Pain felt just before or during menstruation and will decrease for up to 72 hours.

In line with the research from Pangestika (2019), which showed pain scale of dysmenorrhea in the experimental group was 2.14 and the control group was 4.43. The pain experienced by respondents in the treatment group was mild, while the control group experienced moderate pain with different intensities with the maximum values in the treatment group being 4 and 6 in the control group, while the minimum values were 1 in the treatment group and 4 in the control group. The results of the statistical test showed that there were differences between the two groups.

This is reinforced by Gate Control Theory namely cupping plays a role in releasing excess prostaglandin substances during menstruation, where prostaglandin substances function to send pain signals to the brain. Through the cupping process, this substance is released so that the pain felt by the patient is reduced. Cupping is also able to close the defenses to inhibit impulses to the brain, this is due to the strong suction of the cupping apparatus which plays a role in busying the nerve pathways that transmit pain signals to the brain (Sharaf, 2012).

Maksum (2018) said that the effect of cupping treatment on the pain level of dysmenorrhea. It showed the average value of dysmenorrhea pain after receiving cupping treatment of 5.09 and the difference in the average pain scale before and after treatment. after cupping, the pain scale decreased by 1.69. Another study from Kurniawati (2016) reported that the dysmenorrhea pain scale in Nursing Undergraduate Students at the Muhammadiyah University of Jember decreased from 5.73 to 2.60. before cupping therapy, The treatment group

had four scale pain for the minimum value and seven for the maximum. After cupping therapy, it reported one for minimum value and four for the maximum.

Bivariate analysis was used to determine the effectiveness of dry cupping therapy for pain scale during dysmenorrhea. It used paired sample t-test analysis. Table 1 showed the difference in the average pain scale before and after dry cupping therapy with a decrease in the pain scale of 1.74. It showed that there was a significant difference in the dysmenorrhea pain scale before and after dry cupping therapy ( $p$ -value = 0.000), which means that there was a statistically significant difference between dysmenorrhea pain before and after dry cupping therapy. So it can be concluded in the above test that there is the effectiveness of dry cupping therapy on reducing dysmenorrhea pain in teenagers in Wedomartani, Ngemplak, Sleman, Yogyakarta.

Maksum (2019) reported that the management of dysmenorrhea pain can be done non-pharmacologically, namely cupping therapy. Dry cupping therapy can reduce sensitivity to pain by stimulating the release of enkephalins and the release of endorphins. Dry cupping can release substances that function to stimulate pain signals to the brain, namely prostaglandins which are formed as a result of cell inflammation. Taherpour et al., (2018) also said that dry cupping significantly reduced the severity and duration of primary dysmenorrhea. Cupping therapy can reduce pain because of the strong suction of the cupping device on the nerve pathways that signal the brain about pain so that the stimulus that reaches the brain makes the pain no longer felt by the patient. In addition, according to Armini et al., (2019), cupping affects muscles by stimulating blood circulation in the muscles so that muscle spasms disappear. Cupping can also release substances that function to stimulate pain signals to the brain, namely prostaglandin substances that are formed as a result of cell inflammation.

Another study reported of 21 people who experienced primary dysmenorrhea who had regular menstrual cycles had a decreased pain level after dry cupping (Purwaningrum, 2019). In dry cupping, cupping is carried out on intact skin, with negative pressure (suction) the skin will be lifted causing increased capillary filtration and local collection of fluid and dilution of chemicals, inflammatory mediators, and nociceptive substances (analgesia) resulting in decreased pain and resolution. network adhesion. Whereas in wet cupping, skin incisions are made and blood is drawn out, cupping pressure causes pressure gradients and forces through the skin and capillaries, and releases endogenous opioids (analgesia) which causes a decrease in pain scale (Cao H, et al, 2015).

**Table 2. Respondents Pain Scale Before and After in the Wet Cupping Therapy Group at Teenagers in the Wedomartani, Ngemplak. Sleman (N = 15)**

Result	Mean	SD	Min-Max	$\alpha$
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Pre-Test	5.60	1.805	3-9	0.000
Post Test	3.20	2.077	0-7	

The dysmenorrhea pain scale in adolescents in Wedomartai, Ngemplak, Sleman, Yogyakarta in the pretest dry cupping therapy group with dry cupping therapy has an average value of 4.67, with a minimum value of 1 and a maximum value of 7. Two respondents reported mild pain, eight respondents showed moderate pain and five respondent said severe pain. Table 2 showed the decrease of the pain scale average after wet cupping therapy. After therapy, respondents said 3.20 for the average pain scale. One respondent reported no pain, eight respondents reported mild pain, five respondents showed moderate pain and only one respondent said severe pain.

Strengthened by Amalia (2018) that Dysmenorrhea or menstrual pain is a pain that feels very piercing in the lower abdomen and thighs. The pain is caused by an imbalance of the hormone progesterone in the blood. Andira (2010) said that dysmenorrhea is caused by an increase in prostaglandins which then causes increased myometrial contractions, resulting in reduced menstrual blood flow and the disintegration of the endometrium in the muscle walls. Primary dysmenorrhea usually begins when a woman is 2-3 years old after menarche and reaches its peak at the age of 15 and 25 years

The results of research by Lestariningsih (2020), entitled promotive and preventive activities through hijamah (cupping) to reduce menstrual pain in female students of Madrasah Aliyah Al Muhsin Metro from 145 girls (79%) of 183 female students. The degree of menstrual pain experienced by female students is a scale of 1-3 (mild pain) as many as 75% of students (51.7%), a pain scale of 4-6 (moderate pain) as many as 45 students (31%) and a scale of 7-10 (severe pain). As many as 25 students (17.2%). The results of the hijamah action show that the average pain scale before the hijamah procedure is 7.18 and after the hijamah procedure it becomes 5.12. It can be concluded that there is a decrease in the menstrual pain scale, which is 2.06.

Bivariate analysis is to determine the effectiveness of wet cupping therapy on the pain level of dysmenorrhea using paired sample t-test. The results of the analysis in table 2 show the average value of dysmenorrhea pain before being given dry cupping therapy with a pain scale of 5.5 or moderate pain. Meanwhile, after being given dry cupping therapy, the average value of the dysmenorrhea pain scale was 3.20. Table 2 showed the difference in the average pain scale before and after wet cupping therapy with a decrease in the pain scale of 2.33. After the statistical test showed a significant difference in the dysmenorrhea pain scale before and

after wet cupping therapy was given ( $p$ -value = 0.000). So it can be concluded that the above test is the effectiveness of wet cupping therapy on reducing dysmenorrhea pain in teenagers in Wedomartai, Ngemplak, Sleman, Yogyakarta.

Strengthened by the theory of Chen (2015), Cupping therapy is believed to be effective for various diseases. In recent years, cupping therapy is often used for pain, lower back pain, shoulder pain, fatigue, and anxiety. In addition, Armini et al., (2019), said that cupping plays a role in the inflammatory process such as reducing blood and fluid released through the gaps between cells. Able to reduce pain and make the body more comfortable, 10% said the pain felt healed or no longer felt and 4% of the body became comfortable but the pain did not decrease. Pain reduction sensitivity is also caused by the release of enkephalins and endorphins.

Cupping also affects the blood, namely stimulating blood circulation in the body with nitric oxide (NO) which plays a role in expanding blood vessels. This is reinforced by a theory known as the Gate Control Theory. In addition, cupping puncture and blood clots in cupping therapy stimulates the fibrinolytic system to dilute the frozen menstrual blood so that the uterus does not need to contract to expel the blood, besides that cupping therapy plays a role in reducing

levels of prostaglandin substances formed due to cell inflammation, thereby reducing sensitivity to pain without any side effects. (Sharaf, 2012)

This study is the same as the research of Maksum et al., (2019), entitled the effect of cupping on the reduction of dysmenorrhea pain in college students. It showed a decrease in the dysmenorrhea pain scale after wet cupping therapy. Cupping has a method involving the withdrawal of Qi (energy) and Xue (blood) to the surface of the skin by using a vacuum (vacuum) created in the glass which can remove 6 pathogens from outside the body consisting of wind, heat, cold, dry. , damp, and fire. Cupping can reduce pain, by doing cupping it will release pain-causing substances, including substances formed due to death or tissue inflammation, such as bradykinin and histamine. Cupping histamine release can also release lactic acid in muscles which can cause cramps and muscle pain (Asmarani and Dewi, 2019)

Cupping therapy by performing small and thin wounds on the skin surface followed by suction under vacuum causes the excretion of substances through the skin artificially (Sayed, et al 2013). The incision of the skin during cupping causes the release of CRF (Corticotropin-Releasing Factor) from the hypothalamus and will stimulate the release of ACTH (Adrenocorticotrophic Hormone) from the anterior pituitary. Furthermore, ACTH is synthesized to release other substances, namely POMC (Proopiomelanocortin) in which the product of this substance is endorphins which is one of the endogenous opioids. (Asmarani and Dewi, 2019).

Cupping therapy can decrease the serum concentration of substance P (pain-related pathway), which is confirmed as an anti-nociceptive effect. The tactile effect of cupping can stimulate large A $\beta$ -type fibers originating from receptors in the periphery. Stimulation of these receptors will suppress the sending of pain signals from the same area of the body. This occurs due to local lateral inhibition in the spinal cord (Ansar, & Zulkifle, 2016). Wet cupping also make increases microvascular oxygenation so that blood flow in the affected area improves (Asmarani and Dewi, 2019).

**Table 3. Differences in Dysmenorrhea Pain After Dry Cupping and Wet Cupping Therapy Against Dysmenorrhea Pain Reduction among Teenagers at Wedomartai, Ngemplak, Sleman, Yogyakarta (N=30)**

Group	N	$\Delta$ Mean	$\alpha$
Dry Cupping	15	1.74	0.704
Wet Cupping	15	2.40	

The results of the analysis in table 3 show a decrease in the pain scale in the wet Cupping group was 1.74 and the wet cupping group was 2.40. Table 3 shows that there is no difference in the effectiveness of dry and wet cupping therapy in reducing dysmenorrhea pain in adolescents in Wedomartai, Ngemplak, Sleman, Yogyakarta. After performing statistical tests, there was no significant difference in the effectiveness of the dysmenorrhea pain scale after being given dry and wet cupping therapy (p-value = 0.704). It was concluded that there was no difference between wet cupping and dry cupping therapy in reducing the pain scale of dysmenorrhea. The reduction of Wet cupping therapy group was higher than dry cupping therapy group. But, when viewed from the results of the independent sample t-test, wet cupping therapy and dry cupping therapy were both effective in reducing the dysmenorrheal pain scale in respondents.

In this study, it was known from the results of the independent sample t-test that there was no difference between dry cupping and wet cupping therapy in reducing the pain scale of dysmenorrhea. Judging from the risk factors for the incidence of dysmenorrhea related to the severity of symptoms, including younger age at the time of menarche, a longer menstrual period, a lot of blood that comes out during menstruation, a family history of dysmenorrhea, depression, anxiety and obesity. (Salamah, 2019).

Although statistically there was no difference between dry and wet cupping, the decrease in pain scale indicated that wet cupping was higher. Dry cupping therapy is cupping on the skin, while wet cupping therapy before skin cupping is given an injury so that blood comes out



during cupping. Wet cupping therapy is more effective than a dry cupping therapy (Risniati, et.all, 2019). There was a significant difference in reaction time between dry and wet cupping therapy pain thresholds ( $16.93 \pm 3.63$  and  $22.82 \pm 6.34$ ;  $p= 0.039$ ). In the dry cupping therapy pathway, there was an effect between HSP 70 and TLR4 ( $= 0.656$ ;  $p=0.006$ ), NFkB-p65 and -endorphins ( $= 0.643$ ;  $p= 0.007$ ), -endorphins and mu opioid receptors ( $= 0.923$ ;  $p= 0.000$ ) ; there was no effect between integrin 2 1 and HSP 70 ( $= 0.477$ ;  $p= 0.062$ ), TLR4 and NFkB-p65 ( $= 0.364$ ;  $p= 0.166$ ), mu opioid receptors and glutamate ( $= 0.352$ ;  $p= 0.182$ ), glutamate and time pain threshold reaction ( $= 0.253$ ;  $p = 0.344$ ). In the wet cupping therapy pathway, there was an effect between integrin 2 1 and HSP 70 ( $= 0.763$ ;  $p= 0.01$ ), HSP 70 and TLR4 ( $= 0.691$ ;  $p=0.003$ ), TLR4 and NFkB-p65 ( $= 0.521$ ;  $p= 0.038$  ), NFkB-p65 and -endorphins ( $= 0.699$ ;  $p= 0.003$ ), -endorphins and mu opioid receptors ( $= 0.893$ ;  $p= 0.000$ ); there was no effect between mu opioid receptors and glutamate ( $= 0.162$ ;  $p= 0.548$ ), glutamate and pain threshold reaction time ( $= 0.108$ ;  $p= 0.691$ ). (Subadi, 2014)

### Conclusion and Suggestion

In conclusion we can say that dry and wet cupping therapy is equally effective in reducing dysmenorrhea pain in adolescents in Wedomartai, Ngemplak, Sleman, Yogyakarta dan Wet cupping is more effective than dry cupping. The recommendation is for teenagers can do wet cupping as an alternative dysmenorrhea treatment. But, teenagers can also choose wet cupping to reduce the intensity of dysmenorrhea pain. For further researchers, it is recommended to investigate the factors that influence the effectiveness of dry cupping and wet cupping therapy on the intensity of dysmenorrhea pain in teenagers.

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**THE EFFECT OF FOOT MASSAGE AND LAVENDER  
AROMATHERAPY ON RHEUMATOID ARTHRITIS PAIN INTENSITY  
IN THE ELDERLY IN THE PUBLIC HEALTH CENTER JEMBATAN  
KECIL BENGKULU CITY**

**Hendri Heriyanto, Hasyiyati Awanis, Mardiani**

Health Polytechnic Bengkulu Ministry of Health, Department of Nursing  
Jalan Indragiri No. 03 Padang Harapan Bengkulu

[hendriasik79@gmail.com](mailto:hendriasik79@gmail.com)

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**Abstract**

In Indonesia, one of the highest health complaints experienced by the elderly is rheumatoid arthritis. In the province of Bengkulu in 2018 there were 13.2% or around 8,620 people of rheumatoid arthritis affecting the elderly. The purpose of this study was the fear of the influence of foot massage therapy and lavender aromatherapy on the intensity of rheumatoid arthritis pain in the elderly. This study used Pre-Experimental Designs in the form of one group pre-test and post-test design. This technique uses consecutive sampling of 30 people. Pain data collection used the Numeric Rating Scale (NRS) before and after intervention. Therapy carried out for 3 days with 15 minutes each for 2 weeks. Univariate analysis used Mean, Standard Deviation, Median, Minimum, Maximum and 95% CI. And bivariate analysis using paired t-test with 5%. Pain intensity in the elderly before being given foot massage therapy and lavender aromatherapy were 5.13 (moderate pain) and after being given foot massage therapy and lavender aromatherapy 3.03 (mild pain). The results of the paired t-test statistical test obtained a p value of 0.000 ( $p < 0.05$ ). The results of the paired t-test statistical test obtained a p value of 0.000 ( $p < 0.05$ ). There is an effect of foot massage therapy and lavender aromatherapy on the intensity of rheumatoid arthritis pain in the elderly. It is hoped that the staff can apply foot massage therapy and lavender aromatherapy as a safe and practical non-pharmacological method as an alternative in reducing pain intensity.

**Keywords:** *Foot Massage, Lavender Aromatherapy, Pain Intensity, Rheumatoid Arthritis, The elderly*

**Introduction**

Rheumatoid arthritis is one of the highest health complaints experienced by the elderly. The incidence of rheumatoid arthritis in 2016 according to WHO is 20% of the world's population, 5-10% are those aged 5-20 years and 20% are those aged 55 years (Putri, Priyanto, 2019). According to the Basic Health Research (Riskesdas) (2018) the number of rheumatoid arthritis sufferers is

Indonesia reached 7.30%. Data from the Bengkulu provincial health office in 2018 there were 13.2% of rheumatoid sufferers aged > 15 years or around 8,620 people, most of whom attacked the elderly. While at the Jembatan Kecil health center in Bengkulu, the data on the total number of rheumatoid arthritis sufferers in January 2020 - January 2021 aged 60-69 years is 0.4% or around 30 people.

*Rheumatoid arthritis* one of the autoimmune diseases which is inflammatory arthritis in adult patients, someone who suffers

from this disease will experience symptoms in the form of pain in the synovial joint, tendon sheath, and will experience thickening due to inflammation followed by bone erosion and bone destruction around the joint. et al. 2016). Rheumatoid arthritis is a disease that is generally considered trivial by the public, because it does not cause death. Rheumatism is not treated immediately can make limbs function abnormally and can even cause lifelong disability (Tedampa, 2016).

Non-pharmacological management includes relaxation and guided imagination, distraction, music, cutaneous stimulation, giving warm and cold sensations, massage and aromatherapy (Potter & Perry, 2010). One of the non-pharmacological measures to relieve pain is to warm the sore joints and inhale aromatherapy, namely lavender aromatherapy. The mechanism of the method is the same as foot massage therapy or is called foot massage.

*Foot Massage* is the manipulation of connective tissue through hitting, rubbing or squeezing to have an impact on increasing circulation, improving muscle properties and providing a relaxing effect (Potter & Perry, 2011).

While lavender aromatherapy naturally functions as an anti-bacterial, fungal, viral, such as respiratory tract infections of the reproductive tract, burns, skin infections, insect bites, reduces anger, anxiety, depression, improves mental and physical balance (provides a sense of comfort, calm and sedation). ) (Nurhanifah, D, et al, 2020). Inhaling the aroma of lavender which contains linalyl acetate and linalool is useful for reducing pain and providing a relaxing effect because it stimulates alpha waves in the brain and will improve blood circulation. This action can affect the brain's limbic system which is the center of emotion, regulates mood, and memory to produce the neurohormonal serotonin which will relieve tension, stress, and anxiety and produce endorphins and encephalins as pain relievers (Smeltzer &

Muliani's research results. R., et al. (2019) with the title "Cutaneous Stimulation (Foot Massage) Reducing Pain Scale in Elderly Patients With Rheumatoid Arthritis". The results of pain measurements before foot massage were carried out on rheumatoid arthritis pain in the elderly,

some (59.1%) respondents experienced moderate pain and (40.9%) others experienced mild pain. After foot massage was performed on rheumatoid arthritis pain in the elderly, 8 respondents had no pain (36.4%), 13 respondents had mild pain (59.1%) and 1 respondent had moderate pain (4.5%). This means that there is a difference in pain scale before and after being given foot massage.

The results of the research by Herlina, et al (2017), with the title "The Effect of Lavender Aromatherapy on Reduction of Active Stage 1 Labor Pain". The results of the measurement of pain mean pain intensity in laboring mothers before being given lavender aromatherapy was 7.07 (severe pain) and after being given lavender aromatherapy was 5.53 (moderate pain). There was a decrease in pain intensity by 1.54.

Prasetyo's research results. M., et al. (2020) with the title "The Effect of Foot Massage and Inhalation of Lavender Aromatherapy on

Blood Pressure and Pain Post Elective Major Surgery". The results of the pain scale measurement were obtained with a decrease in the average (mean) decrease in pain intensity from an average of 3.12 to 2.00.

It can be seen from the results of several studies which state that there is a decrease after being given foot massage therapy and lavender aromatherapy. Therefore, the researcher wanted to find out if there was an effect if foot massage and lavender aromatherapy were used in reducing the intensity of pain felt by the elderly with Rheumatoid Arthritis.

## **Method**

This type of research is research *Pre-Experimental Designs* in the form of one group pre-test and post-test design. This study was conducted on one group without a control or comparison group. This research was conducted from December 2020 to April 2021 in the working area of the Jembatan Kecil Health Center in Bengkulu City. The data collection procedure on the first day of the study explained the objectives, benefits, confidentiality, and data collection procedures, prospective patients who agreed to become respondents then signed the consent form. After that, the respondent will be examined for pain intensity. Previously, the patient would be given an observation sheet regarding the intensity of rheumatoid arthritis pain. Next, the researcher will conduct a time contract for the intervention of foot massage and lavender aromatherapy. Foot Massage intervention and lavender aroma were carried out 3 times for 3 days with 15 minutes each for 2 weeks.

Patients who do not meet the procedure until the procedure is completed cannot meet the research criteria and are immediately replaced with other patients. On the third day after doing

foot massage therapy and lavender aromatherapy, they were re-examined. Measurement of pain intensity was carried out by a team that is my friend so as not to be confused, measurements were carried out on the first day before the intervention was given and after three days of intervention, the patient's pain intensity measurement would be carried out again.

## Results

### Univariate Analysis

Univariate analysis in this study was to see the mean, median, minimum and maximum values, standard deviation and standard error and 95% confidence interval (CI) for mean based on patient characteristics, pain intensity characteristics before and after foot massage and aromatherapy therapy. lavender.

### Characteristics of the patient

The number of patients in this study were 30 people. Characteristics of patients in this study include age, gender, occupation, recent education.

**Table 5.1 Distribution of Average Age and Frequency Distribution of Gender, Occupation, Last Education, and Pain Intensity Level of Rheumatoid Arthritis Patients at the Jembatan Kecil Health Center in Bengkulu City**

No	Variable	Intervensi
1	<b>Usia</b>	
	Mean	63.93
	Min	60
	Max	69
	SD	2.959
	SE	0.540
	CI 95%	62.83-65.04
2	<b>Jenis kelamin</b>	
	Laki – laki	13 ( 43.3%)
	Perempuan	17 (56.7%)
3	<b>Pekerjaan</b>	
	Tidak bekerja	19 (63.3%)
	Bekerja	11 (36.7%)
4	<b>Pendidikan terakhir</b>	
	Tidak sekolah	16 (53.5%)
	SD	8 (26.7%)
	SMP	6 (20.0%)
5	<b>Tingkat intensitas nyeri</b>	
	Ringan	3 (10,0%)
	Sedang	26 (86,7%)
	Berat	1 (3,3%)

Based on table 5.1, the results of the analysis obtained that the mean age of rheumatoid sufferers was 63.93 years with a standard deviation of 2,959 years. The results of the interval estimation can be concluded that 95%, namely the mean age of the patients is 62.83 – 65.04 years. It can be seen that more than 56.7% of patients in this study were women. In this study, more than 63.3% of the sufferers did not work. And the last education was elementary school by 86.7%. With the level of pain intensity is in moderate pain of 86.7%.

**Table 5.2 Distribution of Average Pain Intensity of Rheumatoid Arthritis Patients Before Foot Massage Therapy and Lavender Aromatherapy at the Jembatan Kecil Health Center Bengkulu City**

Intensitas nyeri	Sebelum intervensi
Mean	5,13
N	30
SD	1.074
Min	3
Max	7
CI 95%	4.73-5.53

From Table 5.2 above, the results of the analysis showed that the mean intensity of rheumatoid arthritis pain before intervention was 5.13 with a standard deviation of 1,074 (95% CI: 4.73 – 5.53).

**Table 5.3 Distribution of Average Pain Intensity of Rheumatoid Arthritis Patients After Foot Massage Therapy and Lavender Aromatherapy at the Jembatan Kecil Health Center in Bengkulu City**

Intensitas nyeri	Setelah intervensi
Mean	3.07
N	30
SD	0.980
Min	1
Max	5
CI 95%	2.70–3.43

Based on table 5.3 above, the results of the analysis showed that the mean intensity of rheumatoid arthritis pain after the intervention was 3.07 with a standard deviation of 0.980 (95% CI: 2.70-3.43)

**Table 5.4 Data Normality Test Results**

Variable	<i>pValue</i> (nilai <i>Skewness</i> : SE)
	Kenormalan Data
Skala nyeri awal	-0.639 : 0.427 = - 1.496
Skala nyeri akhir	-0.141 : 0.427 = - 0.330

### Bivariate Analysis

Bivariate analysis was conducted to determine the effect of foot massage therapy and lavender aromatherapy on the intensity of rheumatoid arthritis pain in the elderly. Before the bivariate analysis was carried out, the researchers conducted a normality test using the Skewness value method for Std.Error with p-Value still at the value (-2 to +2) and the results of the processed data were normally distributed. Then the researchers conducted a bivariate analysis using the paired t-test with 5% to determine the difference in the average increase in pain intensity before and after.

**Table 5.5 Distribution of Differences in the Mean Increase in Pain Intensity Before and After Foot Massage Therapy and Lavender Aromatherapy at the Jembatan Kecil Health Center in Bengkulu City**

Variable	Mean	SD	<i>palue</i> dalam kelompok
Sebelum intervensi	5.13	1.074	0.000
Setelah intervensi	3.07	0.980	

From table 5.5, it is found that the average value before the intervention was 5.13 (1.074) and after the intervention was obtained the average was 3.07 (0.980) there was a decrease of 2.06.

When viewed from the effect of the intervention, it was obtained using the paired t-test, showing the intervention group value was 0.000 (p Value < 0.05) which means that there was an effect of foot massage therapy and lavender aromatherapy and there was a difference in mean before and after the intervention.

## Discussion

### Characteristics of Rheumatoid Arthritis Patients at the Jembatan Kecil Health Center in Bengkulu City

The results showed that the age characteristics of patients with rheumatoid arthritis in the working area of the Jembatan Kecil Health Center had an age range of 62 - 65 years, with an average age of 63.93 years. This result is in line with the research conducted by Susanti, E (2017), which states that the majority of rheumatoid arthritis sufferers are in the age range of 60-65 years with a percentage of 36.7%. And also in line with Fadlilah's research, S (2018), which states that most of



the

sufferers are in the range of 60-64 years with a percentage of 93.3%. The results of this study are not in line with research from Wahyurianto, Y (2017), which states that the age of the patient is in the range of 65 – 70 years with a percentage of 70.21%.

Characteristics of patients based on pain intensity in this study, namely the average pain intensity before 5.13 and pain intensity after 3.07. The results of this study are in line with the results of Marlina, F (2019) research, namely the average pain intensity before 5.2 and the average pain intensity after 3.4 A person suffering from rheumatoid arthritis pain influenced by the presence of psychological factors, where by giving more attention can also reduce the sensation of pain felt by the sufferer. Rheumatoid that is not treated properly will eventually make the limbs function abnormally and can even cause lifelong disability (Tedampa, 2016).

Characteristics of patients based on gender in this study most (56.7) were women. The results of this study are in line with research by Fadlilah, S (2018), where most of the sufferers (80.0%) are female. This result is also in line with research from Wahyurianto, Y (2017), most of the sufferers (63.83%) are female. And the results of this study are not in line with research from Susanti, E (2017), most of the sufferers (63.3%) are male. This is because someone with a female gender who has rheumatoid arthritis is partly the result of the involvement of the hormone estrogen. This hormone stimulates autoimmunity, causing rheumatoid arthritis.

Characteristics of patients based on a pain scale of 7, the highest was in farmer workers and traders, which was a scale of 6. The results showed the highest scale of pre-test on the work of farmers and traders, namely on the highest scale. Sudden pain is usually caused by strenuous or unusual physical activity. Complaints of pain will be more severe after exercising or increase with activity and can improve with rest. Improper physical activity will exacerbate pain in people with joint pain (Nahariani et al, 2012).

Characteristics of patients before being given an intervention in education with the highest pain scale in education not in school, elementary, and junior high school with a pain scale of 6. These results show the highest scale of pre-test in respondents' education both in respondents who are not in school, elementary and high school are the same, namely pain scale 6. Theoretically, failure to treat pain in the elderly often occurs when education for the elderly and their assistance is not sufficient. Education for the elderly and their assistance in pain management is very necessary to increase the knowledge of the elderly about how to deal with their respective pains, so that the elderly who do not understand about the treatment of joint pain only need to be given education (Lase, 2015).

### **The Effect of Foot Massage Therapy and Lavender Aromatherapy on Rheumatoid Arthritis Pain Intensity in the Elderly in the Working Area of Jembatan Kecil Health Center Bengkulu City**

The results showed that the average difference in pain intensity before and after being given foot massage therapy and lavender aromatherapy was a decrease of 2. The statistical test results showed  $p\text{Value } 0.000 < 0.05$ , which means that there was a significant difference in the mean intensity of pain before and after being given foot massage therapy in patients. rheumatoid arthritis, so it can be concluded that there is an effect of foot massage therapy and lavender aromatherapy on a decrease in pain intensity for rheumatoid arthritis sufferers.

In the research of Rizki Muliani et al (2019), the results of the study concluded that there was a significant decrease in pain intensity before and after foot massage therapy was given,  $p\text{ Value } 0.000 < 0.05$ , meaning that there was an effect of pain scale before and after foot massage.

Foot massage performed can complement the aging process of pain scale in the elderly. Therefore, pharmacological therapy cannot be separated, but for the use of the dose it can be adjusted to the physiological conditions of the elderly and foot massage can be used as a complementary therapy to reduce pain in the elderly.

The effect of lavender aromatherapy is useful in reducing muscle tension which will reduce pain levels, relaxation, anxiety, mood, and an increase in alpha and beta waves which show increased relaxation (Argi, 2013). In the results of research by Astuti, W, Y (2013) there is an effect of lavender aromatherapy on the intensity of pain and anxiety before and after giving lavender aromatherapy because inhaling the aroma of lavender helps you feel relaxed and creates a balance of body and mind. In a study conducted by Sari, Y, P (2014) the results of the study concluded that there was a significant change in the pain scale level of rheumatic patients (osteoarthritis) before and after being given lavender aromatherapy warm compresses to decrease the pain scale of rheumatic patients in the elderly with  $p = 0.00$  ( $p < 0.05$ ).

### Conclusion

The average pain intensity before being given foot massage therapy and lavender aromatherapy on the intensity of rheumatoid arthritis pain in the elderly in the working area of the Jembatan Kecil Public Health Center in Bengkulu City was 5.13. The average pain intensity after being given foot massage therapy and lavender aromatherapy on the intensity of rheumatoid arthritis pain in the elderly in the working area of the Jembatan Kecil Public Health Center in Bengkulu City was 3.07.

Foot massage can encourage nerve terminals by increasing modulation, because every movement will trigger nerves (A-beta nerves) then impulses will be sent to the central nervous system. The control system is activated via inhibitory interneurons, whereas excitatory interneurons are inhibited, thus closing the gate and pain messages are not transmitted to the central system (Chanif, C., Petpichetchian, W., & Chongchareon, 2013). Lavender aromatherapy containing linalyl acetate and linalool is useful for reducing pain and providing a relaxing effect because it stimulates alpha waves in the brain and will inhibit blood circulation. In addition, it also has benefits as an anti-inflammatory, strong antiseptic, antiviral, and antifungal which can reduce emotions, relax, and reduce pain (Gaware, 2013).

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## **THE EFFECT OF INTEGRATED NUTRITION SERVICES ON THE BODYWEIGHT OF UNDERWEIGHT CHILDREN IN TANAH GARAM HEALTH CENTER COVERAGE AREA, SOLOK CITY, WEST SUMATERA**

**Hermita Bus Umar<sup>1</sup>; Nova Dianti<sup>2</sup>; John Amos<sup>3</sup>; Gusnedi<sup>1</sup>; Zulferi<sup>1</sup>**

<sup>1</sup>Department of Nutrition, Health Ministry Polytechnic of Padang; <sup>2</sup>Tanah Garam Public Health Center, Solok City; <sup>3</sup>Department of Health Promotion, Health Ministry Polytechnic of Padang  
Email: [hermita1809@gmail.com](mailto:hermita1809@gmail.com)

### **ABSTRACT**

Being underweight in children under five in Indonesia is still high. Integrated nutrition service is one of the innovative programs to overcome the underweight problem among under-five children. This study aims to determine the effect of integrated nutrition services on the bodyweight of underweight under-five children in Tanah Garam Health Center, Solok City. The study used a pre-experimental one-group pretest-posttest design. As the study subject, we recruited 30 healthy underweight children (WAZ  $-2 < x < -3SD$ ). Data collection includes body weight before and after the 10-days intervention. The body weight difference was analyzed using the dependent t-test. There was a significant change in children's weight as seen from the increase in the weight for age Z score (WAZ) after the provision of integrated nutrition service ( $P < 0.05$ ). About 76% of the subjects had bodyweight improvement. The mean body weight increase from baseline to end line was  $0,25 \pm 1,17$  kg, while the WAZ increased from -2.32 to -2.12. The implementation of integrated nutrition service could potentially improve the bodyweight of underweight children. It is recommended that all healthy underweight children participate in implementing the program.

**Keywords: underweight, integrated nutrition service, under-five children, body weight**

### **Introduction**

Nutrition is one of the determinants of the quality of human resources. Malnutrition can cause impaired physical growth and impaired intellectual development, decreased work productivity, and endurance which results in increased morbidity and mortality. Adequate nutrition is needed by every individual since the fetus is still in the womb, infants, children, adolescence, adulthood to old age <sup>1</sup>.

Good nutrition is the basis for every individual to reach the maximum potential he is looking for. The first 1000 days of life (HPK) is a sensitive period that determines the quality of life in the future, including stunting prevention<sup>2</sup>. Moderate and severe nutrition

is a nutritional status based on the bodyweight index for age The Basic Health Research (Risikesdas) in 2018 states that the percentage of severely underweight in children aged 0-23 months in Indonesia is 3.8%, while the percentage of underweight is 11.4%. The problem of malnutrition and under-five children in Indonesia is also indicated by the high prevalence of stunted children under five (stunting  $<-2$  SD). The trend of the percentage of children aged 0-59 months being severely stunted and stunted in Indonesia from 2014 to 2018 tends to not experience significant changes, wherein in 2014 the percentage was 28.9%, while in 2018 the percentage was 29.6%<sup>3</sup>.

Based on the results of the 2018 Risikesdas, the prevalence of the nutritional status of children under five in Solok City with indicators of W/A for severely underweight and underweight is 15.8%, the indicator for W/H is severely wasted and wasted is 7.4%, the indicator for H/A is severely stunted and stunted that is equal to 39.6%. Based on 4 health centers in the city of Solok, out of 5,801 children under five who have weighed 725 children under five (12.5%) experienced problematic nutritional status, including Tanjung Paku Public Health Center of 1,725 which weighed 72 children under five experiencing nutritional problems, Nan Balimo Public Health Center of 820 people under five who weighing 47 children under five experiencing nutritional problems, KTK Public Health Center from 1,399 children under five who weighed 171 people experiencing nutritional problems where the highest number of children under five with nutritional status problems was Tanah Garam Public Health Center, namely 255 children under five (35.2%) out of 1,828 children under five<sup>3,4</sup>.

To implement a balanced effort, each family must be able to know nutrition, prevent, and overcome nutritional problems of each family member. This is by the Regulation of the Minister of Health Number 23 of 2014 concerning Efforts to Improve Nutrition. Efforts are being made to identify, prevent, and overcome nutritional problems, namely by weighing regularly, giving only breast milk to babies from birth to 6 months of age, varying food menus, using iodized salt supplements, and giving salt supplements as recommended. health workers. Nutritional supplements provided according to the Regulation of the Minister of Health Number 51 of 2016 concerning Nutritional Supplementation Product Standards, include vitamin A capsules, blood-added tablets

(TTD), additional food for pregnant women, children under five, and school-aged children, complementary foods for breast milk, and powder multivitamins and minerals<sup>5</sup>.

One of the efforts to improve community nutrition carried out by the Solok Health Service to deal with nutritional problems is to hold an integrated nutrition service - program. The integrated nutrition services is a gathering place for malnourished children under five and parents/caregivers to learn to practice positive unique behaviors that have been proven to maintain the nutritional status of children under five. This study aims to determine the effect of the implementation of integrated nutrition services s on changes in body weight of children under five in the working area of Tanah Garam Public Health Center, Solok City <sup>6</sup>.

## **Methods**

This study uses a pre-experimental design with a one-group pretest-posttest design. This research was conducted by giving a pretest (initial observation) before being given an intervention, after that, an intervention was given, then a posttest (final observation) was carried out. The population in this study were all children under five aged 12 months to 59 months who experienced nutritional problems based on the results of mass weighing with weight indicators according to age W/A in February 2021 as many as 113 people in the working area of Tanah Garam Public Health Center, Solok City. The sample is all children under five aged 12 months to 59 months who experience nutritional problems based on the results of mass weighing with weight indicators according to age W/A as many as 30 people consisting of 10 children under five per village in the working area of Tanah Garam Public Health Center, Solok City. The sampling technique used in this study is non-probability sampling, namely accidental sampling.

The research activity was carried out for 10 days where the children under five who were the sample were measured their weight and recorded at the beginning of the activity and the end of the activity by the same cadre. Mothers/caregivers of toddlers take turns cooking meals for toddlers at the integrated nutrition services so they can learn to practice new habits and be able to do them at home. During the preparation of menus for children, health workers provide health education to mothers/caregivers and invite

children to play by providing educational game tools and practicing personal hygiene behavior.

After the food menu is ready, the cadres and mothers/caregivers practice eating together and monitoring the toddler's diet with the aim of active feeding (feeding patiently and painstakingly, looking into the child's eyes, telling stories, and persuading children) toddlers can finish their food at the integrated nutrition services. Data were collected through observation, interviews, and documentation. Primary data was taken using observation sheets to respondents which were carried out by researchers directly assisted by integrated nutrition services supervisors. Secondary data is data on the number of children under five who experience nutritional problems in the working area of Tanah Garam Public Health Center, Solok City. Univariate analysis was used to see the characteristics or description of the variables of weight change before and after integrated nutrition services and the analysis was presented in the form of mean, median, and standard deviation. Bivariate analysis was performed using a dependent t-test with a 95% confidence level ( $\alpha = 0.05$ ).

### **Result and Discussion**

a sample of 30 children under five consisting of 10 people per class per village (3 classes), weighing children under five at the integrated nutrition services s carried out on day 1 and day 10. The research sample consists of 9 people boys and 21 people girls. Changes in the weight of toddlers before and after the integrated nutrition services can be seen in table 1

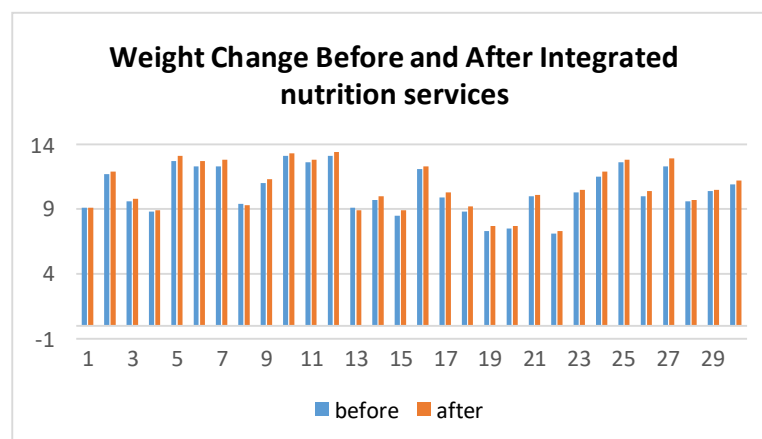
**Table 1.** Changes in the Weight of Toddlers After The Integrated nutrition services

<b>Weight</b>	<b>f</b>	<b>Percentage %</b>
not gaining weight	7	23,3
weight gain	23	76,7
	30	100.0



Based on table 1, it can be seen that after the integrated nutrition service re carried out, 23 children under five (76.7%) experienced weight gain, after being given integrated nutrition services s for 10 days to the respondents. The lowest body weight before integrated nutrition services 7,1 was nd the highest body weight was 13,1 with the average weight before integrated nutrition services as  $10.69 \pm 1,77$  while the lowest body weight after integrated nutrition services was 7,3 and the highest body weight was 13, 4 with the average body weight after integrated nutrition services were  $10,44 \pm 1,82$ . The results showed an increase in growth status after integrated nutrition services, the mean body weight increase from baseline to end line was  $0,25 \pm 1,17$  kg

After the integrated nutrition services were carried out on the respondents for 10 days with different menus, it can be seen the graph of changes in the weight of 30 children under five in graph 1



**Graph 1. Weight Change Before and After Integrated nutrition services**

More than half of the children under five who were sampled were female (70%), with an age distribution of 14 months - 58 months and the order in the family as the second/third child was 21 people (70%). Weight before the implementation of integrated nutrition services by the standards of the Ministry of Health shows that all respondents have a weight that is not by age. Gender and order in the family affect the nutritional status of a child under five. According to the model developed by Johnson in the "Conceptual framework of causes of malnutrition and death" based on an ecological

approach that many things affect the emergence of nutritional problems in children under five, one of which is rooted in culture. According to certain cultures, boys should get more food than girls, and boys have priority to get food<sup>9</sup>.

The implementation of integrated nutrition services is very appropriate to do to increase the weight of toddlers because it maximizes the resources, skills, and strategies available to the community through broad participation and learning, and working together. Some of the behaviors of families with toddlers that can be improved through the implementation of integrated nutrition services are: Feeding habits include breastfeeding, active feeding, feeding during illness and healing as well as dealing with children who have a low appetite.

Salam et al.'s 2015 study entitled the effect of positive deviance-based nutrition classes on increasing knowledge, attitudes and behavior of mothers under the red line (BGM) in Mantang Village, Batukliang District, Central Lombok Regency, NTB Province stated that positive deviance-based nutrition classes could increase knowledge, attitudes, and behavior and the behavior of mothers under five with malnutrition. After participating in nutrition class activities, mothers of toddlers can provide nutritious food using affordable local food ingredients. The activities of the toddler nutrition class include discussions, health counseling, and cooking demonstrations together which aim to increase knowledge and train mothers in feeding toddlers<sup>7</sup>.

After the integrated nutrition services were carried out on the respondents for 10 days there was a change in the Z-Score value of the respondent's weight, before the integrated nutrition services the weight Z-Score value was - 2.3167, and after the integrated nutrition services there was an increase in the Z-Score value, the weight of children under five was - 2.1237, this is due to the respondent's mother providing food according to the advice of the nutritionist so that the child's weight increases within 10 days while there is no change in the Z-Score value of weight in children under five this is because the mother or caregiver does not practice feeding and hygiene of children what is good and right at home.

From the dependent t-test, it is known that the effect of implementing integrated nutrition services on changes in the Z-Score of body weight of children under five in the

working area of Tanah Garam Public Health Center Solok City on respondents can be seen in table 2

**Table 2. The Effect of Integrated nutrition services Implementation on Changes in the Z-Score of Toddler Body Weight**

Weight	Mean	SD	SE	p-value	n
Before integrated nutrition services	- 2.3167	0.3662	0.0668	0,000	30
After integrated nutrition services	- 2.1237	0.3888	0.0710		

Based on table 2, it can be seen that the average Z-Score of body weight of children under five before the integrated nutrition services was - 2.3167, and after the integrated nutrition services there was an increase in the average Z-Score of the weight of children under five was - 2.1237. The statistical test found that there was a significant difference between growth status before and after integrated nutrition services ( $p = 0.000$ ). It can be concluded that the implementation of the integrated nutrition services affects increasing the weight of children under five accompanied by an increase in the z score.

The results of the study are in line with the research of Salam et al, 2015. Another research conducted by Taufiqqurahman & Masthalina, 2012 regarding the influence of nutrition classes on knowledge, attitudes, actions, parenting patterns, and bodyweight of children under five in handling malnutrition problems shows that nutrition class programs influence increasing knowledge, parenting patterns, attitudes, and toddler weight. The success of the nutrition class program can be seen from the purpose of holding nutrition classes, namely to increase awareness, knowledge, and skills of mothers/families<sup>7,8</sup>.

The purpose of the integrated nutrition services is the recovery of malnourished toddlers (increase the child's weight at least 200-400 grams or follow the normal growth line in KMS in 1-3 rounds of integrated nutrition services. implementation of integrated nutrition services is effective in improving the growth status of children under five. with the implementation of integrated nutrition services s for children under five and supervised in its implementation, it can improve the nutritional status of children under

five who previously had less chance towards better nutritional status. After participating in integrated nutrition services activities, mothers of toddlers can provide nutritious food using affordable local food ingredients.

### **Conclusion and Recommendation**

From this research, it can be concluded that integrated nutrition services affect the weight of children under five. The mean body weight increase from baseline to end line was  $0,25 \pm 1,17$  kg, while the WAZ increased from -2.32 to -2.12. The implementation of integrated nutrition services could potentially improve the body weight of underweight children. It is recommended that all healthy underweight children participate in implementing the program.

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## MANAGEMENT OF MALARIA IN PREGNANCY WITH COVID-19

Ika Wijayanti<sup>1</sup>, Desi<sup>2</sup>

<sup>1</sup> Jurusan Kebidanan Poltekkes Kemenkes Jayapura; Kota Jayapura ; Indonesia

<sup>2</sup> RSAL dr Soedibjo Sardadi Jayapura; Kota Jayapura ; Indonesia

[ika.midwifery@gmail.com](mailto:ika.midwifery@gmail.com)

### Abstract

Malaria is one of the most common diseases in the world. According to WHO in 2015 there were 214 million cases of malaria. In Indonesia, the percentage of positive cases of malaria in Papua Province in 2016 was 54.3%. The design of this research is descriptive with the type of descriptive research used is a case study. This study was conducted at the RSAL Dr. Soedibjo Sardadi Jayapura in August 2020 on a 37-year-old woman G3P2A0 who was 16 weeks pregnant at term, a single live intrauterine fetus with tropical malaria, reactive SARS CoV-2 IgG antibodies. Malaria in pregnancy can cause pathological conditions both in pregnant women and in fetuses. In pregnant women, such as fever, hypoglycemia, anemia, acute pulmonary edema, kidney failure can even cause death. In the fetus it causes abortion, premature delivery, low birth weight, and fetal death. Prevention of malaria in pregnancy using mosquito nets, prophylaxis, mosquito repellent, and gauze for ventilation, and not having a habit of going outside at night or going out at night with a frequency of <2 times. Prevention efforts against COVID-19 are to break the chain of transmission by isolation, early detection, and basic protection such as maintaining cleanliness (hygiene), washing hands, and disinfecting. Chloroquine is still the drug of choice for the treatment of malaria in pregnancy and quinine for the treatment of severe malaria.

**Keywords:** *malaria; pregnancy; covid-19, chloroquine, Jayapura*

### Introduction

Malaria is one of the most common diseases in the world. According to WHO in 2015 there were 214 million cases of malaria and caused the death of 438,000 sufferers (Puasa, Asrul H and Kader, 2018).

Based on data from the 2014 Indonesian Health Profile, the Annual Parasite Incidence (API) per 1,000 population in Indonesia was 1.0, when compared to the Annual Parasite Incidence (API) per 1,000 population in 2013 there was a decrease of 0.38. Five Provinces with the highest Annual Parasite Incidence (API) per 1,000 population in 2014 were Papua (29.57%), West Papua (20.85%), East Nusa Tenggara (12.81%), Maluku (6.00 %) and North Maluku (3.32%) (Pilmeks D Layan, Rahayu H. Akili, Dina V. Rombot, 2016), while the prevalence of malaria based on a history of blood tests in Indonesia in 2018 was 0.4% (Riskesdas, 2018).

Based on data from Riskesdas in 2018, the prevalence of malaria based on a history of blood tests in Indonesia in 2018 was 0.4%. Of the 35 provinces, the highest prevalence is Papua (12%), West Papua (8%), East Nusa Tenggara (2%) (Riskesdas, 2018). The malaria morbidity rate was assessed using the annual parasite incidence (API) per 1,000 population in Papua Province, in 2016 it was 49.6 per 1,000 population, while the percentage of positive cases of malaria in Papua Province in 2016 was 54.3%. (Dinas Kesehatan Papua, 2016).

Malaria is a disease caused by infection with the Plasmodium parasite (Mawuntu, 2018). In Indonesia, the parasites that cause malaria are Plasmodium vivax which causes malaria tertiana and Plasmodium falciparum which causes tropical malaria. The location of the most widespread distribution is in the Lesser Sunda Islands or Nusa Tenggara and Papua (Junarli and Somia, 2017).

Factors related to the incidence of malaria in pregnant women are the level of knowledge, behavior patterns (Darmiah *et al.*, 2019), attitudes and actions to prevent malaria (Layan, Akili and Rombot, 2016), monitoring of the health of pregnant women by midwives which is manifested in the possession of a Maternal Child Health (KIA) book, the use of mosquito coils/electric when sleeping at night, the economic status of pregnant women, and the ease of access of pregnant women to the practice of midwives/maternity hospitals. (Budiyanto and Wuriastuti, 2017).

Malaria can be infected by everyone, including infants, toddlers, children and adults as well as pregnant women (Puasa, Asrul H and Kader, 2018). Pregnant women are more easily infected with malaria and are also easy to be infected again to severe complications (Rahmawaty, 2014). Malaria in pregnancy can cause pathological conditions both in pregnant women and in fetuses. In pregnant women, such as fever, hypoglycemia, anemia, acute pulmonary edema, kidney failure can even cause death. In the fetus it causes abortion, premature delivery, low birth weight, and fetal death (Rusjdi, 2012).

The process of pregnancy which is an individual factor will exacerbate malaria cases experienced by pregnant women, and a pregnant woman suffering from malaria will affect the pregnancy process and abnormalities in the newborn. Malaria infection in pregnant women can cause anemia in the mother and fetus, as well as babies with low birth weight. The risk of low birth weight infants (LBW) in mothers with malaria increased two times compared to pregnant women without malaria. This can increase maternal and infant mortality. Complications of malaria infection in pregnancy can include abortion, low birth weight babies, anemia, pulmonary edema (swelling or accumulation of fluid in the lung tissue), impaired kidney function, and congenital malaria (Budiyanto and Wuriastuti, 2017).

Pregnant women are susceptible to infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which can increase the risk for both pregnant women and their unborn babies. Pregnant women who experience COVID-19 are feared that there will be intrauterine transmission from mother to fetus. In addition, they can also have symptoms of pneumonia due to the Covid-19 virus, which is one of the main causes of death in pregnant women worldwide. In the fetus, fetal complications can occur in mothers infected with Covid-19, namely miscarriage (2%), Intra Uterine Growth Restriction (IUGR; 10%), and premature birth (39%). Fever with an average temperature of 38.1-39.0°C (Ramadhani *et al.*, 2020).

Malaria treatment in adult COVID-19 patients, including pregnant women, is given according to the patient's symptoms. In patients with mild Covid-19 symptoms with malaria infection, chloroquine/hydroxychloroquine, azithromycin, piperazine (one of the components of the DHP drug) and primaquine can prolong the QTc interval, therefore it is necessary to have an ECG examination to see the QTc interval before being given for treatment. If the patient with COVID-19 does not undergo an EKG examination and receives chloroquine/hydroxychloroquine and azithromycin, for the treatment of malaria, oral DHP is not given, but artesunate is injected for 7 days. Primaquine administration was postponed until the patient's condition improved and Covid-19 treatment was completed. If malaria complications occur, the patient is referred to the hospital. If the symptoms of COVID-19 are moderate and the symptoms are severe with malaria infection, then the malaria drug is given using artesunate injection for 7 days. And for malaria sufferers with COVID-19, primaquine administration is postponed until the patient's condition improves and Covid-19 treatment is completed (Ditjen P2P, 2020).

## Methods

The design of this research is descriptive, namely research that aims to explain, give a name, situation or phenomenon in finding new ideas (Nursalam, 2013). The type of descriptive research used is a case study, namely examining a problem through a case study consisting of a single unit. Participants are objects that will be examined in the case study, namely pregnant women with malaria. The number of participants used is 1 person. This research was conducted at the RSAL Dr. Soedibjo Sardadi Jayapura in August 2020. The data collection methods in this case study were observation and physical examination, and a documentation study.

## **Result and Discussion**

### **Kasus**

A woman Mrs. X Age 37 years G3P2A0 14 weeks pregnant came to the RSAL dr. Soedibjo Sardadi Jayapura with complaints of fever accompanied by dizziness, nausea and vomiting since 3 days ago. The results of the anamnesis that the mother is a housewife, before being treated, the mother felt a fever that came and went with chills, bitter mouth, body aches, fever, sore throat and headache. The next day the fever went down after taking paracetamol but a few hours later it came back. On the third day, the patient complained of fever and chills as before and complained of nausea and vomiting, decreased appetite, felt weak and had aches and pains. The patient also complained of cough and runny nose.

On physical examination, the general condition appeared moderately ill, compos mentis consciousness, blood pressure 90/60 mmHg, pulse 80x/minute, breathing 18x/minute, temperature 37.9 °C. Eyes, ears and nose, impression within normal limits. On chest examination, chest movement and tactile fremitus were symmetrical, no rhonchi and wheezing were found, the impression was within normal limits. Cardiac examination found no abnormalities, the impression was within normal limits. Flat abdomen has striae gravidarum.

The patient had his first period at the age of 12 years with a regular 28-day cycle, for 5-7 days, 4 times changing pads, with the first day of last menstruation (HPHT) on May 08, 2020 and estimated delivery on February 15, 2021. The patient married the first and has been going on for 8 years.

Leopold's external inspection was still ballomen. On laboratory examination, Hb: 12.4 g/dl, leukocytes: 5,700/ $\mu$ l, erythrocytes: 3,800,000/ $\mu$ l, platelets: 76,000/ul and hematocrit: 29%. Serum bilirubin: Serum Glutamic Oxaloacetic Transaminase (SGOT) 47 u/L, Serum Glutamic Piruvic Transaminase (SGPT) 37 I/L and peripheral blood smear: Plasmodium falcifarum +4, rapid test antibody SARS CoV-2 IgM Ractif, Antibody SARS CoV- Reactive 2igG, positive swab examination, RO/thorax results: cast and pulmo, no abnormalities were seen, ultrasound examination at 14 weeks gestation, according to gestational age.

Based on the results of the examination, it was found that the diagnosis was Mrs. X G3P2A0 37 years old 14 weeks pregnant single live intrauterine with tropical malaria and covid-19.

The management carried out was hospitalization of the mother with infusion of RL drips NB 20 tts/min, injection of ranitidine 3x1, ondancetron 2x1, artesunate 0;12;24;36, goldrion oral medication 1x1, comvit C 1x1, education on sunbathing and light exercise every morning 09.00 for 15-30 minutes, giving green bean porridge every morning and evening, giving 1 can of bear milk every afternoon, observing mother's vital signs, reducing contact/bites of Anopheles mosquitoes by using mosquito nets and insect repellent, recommending adequate eating and drinking, recommending rest sufficient.

### **Discussion**

Based on the data obtained from the results of the study on the patient, a woman Mrs. X Age 37 years G3P2A0 16 weeks pregnant preterm came with complaints of fever since 3 days before being treated. In this patient, the results of the anamnesis were fever accompanied by



dizziness, nausea and vomiting since 3 days ago. Before the patient was treated, the fever seemed to come and go. Fever accompanied by chills, bitter mouth, body aches all over, fever, sore throat and headache, The next day the fever went down after taking paracetamol but a few hours later it came back. On the third day, the patient complained of fever and chills as before and complained of nausea and vomiting, decreased appetite, felt weak and had aches and pains. The patient also complained of cough and runny nose. The most common symptoms in malaria patients are headache, nausea, muscle aches, vomiting, fever, chills, and sweating, which are the most common symptoms in malaria patients. (Sandy *et al.*, 2019). The characteristic features of malaria are periodic fever, anemia and splenomegaly. There are often prodromal symptoms such as malaise, headache, bone/muscle pain, anorexia and mild diarrhea (Rehana and Mutiara, 2017).

Laboratory results showed hemoglobin (Hb): Hb: 12.4 g/dl, leukocytes: 5,700/ $\mu$ l, erythrocytes: 3,800,000/ $\mu$ l, platelets: 76,000/ul and hematocrit: 29%. Serum bilirubin: Serum Glutamic Oxaloacetic Transaminase (SGOT) 47 u/L, Serum Glutamic Piruvic Transaminase (SGPT) 37 I/L and peripheral blood smear: Plasmodium falcifarum +4 Diagnosis of malaria in pregnancy can also be established based on microscopic examination of blood samples (Sandy *et al.*, 2019)

Malaria during pregnancy has consequences for morbidity, mortality, abortion, premature birth, low birth weight (referring to intra-uterine growth inhibition and prematurity) and transplacental transmission of the malaria parasite. Malaria infection in pregnant women can not only increase the risk of anemia which can increase the risk of bleeding during childbirth, but also increase the risk of infant mortality, prematurity and low birth weight. The risk of getting malaria increases, especially in the second trimester of pregnancy, pregnant women have a three times greater risk of suffering from other serious diseases when infected with malaria than women who are not pregnant. (Anggraeni *et al.*, 2017).

This patient was also diagnosed as positive for COVID-19, although without symptoms, it was seen from the laboratory results, namely a rapid test for the SARS CoV-2igG Reactive antibody, a positive swab examination. Patients infected with COVID-19 can show symptoms or no symptoms. Usually mild symptoms in patients infected with COVID-19 are patients with acute uncomplicated upper respiratory tract infections, which can be accompanied by fever, fatigue, cough (with or without sputum), anorexia, malaise, sore throat, nasal congestion, or headache. In this condition, the patient does not need oxygen supplementation (Susilo *et al.*, 2020).

Pregnant women are susceptible to infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which can increase the risk for both pregnant women and their unborn babies. Pregnant women who experience COVID-19 are feared that there will be intrauterine transmission from mother to fetus. In addition, they can also have symptoms of pneumonia due to the Covid-19 virus, which is one of the main causes of death in pregnant women worldwide. In the fetus, fetal complications can occur in mothers infected with Covid-19, namely miscarriage (2%), Intra Uterine Growth Restriction (IUGR; 10%), and premature birth (39%). Fever with an average temperature of 38.1-39.0oC (Ramadhani *et al.*, 2020).

Based on the diagnosis, G3P2A0 is 14 weeks pregnant single live intrauterine with tropical malaria and covid-19. Then the management of these patients was carried out, namely hospitalization of the mother with infusion of RL drips NB 20 tts/min, injection of ranitidine 3x1, ondancentron 2x1, artesunate 0;12;24;36, goldrion oral medication 1x1, comvit C 1x1, sunbathing education and exercise light every morning at 09.00 for 15-30 minutes, giving green bean porridge every morning and evening, giving 1 can of bear milk every afternoon, observing

mother's vital signs, reducing contact/bites of *Anopheles* mosquitoes by using mosquito nets and mosquito repellent, recommend eating and drinking healthy enough, recommend adequate rest.

In principle, malaria treatment in pregnant women is the same as treatment for other adults. Primaquine, tetracycline or doxycycline are not given to pregnant women. Treatment of falciparum malaria and vivax malaria in pregnant women in the I-III trimester (0-9 months) at the Puskesmas/Clinic Care or Hospital with intravenous Artesunate is the main choice. If not available, quinine drip can be given. Artesunate packaging and administration Parenteral artesunate is available in vials containing 60 mg dry powder of artesunic acid and solvent in ampoules containing 5% sodium bicarbonate. The two are mixed to make 1 ml of sodium artesunate solution. Then it was diluted with 5% Dextrose or 5 ml NaCL 0.9% to obtain a concentration of 60 mg/6ml (10mg/ml). The drug is given as a slow bolus. Artesunate is given at a dose of 2.4 mg/kg body weight intravenously 3 times in 0, 12, 24 hours on the first day. Subsequently, 2.4 mg/kg body weight was given intravenously every 24 hours a day until the patient was able to take oral medication (Kemenkes, 2017).

In the prevention of malaria, namely reducing the contact/bite of the *Anopheles* mosquito by using mosquito nets and mosquito repellent, encourage adequate eating and drinking, and encourage adequate rest. Prevention efforts for malaria include reducing the habit of being out of the house until late at night, carrying out environmental sanitation activities, using mosquito nets, using household insecticides, using repellents, using closed clothes, installing wire nets on doors and windows. (Alami and Adriyani, 2016).

Pharmacological interventions commonly given related to COVID-19 in pregnancy include antiviral therapy (remdesivir, lopinavir/ritonavir), antibiotics, corticosteroids (dexamethasone, betamethasone), thromboembolic (low molecular weight heparin/LMWH), and immunomodulators (convalescent plasma, tocilizumab, immunoglobulin). G, etc.) (Fatmawati, 2021). Guidelines for handling COVID-19 based on the severity of the disease, namely if asymptomatic, mild symptoms, aged <70 years without risk factors, namely clinical observation and supportive therapy. Mild symptoms, aged >70 years with risk factors and symptoms of fever, cough, shortness of breath, and x-rays showing pneumonia: LPV/r 200 mg/50 mg, 2 x 2 tablets per day; or Darunavir/ritonavir (DRV/r) 800 mg/100 mg, 1 x 1 tablet per day; or Darunavir/cobicistat 800 mg/150 mg, 1 x 1 tablet per day; AND chloroquine phosphate 2 x 500 mg/day or hydroxychloroquine (HCQ) 2 x 200 mg/day. Therapy is given for 5-20 days based on clinical changes (Susilo *et al.*, 2020). The handling of COVID-19 in these patients is clinical observation and supportive therapy because the patient does not show symptoms of Covid-19. In addition, continue to apply the Covid health protocol in providing treatment.

Besides being given drug therapy, they were also given education on sunbathing and light exercise every morning at 09.00 for 15-30 minutes, giving green bean porridge every morning and evening, giving 1 can of bear milk every afternoon, observing the mother's vital signs. According to Gonzalez et al, in Maulana in 2021, by basking in the morning sun, especially before 10:00 am, Vitamin D is obtained which can increase calcium and phosphorus levels in the body, maintain muscle and nerve function, and increase endurance or the body's immune system in controlling the body's immune system. fight infection. According to Alsary 2020 research, sunlight can maintain the health condition of Covid-19 patients so that they have a chance to recover from this disease (Maulana *et al.*, 2021). In addition to sunbathing in the morning to increase immunity by doing clean life such as getting used to washing hands.

Prevention efforts against COVID-19 are to break the chain of transmission by isolation, early detection, and basic protection such as maintaining hygiene, washing hands, disinfecting (Susilo *et al.*, 2020).

Treatment of malaria in adult COVID-19 patients including pregnant women is as follows, if symptoms of mild Covid-19 with malaria infection are given Chloroquine/hydroxychloroquine, azithromycin, piperazine (one of the components of the DHP drug) and primaquine can prolong the QTc interval, therefore it is necessary to do this ECG examination to see the QTc interval before being given for treatment. If the results of the ECG examination obtained  $QTc > 500$  ms, then the administration of DHP is not allowed to be replaced with artesunate injection for 7 days. If the results of the ECG examination with  $QTc > 500$  ms, then oral DHP is given for malaria treatment. If the patient with COVID-19 does not undergo an EKG examination and receives chloroquine/hydroxychloroquine and azithromycin, for the treatment of malaria, oral DHP is not given, but artesunate is injected for 7 days. Primaquine administration was postponed until the patient's condition improved and Covid-19 treatment was completed. If malaria complications occur, the patient is referred to the hospital. If the symptoms of COVID-19 are moderate and the symptoms are severe with malaria infection, then the malaria drug is given using artesunate injection for 7 days. And for malaria sufferers with COVID-19, primaquine administration is postponed until the patient's condition improves and Covid-19 treatment is completed (Ditjen P2P, 2020). It is important for pregnant women to take medication as one of the steps to minimize the worsening of the condition that arises. The drug chloroquine is the right option for the treatment of coronavirus infections in pregnant women. Chloroquine therapy does not cause serious side effects in pregnant women and newborns (Hidayah, Indriani and Rahmatika, 2021).

### Conclusion and Suggestion

Malaria in pregnancy accompanied by COVID-19 is a serious problem considering its effects on the mother and fetus, if not treated quickly and appropriately, malaria can increase maternal and neonatal mortality. Malaria causes complications such as anemia, organomegaly, cerebral malaria, pulmonary edema and sepsis. In addition, it can cause problems for the fetus such as low birth weight, abortion, IUFD and IUGR. Covid-19 in pregnant women can cause symptoms of pneumonia in pregnant women and can cause fetal complications, namely miscarriage, IUGR, and premature birth. Chloroquine is still the drug of choice for the treatment of malaria accompanied by symptoms of COVID-19 in pregnancy. Malaria prevention is to reduce contact/bite by Anopheles mosquitoes by using mosquito nets and mosquito repellent, encourage adequate eating and drinking, and encourage adequate rest. Prevention efforts against COVID-19 are to break the chain of transmission by isolation, early detection, and basic protection such as maintaining hygiene, washing hands, disinfecting.

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# **PROTEIN CONTENT AND ACCEPTABILITY OF NUTRIENT DENSE NOODLES BASED ON LOCAL FOOD AS AN ALTERNATIVE TO EMERGENCY FOOD**

**Irma Eva Yani<sup>1</sup>, Vinny Pratiwi<sup>2</sup>, Marni Handayani<sup>3</sup>**

**Health Polytechnic Padang Ministry of Health, Department of Nutrition  
Jalan Simpang Pondok Kopi, Siteba, Padang**

## **ABSTRACT**

Noodles are foods that are accepted by all levels of society, including adults and children. There are various types of noodles, one of which is wet noodles. Wet noodles are high in carbohydrates, but low in protein. Noodles that are usually sold in the market require 8.4 grams of additional protein to comply with SNI, which is a minimum of 9.0 grams of protein in 100 grams of wet noodles. So it is necessary to add dried rebon shrimp flour as a protein source. The purpose of the study was to determine the protein content and acceptability of wet noodles substituted with dried rebon shrimp flour. The type of research is experimental research in the field of food technology with a completely randomized design (CRD) one control, three treatments, two repetitions. Test of protein content in the Baristand Padang laboratory and acceptance test at SDN 10 Surau Gadang. The study was conducted from March 2020 to April 2021. The best treatment was obtained by organoleptic testing. The results of the organoleptic test obtained the best treatment with a ratio of 75:25 grams, 8.1% protein content and as much as 80% of the target can spend the product. It is recommended to do a acceptability test after a laboratory test, as well as conduct a food safety test.

*Keywords: Noodles ; Rebon Shrimp ; Protein ; Acceptance*

## **Introduction**

In Indonesia, especially children, they are still experiencing a double burden of nutrition, namely at the same time some children are malnutrition and some are overweight. Malnutrition problems include Protein Energy Lack, Anemia, Vitamin A Deficiency and Disorders Due to Lack of Iodine.(1)

Based on data from the Basic Health Research (Riskesdas) in 2018 the nutritional status of children aged 5-12 years in Indonesia with indicators of TB/U with very short and short categories of 6.7% and 16.9%, nutritional status according to BMI/U indicators with very thin and thin categories as much as 2.4% and 6.8%, while children with fat and obese categories as much as 10.8% and 9.2%.(2)

School children are still experiencing a period of growth and development, so they need adequate and balanced food consumption. One component of balanced nutrition for school children that must be met is the consumption of diverse foods, which contain carbohydrates, protein, fat, water, vitamins, minerals and fiber.(1)

School-age children spend more time on activities at school with various school activities that are quite dense, so that there is a natural increase in appetite.(3) Snacking habits in children are fun activities and of course difficult to avoid, especially when

children are at school age.(4) With frequent snacking will result in school children not being able to finish the portion of food available at home, which in turn can affect the nutritional status of the child.(5)

According to the 2019 Nutritional Adequacy Rate for the 10-12 year age group, snacks should contribute 200 and 190 kcal of energy, 5 and 5.5 grams of protein, 6.5 grams of fat, and 30 and 28 grams of carbohydrates for boys. and girls.(6)

Currently, noodles are one of the foods that are highly accepted by all levels of society. Its fans are not limited to adults, but also children.(7) In addition to being filling, noodle dishes are also relatively inexpensive, practical, have a flavor that is not boring and are of various types.(8)

There are various types of noodles sold in the market, one of which is wetnoodles. Based on data from the Indonesian Food Security Directory 2019, the consumption of wet noodles by the Indonesian population in 2017 increased from 1.83 kg/cap/year in 2016 to 1.89 kg/cap/year in 2017.(9)

The habit of consuming ready-to-eat noodles without additional vegetables and protein becomes inappropriate because not all nutritional needs are met. The results of Ratnasari's research (2012), which saw a description of the habit of consuming instant noodles in children aged 7-12 years, found that 50 subjects (62.5%) consumed instant noodles without the addition of other food ingredients.(3)

According to Mahmud et al (2018) in the Indonesian Food Composition Table, 100 g of wet noodles contain 88 kcal of energy, 0.6 g of protein, 3.3 g of fat, 14.0 g of carbohydrates, 14.0 g of calcium, 13.0 g mg phosphorus, 0.8 mg iron, and 80 g water.(10) Based on the quality standard of wet noodles by the National Standardization Agency (2015)(11) the requirement for raw wet noodles in 100 grams contains a minimum of 9 grams of protein. The protein content in wet noodles currently circulating does not match the standard wet noodles with a protein gap of 8.4 grams.

Considering that wet noodles are dominated by flour, where the carbohydrate content is very high, but low in other nutrients, it is necessary to increase the nutrients. One of the minimal nutrients contained in wet noodles is protein. So it is necessary to add other food ingredients that contain high protein into the noodles. One of the high protein sources of food is rebon shrimp.

The protein content of dried rebon shrimp is higher than eggs and meat. In 100 gram of dried rebon shrimp contains 299 kcal of energy, 59.4 gram of protein, 3.6 gram of fat, 3.2 carbohydrates, 2306 mg of calcium, 625 mg of phosphorus, 21.4 mg of iron, and 0.06 mg of vitamin B1.(10) In Rollinda (2019) the nutritional value of rebon shrimp flour 100 g contains 427.14 kcal of energy, 84.85 g of protein, 5.14 g of fat, 4.57 g of carbohydrates, and 30.57 mg of iron.(12)

Dried rebon shrimp is one of the abundant and easily available aquatic products, and the price is relatively cheap. Based on data from the Central Statistics Agency, the production of shrimp species in Indonesia in 2017 was 400.07 tons, and shrimp production in West Sumatra was 21.43 tons.(13) Meanwhile, shrimp consumption by the Indonesian people in 2018 increased to 0.67 kg/cap/year, which in 2013 was 0.62 kg/cap/year, and 0.54 kg/cap/year in 2014.(9)

Dried rebon shrimp contains 15 types of amino acids, 10 of which are essential amino acids, and 5 others are non-essential amino acids that the body needs, as stated by Madan (2018) in his research.(14) So with the addition of dried rebon shrimp into wet noodles, will be able to increase the nutritional value in particular protein and other micro minerals such as calcium, phosphorus, and iron.

In a previous study, conducted by Mukhtia Helfina (2014) who examined the substitution of anchovy flour on the organoleptic quality and protein content of wet

noodles, it was found that the protein content of wet noodles produced was 22.52% or 28.1 grams.(15) Candra and Hafni (2018) by adding eel meat to the manufacture of wet noodles, the highest protein content was 5.57%.(16)

The purpose of this study was to determine the protein content and acceptability of wet noodles substituted with dry rebon shrimp flour in wheat flour.

## Methods

This research is experimental research in the field of food technology with a completely randomized design (CRD) with one control, three treatments, and two repetitions. This research was conducted from March 2020 to April 2021. The research was conducted at the Laboratory of Baristand Padang and SDN 10 Surau Gadang.

### A. Tools and Materials

The main ingredients used in making wet noodles are Cakra Kembar wheat flour, dried rebon shrimp flour, chicken eggs, baking soda, salt, water, and cooking oil.

The materials used for the organoleptic test were one control sample, three treatment samples, panelist approval letter, organoleptic test form and mineral water.

The tools used for making wet noodles are a basin, stove, spatula pan, blender, 60 mesh flour sieve, digital scale, spoon, napkin, ampia knife, stew pan, plate, bowl, and spoon. The tools used for the organoleptic test were 6A size mica plastic, snack plates and label paper.

### B. Procedure

#### 1. Making Dry Rebon Shrimp Flour

The process of making modified dried rebon shrimp flour from Rollinda Radianti (2019)(12) is:

- a. Dry rebon prawns are cleaned and washed with water so that sand and other impurities can be removed.
- b. Then the shrimp are drained to reduce the water content and roasted over medium heat for
- c. Cool briefly until the hot steam is gone.
- d. Smoothing using a blender, then the flour is sifted with a 60 mesh sieve.

#### 2. Making Wet Noodles Treatment

- a. Ingredients are prepared and weighed
- b. Mixing wheat flour, dry rebon shrimp flour, baking soda, salt, chicken eggs and water into a dough.
- c. Knead the dough.
- d. Rest the dough for 30 minutes and cover with a clean napkin
- e. After 30 minutes the dough is divided into smaller portions.
- f. Then the dough is thinned with ampia to a thickness of 5 mm, and molded into noodles.
- g. Boil with boiling water for 2 minutes with the addition of 1 tablespoon of cooking oil so that the dough does not stick.
- h. Draining and watering by flowing.



## Results And Discussion

### A. Best Treatment

The best treatment for the 4 treatments of wet noodles was obtained from the results of the organoleptic quality test.

**Table 1. Average Panelist Acceptance Value of Organoleptic Quality**

	F1	F2	F3	F4
Color	3.380	2.680	2.860	2.780
Scent	3.280	2.580	2.660	2.800
Flavor	3.040	2.600	2.760	2.660
Texture	3.260	2.960	3.060	2.780
Total	12.96	10,82	11.34	11.02
Average	3.24	2.705	2.835	2.755

The average level of panelist acceptance of the color, scent, flavor, and texture of wet noodles is in the “like” category. The best treatment was found in wet noodlessubstituted with dry rebon shrimp flour as much as 25 grams, with a slightly brownish yellow color, the distinctive scent of rebon prawns was rather strong, the distinctive flavor of rebon prawns was rather strong, and the texture of the noodles was slightly chewy.

Different things were found in research conducted by Riska Van Gobel et al (2016) regarding the formulation of rebon shrimp cookies in terms of flavor, texture, color, and scent. The treatment with the highest average preferred by panelists was treatment with rebon shrimp flour substitution, as much as 10%, with a brown color, a very fragrant scent specifically for rebon prawns, a very savory flavor, and a dry and compact texture.(17)

Research by Nuraini Khodijah et al (2020) is in line with Riska's research, which is about the effect of variations in mixing rebon shrimp flour on sticks in terms of physical properties, organoleptic properties, and protein content was 30 grams. The panelists' preference level decreases along with the higher mixing of rebon shrimp flour.(18)

This is different from the results obtained in this wet noodle study, that the panellists' preference for wet noodles substituted with dry rebon shrimp flour increased to 25 grams of substitution treatment and fell back to 27.5 grams of substitution treatment.

### B. Protein content

**Table 2. Protein Content of Wet Noodles in 100 grams**

Perlakuan	Kadar Protein (%)
F1 (control)	4,6
F3 (best)	8,1

Table 2 shows an increase in protein content of 3.5% wet noodles with 25 gram dry rebon shrimp flour substitution compared to wet noodles without substitution of dry rebon shrimp flour.

Testing on protein content was carried out on the control treatment and the best treatment, which aimed to see the effect of the substitution of dry rebon shrimp flour on the protein content of wet noodles. After testing at the Baristand Padang Laboratory, it was found that the protein content of wet noodles substituted with dry rebon shrimp flour was 8.1%, while the wet noodles without treatment (control) contained 4.6% protein content. So there was an increase in protein content in wet noodles substituted with dry rebon shrimp flour by 3.5%.

Based on calculations using the Nutrisurvey application program, 100 grams of raw wet noodles are expected to contain 12.6% protein, and protein in untreated wet noodles (control) contains 5.28%, with an increase of 7.28%. Different things were found in the results of the protein content test at the Baristand Padang Laboratory, where there was a decrease in protein content of 1%- 4% in cooked wet noodles.

The decrease in protein content occurred due to protein damage during the processing. In the manufacture of wet noodles, there is a process of roasting the rebon shrimp for 10 minutes before turning it into flour, and a process of heating the wet noodles while boiling in boiling water for 2 minutes to ripen the wet noodles.

Boiling can reduce protein levels in foodstuffs because processing using high temperatures will cause protein denaturation so that coagulation occurs and reduces solubility. The reaction that occurs when heating the protein can damage the condition of the protein, resulting in decreased protein levels.(19)

So, when calculating the nutritional value of raw material protein, it should be increased by 25% or about 3 grams, so that the nutritional value of cooked wet noodle protein can meet the target needs later even though it has been processed. Because in this study, the best treatment for wet noodles for the acceptability test contained a protein content of 8.1% in 100 grams, meaning that it only met 77% of the target protein adequacy.

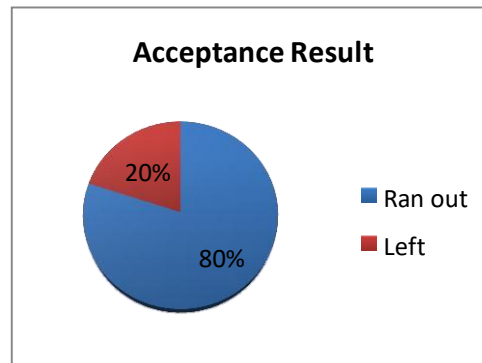
This study is in line with research conducted by Nuraini Khodijah et al (2020) about the effect of variations in mixing rebon shrimp flour on sticks. There is an effect of protein content on stick products, namely mixing 30% rebon shrimp flour contains 9.7% protein content. While the protein content of the control treatment was 6.3%.(18)

### **C. Acceptance Target**

An acceptability test of wet noodles substituted with dry rebon shrimp flour was carried out on children at Elementary School 10 in Surau Gadang, Nanggalo. Observations were made on 30 students in grades V and VI, with an average age of 10 -12 years. Giving wet noodles substituted with dry rebon shrimp flour is the best treatment, namely F3 treatment with substitution of wheat flour and dry rebon shrimp flour as much as 75 grams : 25 grams.

For the acceptability test, wet noodles were processed into fried noodles, which were given as much as 1 portion weighing 50 grams to meet 10% of the protein snack needs of children aged 10 - 12 years. Nutrisurvey's calculation of fried noodles substituted with rebon shrimp flour in the best treatment found an energy content of 121.9 kcal, 6.28 grams of protein, 5.64 grams of fat, and 11.36 grams of carbohydrates. The results of the acceptability test of wet noodles with the substitution of dried rebon shrimp flour from 30 students are as follows:

**Diagram 1. Acceptance Test Results Substitution of Dry Rebon Shrimp Flour for Wet Noodles**



The results of the acceptability test showed that 50 grams of wet noodles substituted with dry rebon shrimp flour could be consumed by 80% of the target, meaning that it could be accepted as a snack food. In addition, according to the target, this product has a savory flavor and a delicious scent.

Based on the calculation of the nutritional value of the protein content test results at the Baritand Padang Laboratory, 65 grams of wet noodles should be given for girls and 70 grams for boys so that the protein needs for snacks for both boys and girls aged 10 -12 years can be met.

The target acceptance test should be carried out after the results of the protein content test are obtained so that when calculating the nutritional value of protein, it can refer to the results of laboratory tests to meet the nutritional needs of the target. This is a weakness in this study, which uses the nutritional value of Nutrisurvey to calculate the acceptability test.

## **Conclusion and Suggestion**

### **A. Conclusion**

Wet noodles substituted with dry rebon shrimp flour had a protein content of 4.6%, and the best treatment had a protein content of 8.1%, with a 3.5% increase per gram of protein. Acceptability of wet noodles substituted with dry rebon shrimp flour, the best treatment can be accepted by school children. So this noodle can be used as an alternative to emergency food for school children.

### **B. Suggestion**

1. In making wet noodles, substitution of dry rebon shrimp flour should be done using a formulation of 25 grams of dry rebon shrimp flour substitution.
2. An acceptance test should be carried out after laboratory test results are obtained to formulate the calculation of proper protein nutritional value.
3. We recommend to giving a 65 grams of wet noodles to girls and 70 grams to boys so that the protein needs for snacks for both boys and girls aged 10 -12 years can be fulfilled.

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**RELATIONSHIP BETWEEN EARLY BREASTFEEDING  
COMPLEMENTARY FOODS AND MOTHER'S KNOWLEDGE  
OF TODDLER NUTRITION WITH STUNTING INCIDENCE AT  
THE IKUR KOTO COMMUNITY HEALTH CENTER,  
PADANG CITY**

**Lisma Evareny 1, Sri Wahyuni 2, Endrinaldi<sup>3</sup>**

<sup>1</sup> Health Ministry Polytechnic Of Padang

<sup>2</sup> Undergraduate Midwifery Program Faculty Of Medicine Andalas University

<sup>3</sup> Undergraduate Program in Midwifery, Faculty Of Medicine Andalas University

**ABSTRACT**

**Background:** *Stunting* (short body) is long-term outcomes of nutrient deficiencies with height according to age less than -2 SD (Standard Deviation) below the median length. Which has an impact on motor and sensory developmental disorders and decreased quality of life. The purpose of this study was to determine the relationship of early breastfeeding supplementation and the level of maternal knowledge about nutrition of toddlers aged 24-36 months to *stunting* at the Ikur Koto Community Health Center, Padang City.

**Methods:** This research is a quantitative study with design *cross sectional*, carried out in the work area of the Ikur Koto Community Health Center from January 2019 to August 2019. The sample in this study was mothers who had children aged 24-36 months as many as 80 people. Mothers as respondents were interviewed directly using a questionnaire. The incidence of *stunting* in children is measured by TB / U indicators and interpreted with *software* WHO-anthro. Univariate and bivariate data analysis using analysis *chi-square* ( $p \leq 0.05$ ).

**The results** showed the percentage of *stunting* was 42.5%. The results of bivariate analysis showed that there was a relationship between early MP-ASI ( $p = 0.001$ ; OR = 8,680; CI = 2,320-32,476) and maternal nutritional knowledge ( $p = 0.001$ ; OR = 23,864; CI = 6,879-82,789) with *stunting* in children. age 24-36 months.

**Conclusion:** There is a significant relationship between early breastfeeding supplementary nutrition and maternal nutrition knowledge and the incidence of *stunting* in children aged 24-36 months.

**Suggestions:** It is expected that efforts to prevent stunting focused in the first 1000 days of life are preventive efforts in detecting stunting events.

**KEYWORD**

*Stunting*, early breastfeeding, maternal nutrition knowledge

**CORRESPONDENCE**

E-mail: [lismaevareny@gmail.com](mailto:lismaevareny@gmail.com)



## I. INTRODUCTION

*Stunting* (short) is one of the nutritional problems in the world (WHO-UNICEF The World Bank, 2017). *Stunting* is a result of chronic malnutrition that occurs within the first 1000 days of a child's life (Bloem, 2013). Children under five years old are said to be *stunting* if they have been measured length by age (PB / U) or height by age (TB / U) then compared to the standard WHO-MGRS (*Multicentre Growth Reference Study*) and the results are below -2 Standard Deviations (SD) (UNICEF, 2013).

In 2016, an estimated children under five suffering from *stunting* in the world as much as 22.9% (155juta) (WHO, 2017). Around 22.2% or around 150.8 million children under five in the world experienced *stunting* in 2017 (Ministry of Health Republic of Indonesia, 2018). About 55% of children *stunting* are from Asia, while more than a third (39%) live in Africa.

Based on the proportion of toddlers *stunting* in Asia in 2017, the rate *stunting* in South Asia was 58.7%, East Asia 4.8%, West Asia 4.2%, Central Asia 0.9% and Southeast Asia 14.9%. In Southeast Asia Regional, the five prevalence sequences *stunting* highest in 2005-2017 were Timor Leste (50.2%), India (38.4%), Bangladesh (36.1%), Nepal (35.8%) and Indonesia (36.4%) (RI Ministry of Health, 2018). In Indonesia, the country with the fifth highest prevalence of *stunting* is around 37% (nearly 9 million) children under five are stunted (TNP2K, 2017).

In Indonesia's health profile in 2017, there were 23,848,283 toddlers in Indonesia, 29.6% of whom were toddlers *stunting*. It is known from the total percentage, 19.80% of short children and 9.80% of toddlers are very short. The prevalence of *stunting* in 2017 has increased from 2016 which is 27, 5% (Ministry of Health Republic of Indonesia, 2018).

From the results of the Basic Health Research (Riskesmas) in 2018, nationally the proportion of nutritional status is very short and short in toddlers in 2018 is 30.8%. The highest prevalence of *stunting* in children aged 0-59 months in 2017 is East Nusa Tenggara while the lowest prevalence is Bali (Ministry of Health, 2018). According to data from the Ministry of Health, in West Sumatra the number of children *stunted* is 30.6%. Percentage of children aged 0-59 months according to nutritional status with the West Sumatra TB / U index in 2016-2017 is 21.30% short toddlers and 9.30% toddlers very short (Ministry of Health, 2018).

According to Nutrition Status Monitoring (PSG) data. The prevalence of *stunting* in 2016 was 25.6% in children under 5 years old consisting of 6.7% very short and 18.9% short. The prevalence *stunting* highest was in Pasaman Regency which was 37% and the lowest in Sawahlunto City was 7.5%, while Padang City had a prevalence *stunting* of 21.1%.

Data from the Padang City Health Office showed that the highest prevalence of short and very short toddlers in the TB / U category in Padang in 2017 was Pauh Health Center which was 32% (96 people) and in 2018 in the work area of the Ikur Koto Health Center which was 35.1% (115). Ikur Koto Health Center also experienced an increase, where in 2017 the prevalence of *stunting* was 25%, while the prevalence *stunting* lowest was in the working area of Alai Health Center which was 1.8%.

*Stunting* has short-term and long-term effects. Short term such as increasing morbidity and death, motor and sensory developmental disorders, while long term such as decreased quality of life, health and economy, while reduced cognitive ability and mental development are also other effects on children *stunted* (WHO, 2014).

Factors that influence *stunting* are divided into 2 factors, namely direct and indirect factors. Direct factors are food intake and infectious diseases, while indirect factors are knowledge about nutrition, parental education, parental income, early breastfeeding, and family size (Supariasa *et al*, 2002). Factors affecting *stunting* are influenced by family and household factors (marital factors and environmental factors), breastfeeding (late early

breastfeeding initiation and non- exclusive breastfeeding) and infection, namely diarrhea (WHO, 2014).

Based on research conducted by Picauly and Toy in 2013 in the city of Kupang, children *stunting* in general have a lack of learning achievement in the amount of 41.18% and each decrease in nutritional status according to age (TB / U) of children by 1 elementary school, the learning achievement children will decrease by 0.444 (Picauly and Toy, 2013). Children who experience *stunting* in the first 2 years after birth will cause health problems, low achievement in school and increase degenerative diseases (Bloem, 2013).

*Stunting* can be prevented through infant feeding focused on the first 1000 days of life (Ministry of Health, 2016). Based on the results of the study, optimal feeding can prevent mortality in infants of about 13% (WHO, 2019). Feeding infants aged 0-6 is enough with Breast Milk (ASI) without any additional (exclusive breastfeeding). Starting at the age of 6 months, it is permissible to give complementary food but still accompanied by breastfeeding until the age of 2 years (WHO, 2013).

Providing appropriate ingredients and food for toddlers in an effort to improve nutritional status will be realized if the mother has a good level of nutritional knowledge (Lestariningsih, 2000). Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahmien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences the attitude and behavior of mothers in choosing food ingredients, which further influences the family's nutritional state (Suhardjo, 2003). The level of mother's knowledge about nutrition is very important in improving the nutritional status of her child. Starting from determining, selecting, processing to presenting a daily nutritional menu (Ministry of Health, Republic of Indonesia, 2007). Based on the results of Ni'mah's research (2015) there is a significant relationship between the level of maternal nutrition knowledge and the incidence of *stunting*.

Based on a preliminary study conducted by researchers at the Ikur Koto Health Center, where from 10 respondents found 4 children stunted and 6 other children have normal height. From interviews with parents, it was found that 5 out of 10 mothers had given food other than breast milk to their children before the age of 6 months. then 6 out of 10 parents also still lack nutritional knowledge.

Based on the explanation above, the researcher is interested in researching the Early Breastfeeding Supplementary Food and the Level of Mother's Knowledge of Toddler Nutrition Age 24-36 Months Against *Stunting* Relationship of at the Ikur Koto Community Health Center, Padang City

## II. METHODS

This study was an analytic study with a design *cross-sectional*. The study was conducted from February to September 2019. The population of the study was all children 24-36 months in the Ikur Koto Health Center as many as 363 people. The study sample was children aged 24-36 months in the Ikur Koto Health Center who met the inclusion criteria and were not included in the exclusion criteria as many as 80 people. Mothers as respondents were interviewed directly using a questionnaire. Height in children is measured by the indicator TB / U by using a height gauge (*Microtoise*) with the accuracy of 0.1 cm. and interpreted with *software* WHO-anthro. Data processing was performed by test *chi-square* ( $p \leq 0.05$ ) using SPSS software.



### III. RESULTS

#### Univariate Analysis

##### Mother Characteristics

**Table 1. Frequency distribution of maternal characteristics according to age, education, occupation of mothers and maternal height in the Work Area of the Ikur Koto Health Center.**

No	Characteristics	f	%
1	Mother's age		
	- <20 years	0	0
	- 20-29 years	28	35.0
	- 30-39 years	44	55.0
	- ≥40 years	8	10.0
2	Mother's education		
	- Never attended school / Not graduated from elementary school	0	0
	- Complete primary / MI / equivalent	0	0
	- SLS graduation / equivalent	6	7.5
	- SLS SLTA / equivalent	58	72.5
	- SL graduated PT / equivalent	16	20.0
3	Mother's job		
	- CivilCivil	4	5.0
	- ServantsServants PrivatePrivate	0	0
	- Entrepreneurs	2	2.5
	- Housewiveshousewives	72	90.0
	- Other(specify):	2	2.5
4.	Mother's height		
	- <145 cm	0	0
	- 146-155 cm	50	62.5
	- 156-165 cm	30	37.5

Table 1. Shows that the majority of mothers are located in the 30-39 years age group. Most of the mothers had the highest education graduated from high school / equivalent, amounting to 72.5% (58 people). The majority of unemployed mothers / housewives is 90.0% (72 people). And most maternal height is in the range 146-155 (62.5%).

**Table 2. Mean maternal age and height of mothers of children aged 24-36 months in Puskesmas Ikur field Koto**

No	Variable	Mean ± SD	Minimum-maksimal
1.	CapitalAge	31.53 ± 5.190	22- 46
2.	High maternal body	154.56 ±	3.897 148-165

Table 2 shows that the average age of the mother is 31.53 years. The minimum age of the mother in this study was 22 years and the maximum age of 46 years. The average maternal body weight was 154.56 cm and the minimum height of the mother in this study was 148 cm and maximum height was 165 cm.

### Characteristics of Children

**Gambar 1. Characteristics of children by sex in the Work Area of the Ikur Health Center.**

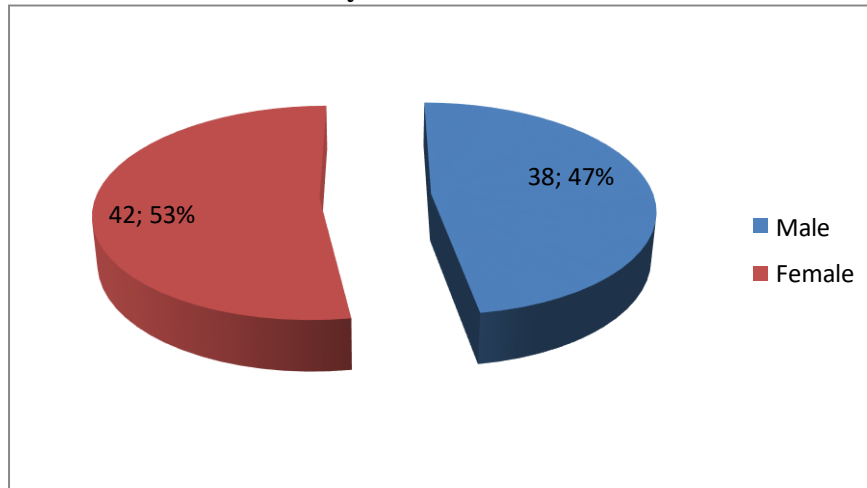


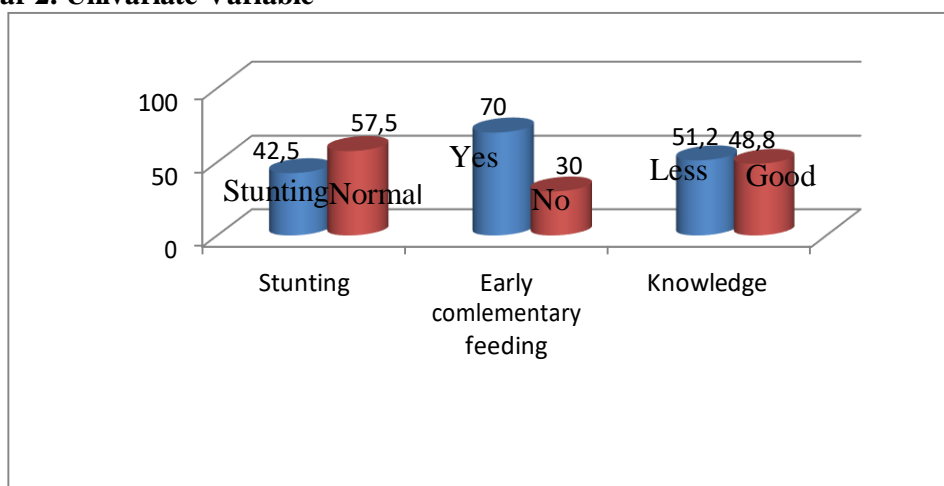
Table 3. shows more than half of the children who were respondents of the study were generally female.

**Table 3. Average Age, Height, and Z-Score TB / U of Children Age 24-36 Months in the Work Area of the Ikur Helath Center**

Variable	Mean	SD $\pm$
Age of Child (month)	29.45	4.263
Height of Child Body	85.99	5.343
<b>Z-Score Child</b>	<b>-1.5664</b>	<b>1.03859</b>

Table 3. above shows that the average age of children is 29.45 months, while the average height of children aged 24-36 months is 85.99 cm and the average Z -Score TB / U is -1.5664.

**Gambar 2. Univariate Variable**



Based on table 5. above it can be seen that 42.5% of children aged 24-36 months stunted in the work area of the Ikur Koto Padang Health Center. Above it can be seen that from 80 respondents 56 mothers (70.0%) provide Complementary Early Breastfeeding Feeding (MP-

ASI) at her child. It can be seen that from 80 respondents 41 mothers (51.2%) have less knowledge.

### Bivariate Analysis

**Table 4. Giving Relationship Complementary feeding (solids) Early Genesis *Stunting* in children aged 24-36 months**

MPAS I	Levels <i>Stunting</i>				Total	OR (95% CI)	<i>p</i> - valu e
	<i>Stunting</i>	Normal					
Early		f%	f%		f%		
Yes	31	55.4	25	44.6	56	100.0	8,680 (2,320-32,476) 0,001
No	3	12,5	21	87.5	24	100.0	
<b>Total</b>	34	42,5	46	57.5	80	100.0	

Based on table 4. Can be concluded that *stunting* was most common in mothers giving MP-ASI early to their children (55.4%) compared to mothers who did not give MP-ASI early to their children (12.5%). Statistical test results using *Chi-Square* obtained  $p = 0.001$  ( $p \leq 0.05$ ). Based on these results it can be concluded that there is a significant relationship between Early complementary feeding (MP-Early Breastfeeding) and Occurrence *Stunting* Complementary Feeding children aged 24-36 Months in the working area of Ikur Koto Padang Health Center.

**Table 5. Relationship of mother's level of knowledge about nutrition of children under five to the incidence of *stunting* in children aged 24-36 months**

mother's knowledge	level of <i>stunting</i>				Total		OR (95% CI)	<i>p-value</i>
	<i>Stunting</i>		Normal					
		%		%	F	%		
Less	3	73.2	1	26,8	4	100.0	23,864	0.001
	0		1					
Good	4	10.3	3	89.7	3	100.0	(6,879- 82,789)	
			5					
<b>Total</b>	3		4		8			
	4	42.5	6	57.5	0	100.0		

Based on table 9. It can be concluded that the events *stunting* most frequently occurred in mothers who have poor knowledge (73.2%) compared to mothers who have good knowledge (10.3%). Statistical test results using the test *Chi-Square* obtained the value of  $p = 0,000$  ( $p < 0,005$ ). Based on these results it is known that there is a significant relationship between levels of knowledge Relations mother about nutrition with Genesis *Stunting* in children aged 24-36 months

### Multivariate Analysis

**Table 6. Multivariate logistic regression analysis**

Variable	B	SE	Wald	d f	value P	OR	95% CI	
							Min	Max
Knowledge maternal nutritional	2,961	0,6 55	20,408	1	0,000	19,31 2	5,345	69,77 3
Early complementary feeding	1,722	0,7 82	4,856	1	0,028	5,597	1,210	25,89 4

Table 10. Based on knowledge of nutrition can be seen that the mother is found to significantly most associated with the incidence of *stunting* with  $p = 0.000$  by the *odds ratio* 19.312 which meaning that mothers who have less nutritional knowledge have a risk of 19,312 times the child experiences *stunting* and compared with good nutrition knowledge of mothers (95% CI 5,345-69,773)

## IV. DISCUSSION

### Events *Stunting*

In this study showed that the incidence of *stunting* in children aged 24-36 months in the working area of the Ikur Koto Community Health Center is 42.5% and the percentage of children who are m have normal height is 57.5%. When compared with the percentage of *stunting* globally the 2017 data is 22.2% and the national data in 2018 is 30.8%, higher than the percentage of *stunting* in West Sumatra in 2016-2017 which is 30.6% (Ministry of Health RI, 2013 ; Riskesdas, 2018; Ministry of Health Republic of Indonesia, 2018). And the percentage of *stunting* in Padang city in 2017 was Pauh Health Center which was 32% and in 2018 in the work area of Ikur Koto Health Center which was 35.1% (et al, 2017-2018). This might be due to the relatively wide area coverage in data collection in the survey *stunting* globally, nationally, and the 2018 riskesdas data.

The results of this study, the number of events *stunting* in the working area of the Ikur Koto Health Center is lower when compared to the percentage of research results conducted by

Oktarina and Sudiarti (2013) in Sumatra at 44.1%, lower than the results of research found in East Nusa Tenggara Province at 51.7% (Ministry of Health Republic of Indonesia, 2013a) and lower than the research conducted by Ibrahim and Faramita (2014) in the working area of the Makassar City Barombong Public Health Center in 2014 with a problem *stunting* of 54.7%.

The high percentage of events *stunting* in this study can be caused by improper feeding practices, where the nutrition given in the first 2 years by the mother to the child does not match her age. Based on research conducted on children aged 6-24 months in Penanggalan Subulussalam district, Aceh province, showed that non-exclusive breastfeeding, premature feeding of MP-ASI and feeding practices that did not contribute to the incidence of *stunting* respectively 74.5% , 74.5% and 63.7% (Lestari *et al*, 2014). Providing complementary foods too early can result in infants experiencing more frequent diarrhea disorders, this is because the way of preparing unclean foods and the formation of anti-intestinal substances by infants is not perfect (Molika 2014).

According to research conducted by Ni'mah (2015), the factors associated with the incidence of *stunting* in infants are the length of the body of birth of infants, history of exclusive breastfeeding, family income, family education, and mother's nutritional knowledge of *stunting* in infants. Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahmien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences the attitude and behavior of mothers in choosing food ingredients, which further influences the family's nutritional state (Suhardjo, 2003).

*Stunting* can occur due to malnutrition, especially on 1000 HPK (First Day of Life) (Ministry of Health, 2018). The incidence of *stunting* can be influenced by educational factors, where most of the mothers namely 76.3% have secondary education (high school or equivalent) and 17.5% have higher education (graduated diploma, undergraduate and master's degree). The better the mother's education, the better the mother's knowledge about child nutrition and will prevent the occurrence of *stunting* (Pormes, *et al.*, 2014

### **Early complementary feeding (MP-ASI)**

The results of this study indicate that more than half of mothers (70%) provide complementary feeding early for children (<6 months) in the Work Area of the Ikur Koto Padang Health Center. Early breastfeeding complementary foods (MPASI) are supplementary foods given to babies at less than 6 months of age other than breast milk (Prawesti, 2016).

The results of this study are in line with research conducted by Arie Nungroho (2016) in Tanjung Karang Barat Subdistrict, Bandar Lampung City which states that more than half of mothers (53.3%) provide early breastfeeding complementary food to children aged (<6 months). The results of another study conducted by Dwi Puji Khasanah (2018) in Sedayu Subdistrict, more than half (56.8%) showed the time of complementary feeding (MPASI) associated with the incidence of *stunting* of children aged 6-23 months.

ASI complementary foods (MPASI) are foods or drinks that contain nutrients that are given to infants or children aged 6-24 months, to meet nutritional needs other than (ASI). MPASI is a food transition from breast milk to family food. The introduction and administration of MP-ASI should be done in stages both in form and amount, according to the ability of the baby (Mufida, 2015).

Based on this study the provision of MP-ASI given early by mothers to their children is still high (70%). Most of the mothers who give early MPASI to their children are due to the child being fussy (hungry), and the mother feels that the ingredients are not enough.

### **Level of Mother's Knowledge about toddler nutrition**

The results of the study showed that more than half (51.2%) of mothers had poor knowledge of mother's knowledge about toddler nutrition. The results of this study are in line with research conducted by Khoirun Ni'mah (2015) which states that more than half (61.8%) of mothers have low nutritional knowledge.

According to research conducted by Agus (2008) mother's knowledge about nutrition is one of the factors that influence the nutritional status of children. Mother's knowledge about nutrition will affect the way mothers choose food according to the correct nutritional rules and present it to children.

Knowledge is the result of knowing someone after sensing a particular object. Every human being has a different level of knowledge, the higher the level of one's knowledge, the higher the ability of the individual to make an assessment of a material or object, where this assessment is the basis for forming one's actions (Notoadmojo, 2010). Knowledge is a very important factor in shaping the actions of someone who is very instrumental in determining the attitude to be taken (Notoadmodjo, 2012).

The results of the questionnaire on the knowledge of mothers about toddler nutrition is known that more than half do not know how many MP-ASI are given to infants 12-24 months, most mothers answer many MPASI given according to the wishes of the baby or child.

### **Bivariate Analysis**

#### **Relationship of Early complementary feeding (MP-ASI) to the incidence of stunting in children aged 24-36 months**

Bivariate test results in this study indicate that respondents who experience stunting are more likely to occur due to early complementary feeding (MP-ASI) (<6 months) (55.4%) The reason mothers give early complementary foods (MP-ASI) to babies is because the child is fussy (hungry), and the mother feels that her milk is not enough. and the mother provides complementary feeding (MP-ASI) early such as bananas, biscuits, and water. Compared to complementary feeding (MPASI)> 6 months (12.5%). Based on statistical tests obtained  $p$  value  $\leq 0.05$  (Complementary  $p = 0.001$ ) meaning that there is a significant relationship between Early BreastfeedingFoods (MP-ASI Early) andEvents *Stunting* in children aged 24-36 Months in the Work Area of the Ikur Koto Padang Health Center.

The results of this study are in line with research conducted by Dwi Puji Khasanah (2016) in Sedayu District, which shows that there is a significant relationship between early breastfeeding) and stunting with the result of  $p$  value supplementation (MPASI $\leq 0.05$  ( $p = 0.002$ ). The results of this study are also in line with research conducted by Aridiyah et al (2015), in which there is a relationship between the first age of giving MP-ASI with the incidence of stunting. Children under five who are given exclusive breastfeeding and MP-ASI according to their needs by reducing the risk of stunting. This is because at the age of 0-6 months toddlers who provide exclusive breastfeeding which can form immunity or immunity for toddlers so they can avoid infectious diseases. After that, at the age of 6 months children under five are given MP-ASI in sufficient quantities and frequencies so that children under five are fulfilled their nutritional needs which can reduce the risk of stunting.

#### **The Relationship Between Mother's Knowledge Level of Toddler Nutrition toIncidence *Stunting* in Children aged 24-36 Months**

Bivariate test results in this study showed that respondents who experienced stunting were in the category of poor knowledge (73.2%) than mothers with good knowledge ( 10.3%). Based on statistical tests obtained  $p$  value  $\leq 0.05$  ( $p = 0,000$ ) meaning that there is a significant relationship between Mother's Knowledge about toddler nutrition and the incidence of *Stunting* in children aged 24-36 Months in the working area of Koto ikur puskesmas.

The results of this study are in line with research (Afriyanti, 2015) that there is a significant relationship between maternal knowledge about nutrition and the incidence of *stunting* obtained  $p \leq 0.05$  ( $p = 0.01$ ). This study is also in line with the research of Ismanto et al (2014), there is a significant or significant relationship between parents' knowledge about nutrition and stunting.

The provision of appropriate ingredients and diet for toddlers in an effort to improve nutritional status will be realized if the mother has a good level of nutritional knowledge (Lestariningsih, 2000). Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahmien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences attitudes and behaviors in choosing food ingredients, which will further affect the nutritional situation of her family (Suhardjo, 2003).

The analysis also found that there was a stunting of as much as 10.3% in mothers with good nutritional knowledge. The incidence of stunting in these cases can be caused by other factors, such as research in Manado (2014) about the relationship of parental knowledge about nutrition with *stunting* in children, found that the incidence of *stunting* but parental knowledge about good nutrition is influenced by factors such as the distance of the child too close, family income, diseases such as infection, diarrhea, etc. (Pormes, 2014)

### **Multivariate Analysis**

Based on the results of the study it can be seen that maternal nutritional knowledge is proven to be most significantly related to the incidence of stunting with a value of  $p = 0,000$  with an *odds ratio* of 19,312 which means mothers who have lack of nutritional knowledge has a risk of 19,312 times the child stunting and compared with good maternal nutrition knowledge (95% CI 5,345-69,773).

The reason why mother's nutritional knowledge is related to the incidence of stunting is related to the way and attitude of mothers in choosing food. Mother's knowledge about nutrition will affect the way mothers choose food according to the correct rules of nutrition and present it to children (Agus 2008). Ignorance of information about nutrition can cause a lack of quality or nutritional quality of family food, especially food consumed by infants (Sjahmien, 2003). One cause of nutritional disorders is a lack of nutritional knowledge and one's ability to apply information about nutrition in daily life. The level of mother's nutritional knowledge influences attitudes and behaviors in choosing food ingredients, which will further affect the nutritional situation of her family (Suhardjo, 2003). Therefore, low maternal nutritional knowledge increases the chances of a child experiencing stunting.

### **V. CONCLUSION**

Conclusions of research are: there is a relationship between complementary feeding (MP-ASI) early on the occurrence of *stunting*; There is a relationship between the level of mother's knowledge about toddler nutrition in the event of *stunting*. Based on the results of the study it can be seen that maternal nutritional knowledge is proven to be most significantly related to the incidence of stunting with a value of  $p = 0,000$  with an *odds ratio* of 19,312 which means mothers who have lack of nutritional knowledge has a risk of 19,312 times the child stunting and compared with good maternal nutrition knowledge (95% CI 5,345-69,773).

### **VI. RECOMMENDATIONS**

It is expected that efforts to prevent stunting focused in the first 1000 days of life are preventive efforts in detecting stunting events.

## VII. ACKNOWLEDGMENTS

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# **Efektifitas Buklet Edukasi pada Ibu Hamil dengan Hiperemesis Grafidarium terhadap Kadar Gula Darah Sewaktu di wilayah kerja puskesmas Belimbing Padang**

**Metri Lidya, Wiwi sartika**

Health Polytechnic Padang Ministry of Health, Department of Nursing  
Jalan Simpang Pondok Kopi, Siteba, Padang

## **ABSTRACT**

Pregnancy is a reproductive process that needs special care in order to achieve safe and good delivery, giving birth to a healthy baby in hopes of lowering baby and mother mortality. Gravidarium hyperemesis is excessive nausea and vomiting that leads to fluid and electrolyte deficiencies, weight loss, acetonuria, and nutritional deficiencies. This feeling of nausea is caused by increased levels of the hormones estrogen and Chorionic Gonadotropin Hormone (HCG) in serum reduced gastric changes (Ministry of Health, 2013). One of the predisposing factors associated with the increased risk of morning sickness and physiological hyperemesis is not yet clear, and the central nervous system or emptying of gravidarium is gestational diabetes mellitus aimed at knowing the effectiveness of booklet-based education in mothers with hyperemesis Grafidarium to temporary blood sugar levels in Kuranji village in the working area of Public health center Belimbing Padang.

The type of research is a Pre – Eksperimental Design with the One - Group Pretest and Posttest Design. Analyzing the Application of Booklet-Based Education Model in Pregnant Women with Grafidarium Hyperemesis on temporary Blood Sugar Levels in Kuranji Village Padang.

Data is processed by editing, coding, entering, cleaning and analyzed by univariate and bivariate . More than half (55%) of pregnant women experienced moderate levels of hyperemesis, and 65% of blood sugar levels of pregnant women with hyperemesis were in abnormal conditions before given the booklet education. Most (70%) of pregnant women's blood sugar levels are within normal limits after given the educational booklets. Bivariate analysis showed that educational booklet about hyperemesis has an influence on the blood sugar levels of pregnant women in the working area of The Belimbing public Health Center.

**Keywords:** Pregnancy, Hyperemesis Gravidarium, temporary Blood sugar levels

## **INTRODUCTION**

Tercapainya persalinan yang aman dan baik dalam melahirkan bayi yang sehat merupakan harapan setiap ibu hamil. Kehamilan dimulai dari ovulasi sampai partus yang lamanya sekitar 280 hari (40 minggu). (Fitrina, 2014). Terjadi akibat kadar hormon estrogen, progesteron dan Human Chorionic Gonadotropin (HCG) yang meningkat dalam darah menyebabkan otot polos pada sistem gastrointestinal mengalami relaksasi sehingga motilitas lambung menurun dan pengosongan lambung melambat. Refluks esofagus, dan penurunan sekresi asam hidroklorid juga berkontribusi terhadap terjadinya mual dan muntah.

Mual dan muntah yang ringan merupakan hal yang sering terjadi dan merupakan keadaan yang normal pada awal masa kehamilan. apabila terjadi secara berlebihan, maka akan dampak pada patologi.

Hiperemesis Gravidarum adalah mual dan muntah yang berlebihan yang menyebabkan kekurangan cairan dan elektrolit, penurunan berat badan, asetonuria, dan kekurangan nutrisi dan ini dialami 50% sampai 80% wanita hamil, terjadi hanya pada rata-rata 1% sampai 2% kehamilan (Reeder, Martin & Koniak-Griffin, 2015), di seluruh dunia dengan angka kejadian dari 1-3% , di Indonesia, 0,3% Prevalensi adalah 0,5-2% , perbandingan insidensi secara umum adalah 4:1000 kehamilan. Keluhan mual dan muntah terjadi pada 60-80% primigravida dan 40-60% multigravida.

Salah satu factor predisposisi yang berhubungan dengan meningkatnya resiko *morning sickness* dan hiperemesis fisiologis kenaikan hormon ini adalah diabetes Mellitus Gestasional adalah kehamilan normal yang disertai dengan peningkatan *insulin resistance* (ibu hamil gagal mempertahankan *euglycemia*). Pada golongan ini, kondisi diabetes dialami sementara selama masa kehamilan. Artinya kondisi intoleransi glukosa pertama kali didapati selama masa kehamilan. Komplikasinya yaitu hipoglikemi yang merupakan salah satu keadaan yang memperberat ibu hamil trimester I terutama pada saat hiperemesis gravidarum (Manuaba, 2013) , kadar glukosa akan turun antara 55-65% dan hal ini merupakan respon terhadap transportasi glukosa dari ibu ke janin. (Manuaba, 2013) , menyebabkan penurunan nafsu makan, kurangnya asupan gizi untuk wanita hamil karena segala yang dimakan dan diminum dimuntahkan semua sehingga tekanan darah menjadi turun serta kadar gula darah sewaktu menurun dan dapat meyebabkan anemia dan hipoglikemi dapat menyebabkan perdarahan kemudian syok dan keadaan yang lebih buruk adalah kematian pada ibu.

Hal ini disebabkan oleh pengetahuan ibu yang masih minim mengenai hiperemesis gravidarum terutama dalam hal tatalaksana awal sehingga ibu beresiko mengalami keluhan ini (Fitriana, 2014) .Buklet merupakan salah satu cara untuk meningkatkan pengetahuan berisi materi-materi hiperemesis gravidarum sebagai panduan yang sangat bermanfaat bagi ibu hamil dengan kondisi ini.dan juga digunakan untuk panduan sehari-hari (Contento,2010).

Wilayah kerja Puskesmas Belimbing Padang, terdapat sebanyak 240 pasien Hiperemesis Gravidarum yang dirujuk ke Rumah sakit yang ada di kota Padang. Tiap tahun mengalami peningkatan yaitu sebanyak 248 pasien yang dirujuk ke Rumah sakit yang ada di kota Padang Data dari registrasi 3 bulan terakhir Puskesmas Belimbing Padang tercatat sebanyak 61 pasien Hiperemesis Gravidarum yang di rujuk ke Rumah sakit yang ada di kota

Padang. Pasien Hiperemesis Gravidarum yang dirawat kebanyakan tingkat II (Sedang) dan tingkat III (Berat).

Berdasarkan latar belakang diatas, maka kami melakukan penelitian tentang Efektifitas Buklet Edukasi pada Ibu Hamil dengan Hiperemesis Grafidarum terhadap Kadar Gula Darah Sewaktu . Tujuannya untuk mengetahui efektifitas Buklet Edukasi pada Ibu Hamil dengan Hiperemesis Grafidarum terhadap Kadar Gula Darah Sewaktu di Kelurahan Kuranji di Wilayah Kerja Puskesmas Belimbing Padang tahun 2018. Manfaat dari penelitian ini adalah Meningkatkan pengetahuan tentang hiperemesis gravidarum terhadap kadar gula darah sewaktu sehingga dapat meningkatkan derajat kesehatan yang lebih baik , Memberikan buklet untuk dibaca oleh pasien ibu hamil trimester 1, untuk arahan bagi pasien yang berkunjung ke Puskesmas , institusi atau tempat penelitian tentang hubungan kadar gula darah sewaktu pada ibu hamil dengan hiperemesis gravidarum di kelurahan Kuranji Belimbing Padang sehingga lebih mudah dalam menjalankan program kegiatan institusi.

## **METODE PENELITIAN**

Jenis penelitian yang digunakan yaitu Pre - Eksperiment Desain. Desain , One -Group Pretest - Posttest Design menganalisis Efektifitas Buklet Edukasi pada Ibu Hamil dengan Hiperemesis Grafidarum terhadap Kadar Gula Darah Sewaktu di wilayah kerja puskesmas Belimbing Padang

Populasi dari penelitian ini adalah semua pasien ibu hamil trimester 1 dan **Sampel** nya adalah pasien ibu hamil trimester 1 yang didiagnosa dengan hiperemesis gravidarum yang berjumlah 20 orang. Teknik pengambilan sampel dilakukan secara *Purposive Sampling*.

Metode pengumpulan data untuk jumlah pasien ibu hamil trimester 1 dan data ibu dengan hiperemesis gravidarum didapatkan melalui data medis dari Kelurahan Kuranji Padang. Data kadar gula darah sewaktu didapatkan melalui pemeriksaan kadar gula darah sewaktu pada ibu hamil trimester 1 dengan hiperemesis gravidarum yang datang untuk memeriksakan diri dan dikelompokkan berdasarkan kadar Gula darah sewaktu untuk mendapatkan data distribusi yang akan disajikan dalam bentuk tabel.

Pengolahan data akan dilakukan secara komputerisasi dengan tahap-tahap *Editing*, *Coding*, *Entry*, *Cleaning*, data yang terkumpul diolah dengan menggunakan Komputer dianalisa secara univariat dan bivariat menggunakan *T-Test* .. Hasil analisis dikatakan bermakna jika nilai  $p < \alpha$  dan dikatakan tidak bermakna jika  $p > \alpha$  dengan nilai  $\alpha = 0,05$

## HASIL PENELITIAN

Telah dilakukan penelitian sebanyak 20 orang sampel yang telah memenuhi kriteria yang telah ditentukan.

### Analisis Univariat

Berdasarkan hasil penelitian, distribusi frekuensi klasifikasi ibu hamil mengalami hiperemesis gravidarum dengan Model Edukasi Berbasis Buklet di Wilayah Kerja Puskesmas Belimbing Padang Tahun 2018. dapat dilihat pada Tabel di bawah ini :

#### 1. Klasifikasi ibu hamil

Tabel 1  
Distribusi Frekuensi klasifikasi ibu hamil yang Di mengalami Hiperemesis grafidarum

ibu hamil	Frequency	%
Ringan	7	35
Sedang	12	55
Berat	2	10
<b>Total</b>	<b>20</b>	<b>100,0</b>

Berdasarkan tabel di atas dapat dilihat bahwa sebagian besar (55 %) ibu hamil mengalami hiperemesis tingkat sedang

#### 2. Pengetahuan ibu hamil sebelum edukasi

Tabel 2  
Distribusi Frekuensi Tingkat Pengetahuan ibu hamil yang mengalami Hiperemesis grafidarum

Tingkat pengetahuan ibu	Frequency	%
Rendah	11	55,0
Sedang	3	15,0
Tinggi	6	30,0
<b>Total</b>	<b>20</b>	<b>100,0</b>

Berdasarkan tabel di atas dapat dilihat bahwa lebih dari separoh (55,0 %) tingkat pengetahuan ibu hamil yang mengalami Hiperemesis gravidarum rendah

### 3. Sikap Ibu hamil sebelum edukasi

Tabel 3

Distribusi Frekuensi Sikap ibu hamil yang mengalami Hiperemesis gravidarum sebelum edukasi buklet Di Wilayah Kerja Puskesmas Belimbing Padang Tahun 2018

Sikap ibu hamil	frekuensi	%
Negatif	13	65,0
Positif	7	35,0
<b>Total</b>	<b>20</b>	<b>100,0</b>

Berdasarkan tabel di atas dapat dilihat bahwa lebih dari separoh (65,0 % ) sikap responden yaitu negatif

### 4. Pengetahuan ibu hamil setelah edukasi

**Tabel 4.**

Distribusi Frekuensi Tingkat Pengetahuan ibu hamil yang mengalami Hiperemesis gravidarum setelah edukasi

Tingkat pengetahuan ibu	Frequency	%
Rendah	5	25,0
Sedang	2	15,0
Tinggi	13	65,0
<b>Total</b>	<b>20</b>	<b>100,0</b>

Berdasarkan tabel di atas dapat dilihat bahwa lebih dari separoh (65,0 %) tingkat pengetahuan ibu hamil yang mengalami Hiperemesis gravidarum tinggi

### 5. Sikap Ibu hamil setelah edukasi

Tabel 5.

Distribusi Frekuensi Sikap ibu hamil yang mengalami Hiperemesis gravidarum setelah edukasi buklet

Sikap ibu hamil	frekuensi	%
Negatif	8	40,0
Positif	12	60,0
<b>Total</b>	<b>20</b>	<b>100,0</b>

Berdasarkan tabel di atas dapat dilihat bahwa lebih dari separoh (65,0 % ) sikap responden yaitu negatif

## 6. Kadar gula darah ibu hamil sebelum edukasi

Tabel 6.

Distribusi Frekuensi sebelum pemberian Model Edukasi BerbasisBuklet tentang hiperemesis grafidarum

No	Kadar gula darah	Jumlah (n)	Persentase (%)
1.	Normal	7	35
2.	Tidak normal	13	65
Jumlah	20	100	

Pada Tabel 6 sebelum edukasi didapatkan sebagian besar atau sebanyak 13 orang (65 %) kadar gula darah ibu hamil dengan hiperemesis berada dalam kondisi tidak normal

Kadar gula darah ibu hamil setelah edukasi buklet

Tabel 7.

Distribusi Frekuensi Kadar gula darah ibu hamil dengan hiperemesis grafidarum Setelah pelaksanaan edukasi buklet

No	Kadar gula darah	Jumlah (n)	Persentase (%)
1.	Normal	14	70
2.	Tidak normal	6	30
Jumlah	20	100	

Pada tabel 7 didapatkan sebagian besar sebanyak 14 orang ( 70 % ) kadar gula darah ibu hamil dalam batas normal setelah pemberian edukasi buklet

## Analisa Bivariat

Tabel 8

Distribusi Rata-Rata Kadar gula darah ibu hamil dengan hiperemesis grafidarum

Variabel	Mean	SD	SE	P Value	N
Kadar gula darah		0,004		20	
Pengukuran I	121,75		16,108	3,602	
Pengukuran II	114,45		11,399	2,549	

Pada tabel 8 didapati rata-rata kadar gula darah pada pengukuran pertama adalah 121,75 mg/dl dengan standar deviasi 16,108 mg/dl. Pada pengukuran kedua didapat rata-rata kadar gula



darah adalah 114,45 mg/dl dengan standar deviasi 11,399 mg/dl. Terlihat nilai mean perbedaan antara pengukuran pertama dan kedua adalah 7,3 mg/dl dengan standar deviasi 10,01mg/dl. Hasil uji statistik didapatkan nilai p value 0,004 maka ada perbedaan yang signifikan antara kadar gula darah pengukuran pertama dan kedua. Dapat disimpulkan ada pengaruh terhadap kadar gula darah ibu hamil yang menderita hiperemesis gravidarum di wilayah kerja puskesmas belimbing padang .

## **PEMBAHASAN**

### **Univariat .**

Hasil penelitian didapatkan bahwa Ibu hamil pada awal kehamilan sebagian besar mengalami hiperemesis sedang , pengetahuan ibu hamil dapat dilihat bahwa (55,0 %) rendah ,sikap ibu hamil negative (65,0 %) . Kadar gula darah sebelum pemberian Model Edukasi Berbasis Buklet sebagian besar 13 orang (65 %) kondisi tidak normal , pengetahuan ibu hamil sesudah edukasi bahwa (65,0 %) tinggi , sikap ibu hamil positif (60,0 %) .

Setelah pelaksanaan edukasi buklet didapatkan sebagian besar atau sebanyak 14 orang ( 70 % ) kadar gula darah ibu hamil dalam batas normal . Pengetahuan merupakan hasil dari tahu, dan ini terjadi setelah orang melakukan penginderaan terhadap suatu objek tertentu. Penginderaan terjadi melalui indera penglihatan, pendengaran, penciuman, rasa dan perabaan. Pengetahuan kognitif merupakan dominan yang sangat penting dalam membentuk tindakan .( Notoadmodjo, 2014 : 139 ).

Pengetahuan yang dimiliki seseorang akan mempengaruhi cara berfikir orang tersebut, dimana seseorang yang memiliki tingkat pengetahuan yang tinggi mengenai hiperemesis gravidarum, mereka mau melaksanakan pemeriksaan kadar gula darah dan aktif dalam mendengarkan edukasi baik dari Puskesmas atau tenaga kesehatan lainnya, sedangkan ibu-ibu yang rendah pengetahuannya tidak mau mengikuti edukasi dan pemeriksaan kadar gula darah.

Sikap merupakan reaksi atau respons seseorang yang masih tertutup terhadap suatu stimulus atau objek dan sikap itu tidak dapat langsung dilihat, tetapi hanya dapat ditafsirkan terlebih dahulu dari perilaku yang tertutup. Dalam kehidupan sehari-hari sikap merupakan reaksi yang bersifat emosional terhadap stimulasi sosial (Notoatmodjo, 20014 :130 ).

Perilaku merupakan faktor terbesar kedua setelah faktor lingkungan yang mempengaruhi kesehatan individu, kelompok atau masyarakat. Green dalam Notoatmodjo (2005 : 130) menyatakan bahwa faktor-faktor yang mempengaruhi perilaku adalah faktor predisposisi

(*predisposing facto* ) merupakan faktor dasar motivasi untuk bertindak meliputi : sikap, keyakinan, persepsi, pengetahuan dan lainnya, faktor pemungkin (*enabling factor*) merupakan faktor yang memungkinkan suatu motivasi pelaksana yang meliputi ketersediaan sarana SDM dan pelayanan kesehatan dan faktor penguat (*reforcing factor*) merupakan faktor yang memperkuat perubahan perilaku seseorang meliputi dukungan keluarga, ekonomi, personal petugas kesehatan, atasan dan lainnya.

#### Analisa Bivariat

Rata-rata kadar gula darah pada pengukuran pertama adalah 121,75 mg/dl dengan standar deviasi 16,108 mg/dl. Pada pengukuran kedua didapat rata-rata kadar gula darah adalah 114,45 mg/dl dengan standar deviasi 11,399 mg/dl. Terlihat nilai mean perbedaan antara pengukuran pertama dan kedua adalah 7,3 mg/dl dengan standar deviasi 10,01mg/dl. Hasil uji statistik didapatkan nilai p value 0,004 maka ada perbedaan yang signifikan antara kadar gula darah pengukuran pertama dan kedua. Dapat disimpulkan ada pengaruh terhadap kadar gula darah ibu hamil yang menderita hiperemesis gravidarum di wilayah kerja puskesmas belimbing padang tahun 2018.

Sebelum dilakukan edukasi buklet maka didapatkan sebagian besar 13 orang (65 %) kadar gula darah ibu hamil dengan hiperemesis berada dalam kondisi tidak normal sedangkan 7 orang (35 % ) berada dalam kondisi normal. Setelah pemberian edukasi buklet sebagian besar 14 orang ( 70 % ) kadar gula darah ibu hamil dalam batas normal sedangkan 6 orang ( 30 % ) dalam kondisi tidak normal .

Hal ini membuktikan terdapat perbedaan nilai antara kadar gula darah ibu hamil dengan kondisi hiperemesis sebelum dan sesudah pemberian edukasi buklet dan sesuai dengan teori yang menyatakan bahwa Perasaan mual ini disebabkan oleh meningkatnya kadar hormon estrogen dan Hormon Chorionic Gonadotropin (HCG) dalam serum perubahan lambung yang berkurang (Depkes RI, 2013).

Penyuluhan konvensional di Posyandu hanya memberikan suatu materi melalui ceramah. Padahal itu semua tidak cukup, sehingga perlu ditambah upaya lain seperti memberikan suatu media edukasi seperti buklet. Pendidikan diharapkan akan lebih efektif jika ditambah dengan media pendidikan. Buklet yang diberikan berisi materi-materi hiperemesis gravidarum dari berbagai sumber pustaka sebagai panduan saat penyuluhan berlangsung dan juga digunakan untuk panduan sehari-hari (Contento,2010)

## KESIMPULAN DAN SARAN

Hasil uji statistik didapatkan nilai p value 0,004 maka ada perbedaan yang signifikan antara kadar gula darah pengukuran pertama dan kedua sehingga ada pengaruh terhadap kadar gula darah ibu hamil yang menderita hiperemesis gravidarum sebelum dan sesudah dilakukan edukasi buklet, semoga dapat dijadikan panduan untuk menurunkan kadar gula darah ibu hamil.

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# **THE EFFECTIVENESS OF USING THE INDEX CARD MATCH METHOD TO INCREASING THE ABILITY OF RECOGNITION OF PRACTICUM TOOLS IN THE MIDWIFE LABORATORY IN LEVEL I MIDWIFE STUDENTS**

**Mirna Wigunarti<sup>1</sup> ; Rizki Rahmawati<sup>2</sup>**

<sup>1,2</sup> Midwifery Departement Poltekkes Kemenkes Sorong ; Indonesia  
[mirnawigunarti@gmail.com](mailto:mirnawigunarti@gmail.com)

## **ABSTRACT**

The process of a midwife to become a competent person begins with taking midwifery education at a midwife education institution. Preliminary study obtained data that students could not name the laboratory equipment and its functions correctly. The results of interviews with students obtained data so far in learning the introduction of laboratory practicum tools using the lecture method. The research was carried out in May-August 2021 and is a quasi-experimental research with a non-equivalent control group design. The research sample was taken using accidental sampling technique totaling 32 respondents who were divided into the intervention group and the control group. The intervention group was given the Index Card Match method and the control group was given the lecture method. Comparison of the effectiveness of the two methods was tested by independent t-test on the value of N-Gain. The result of the research is that there is a difference between Index card match and lecture in improving the ability to recognize laboratory equipment. Based on the N-Gain analysis, the results of the lecture method are less effective and the Index Card Match method is quite effective in increasing the ability to recognize laboratory equipment in students. Index card match is more effective in improving the ability to recognize laboratory equipment compared to the lecture method.

**Keywords:** *Index Card Match, Laboratory, Midwife*

## **Introduction**

Long-term direction of Indonesia's 2005-2025 development is to improve the quality of human resources, because basically the key to successful development will be determined by the quality of human resources (Bappenas, 2005). Efforts to improve the quality of human resources can be done through education. Education is able to make human resources of high quality. Health services are very dependent on health workers. Health workers are also closely related to the health education they receive.

One of the health problems in Indonesia is the Maternal Mortality Rate (MMR) and the Infant Mortality Rate (IMR), which are still quite high. Based on the Inter-Census Population Survey (SUPAS), the Maternal Mortality Rate (MMR) is around 305 per 1000 live births. Health workers, especially midwives, play an important role in reducing the MMR and IMR rates. Midwives are the spearhead of service providers to the community, so in their services they are required to provide fast, precise, excellent, quality and standardized services so that improving the quality of midwives is absolutely necessary.

The quality of midwifery services is influenced by the competencies possessed by midwives. The process of a midwife to become a competent person begins with taking midwifery education at a midwife education institution. Midwife education institutions need to develop an effective and efficient learning strategy to improve the competence of their

graduates. (Kodiyah et al., 2017). The structure of the midwifery education program in vocational education contains 40% theory and 60% practice. Practical learning aims to give students a learning experience in terms of applying theory as training material and preparation for the application of clinical practice, bringing students to the formation of attitudes, skills, ability to work together, and creativity in receiving knowledge. (Kodiyah et al., 2017)

Practical activities in midwifery education are carried out in the laboratory. Before carrying out practical activities in accordance with the demands of skills that must be met, midwifery students are first equipped with training activities for the introduction of laboratory equipment. The introduction of laboratory equipment aims to provide knowledge to students about the names and functions of tools and how to use the tools properly and correctly so as to minimize procedures for using tools and equipment damage due to improper use. The introduction of laboratory equipment is needed to support work safety in the practicum process. The use of laboratory equipment that is not in accordance with procedures has the potential to cause harm and damage.

The Manokwari D-III Midwifery Study Program Laboratory during 2019 recorded a total of 40 practicum visits. A total of 12 practicums were carried out by level I students. The introduction of the names of tools, functions and workings of practicum equipment at the Manokwari D-III Midwifery Study Program used conventional methods (lectures accompanied by explanations). The weakness of the lecture method is that it is boring and students tend to be passive. A preliminary study that was conducted on 12 level I students of the Manokwari D-III Midwifery Study Program, it was found that 7 students could not correctly name the tools and their functions. The results of interviews with students obtained data so far in learning the introduction of laboratory practicum tools using the lecture method. The available practicum tools have not met the student ratio if there is a simulation practicum that directly involves many students and often students are considered to understand and understand the material presented.

The solution to this problem is to provide material for introducing practical tools in the laboratory using the method *Index Card Match*. *Index Card Match* is a type of active learning that is done by looking for pairs of answer cards or questions while learning about a concept or topic in a pleasant atmosphere (Silberman, 2006). There is an element of play in this method so as to minimize student boredom and create a pleasant learning climate.

The purpose of this study is to evaluate the effectiveness of *Index Card Match* as a learning method in introducing practical tools in the midwifery laboratory.

The method *Index Card Match* uses index cards (*Index Cards*) as the delivery medium. According to Astuti (2019), the advantage of the method is *Index Card Match* that it increases students' understanding of the material being taught. Making index card media does not take long and the costs incurred are more efficient so that researchers are interested in using this method as a way to improve the ability to recognize laboratory equipment for level I students.

### **Methods (Times New Roman 12 pt Bold)**

The study was conducted in May-August 2021 in the Laboratory of Midwifery Study Program D-III Manokwari Poltekkes Ministry of Health Sorong and was a quasi-experimental study with a non-equivalent control group design. The research sample was taken using accidental sampling technique totaling 32 respondents who were divided into the intervention group and the control group. The intervention group was given treatment with the introduction of laboratory equipment using the method, *Index Card Match* while the control group was given treatment using the lecture method and an explanation of the introduction of laboratory equipment using the help of power point (PPT). The research

instrument used a questionnaire to measure student's ability to identify laboratory equipment, a questionnaire on learning motivation and learning achievement. The analysis used is bivariate analysis using *paired sample t-test* and *independent t-test*.

## Result and Discussion

### Result

#### Distribution of Respondents Frequency based on Learning Achievement and Learning Motivation in the Intervention Group and Control Group

**Table 1.1 Distribution of Respondents Frequency based on Learning Achievement and Learning Motivation**

Charateristics of Variable	Intervention Group		Control Group	
	Frequency	%	Frequency	%
<b>Learning Achievement</b>				
Very good	2	13	5	31
Good	9	56	7	44
Less	1	6	4	25
Very poor	4	25	0	0
	N	%	n	%
<b>Learning motivation</b>				
Very good	0	0	2	13
Good	8	50	10	63
Fairly Good	6	38	3	19

*Primary Data Source, 2021*

Based on table 1.1, it can be shown that respondents in the intervention group based on learning achievement the most, namely good learning achievement as many as 9 respondents (56%), and in the control group learning achievement the most, namely good learning achievement as many as 7 respondents (44%). Respondents in the intervention group based on motivation to learn the most, namely those who have good learning motivation as many as 8 respondents (50%), and in the control group the level of motivation to learn the most, namely good learning motivation as many as 10 respondents (63%).

#### Normality Test Results Variable Capability Introduction Laboratory Equipment in intervention group and control group

**Table 1.2 Normality Test Results Variable**

Variable/Group	n	Treatment	P value
<b>Intervention</b>	16	Before Treatment	0,58
		After Treatment	0,60
<b>Control</b>	16	Before Treatment	0,59
		After Treatment	0,83

*The results of the Shapiro-Wilk normality test, significant > 0.05*

Table 1.2 shows that the significant value of normality of data before and after treatment in the intervention group and control group is  $> 0.05$  which means that the variance of data on the ability to recognize laboratory equipment before treatment in the intervention group and control group both before and after being given treatment is normally distributed so that the bivariate analysis using parametric *paired sample t test* and *independent t test*.

### Differences in Recognition Ability of Laboratory Equipment Before and After Treatment in the Intervention Group and the Control Group

**Tabel 1.3 Differences in Recognition Ability of Laboratory Equipment Before and After Treatment in the Intervention Group and the Control Group**

Recognition Ability of Laboratory Instruments					
Variable/Group	n	Mean	SD	Selisih rerata	p- value
Intervention Group					
Before Intervention	16	37,5	6,3	37,5	0,000
After Intervention		75,0	8,6		
Control Group					
Before Intervention	16	37,2	8,4	25,6	0,000
After Intervention		62,8	9,8		

*Significant P value <0.05 Paired T- test*

Table 1.3 shows the results that in the intervention group the average ability to recognize laboratory equipment before being given an intervention was 37.5 and after being given an intervention it increased to 75.0 while in the control group the ability to recognize laboratory equipment before being given an intervention was 37.2 and after being given an intervention there was an increase to 62.8 with the same p-value,  $0.00 < 0.05$ , which means that there are differences in the ability to recognize laboratory equipment before and after both the intervention group and the control group.

### Differences in Recognition of Laboratory Equipment After Treatment in the Intervention Group and Control Group

**Table 1.4 Differences in Recognition of Laboratory Equipment After Treatment in the Intervention Group and Control Group**

Recognition Ability of Laboratory Instruments				
Variable	Mean	SD	Mean Difference	p-value
Intervention Group	75,0	8,6	12,2	0,01
Control Group	62,8	9,8		

*Significant P value  $\leq 0.05$  Independent Test*

Table 1.4 shows the results that the average ability to recognize laboratory equipment after being given treatment in the intervention group is 75, 0 while in the control group the average was 62.8 with a mean difference of 12.2 and  $p\text{-value} = 0.01$ , which means that there is a significant difference in the ability to recognize laboratory equipment between the intervention and control groups.

**Table 1.5 Results of Calculation of N-Gain Score**

No	<u>Intervention Group</u>	No	<u>Control Group</u>
	<u>N-Gain Score (%)</u>		<u>N-Gain Score (%)</u>
Average	60,6	Average	41,1

Minimum	38	Minimum	27
Maximum	80	Maximum	64

*Primary Data Sources, 2021*

Table 1.5 shows that the average *N-Gain score* for the intervention group (Method *Index Card Match*) is 60.6% and is included in the quite effective category with an *N-Gain score* of at least 38% and a maximum of 80%. Meanwhile, the mean *N-Gain score* for the control group (conventional method with lectures and PPT slides) is 41.1% and is included in the less effective category with an *N-Gain score* of at least 27% and a maximum of 64%.

**Table 1.6 Differences in N-Gain Score in the Intervention Group and the Control Group**

Recognition Ability of Laboratory Instruments				
Variable	Mean	SD	Mean Difference	<i>p-value</i>
Intervention Group	60,6	11,5	19,5	0,00
Control Group	41,1	11,7		

*Significant P value ≤ 0.05 NGain Independent Test*

Table 1.6 shows that the mean *N-Gain score* for the intervention group (Index Card Match Method) is 60.6%. Based on the category table for the interpretation of the effectiveness of the *N-Gain value* (%) according to Hake (1999), it can be concluded that the use of the *index card match* method is quite effective as a method of introducing laboratory equipment. Meanwhile, the mean *N-Gain score* for the control group (conventional method with lectures and PPT slides) is 41.1%. Based on the category table for the interpretation of the effectiveness of the *N-Gain value* (%) according to Hake (1999), it can be concluded that the use of conventional methods is less effective as a method of introducing laboratory equipment.

Based on table 1.5, it is known that the *p-value* is  $0.00 < 0.05$ . Thus, it can be concluded that there is a significant difference in effectiveness between the use of the *Index Card Match* method and the conventional method to improve the ability to recognize laboratory equipment in first-level students in the D-III Study Program. Manokwari Midwifery Poltekkes Ministry of Health Sorong.

## Discussions

This research was conducted on 32 level I students of the Manokwari D-III Midwifery Study Program which were divided into an intervention group and control group with 16 students in each group. The intervention group was given the introduction of laboratory equipment using the an *index card match* method, while the control group was given the introduction of laboratory equipment using the lecture method. The control and intervention groups were given treatment once per week for 4 weeks with a duration of 60 minutes. Pre-test was given before the treatment started and post-test was given at the end of the study.

The ability to recognize laboratory equipment in students before being given treatment in both the intervention group and the control group can be seen through the average *pre-test value* in table 1.3 which shows the ability to recognize laboratory equipment in the two groups is relatively the same. Meanwhile, the scores *post-test* showed that the average ability to recognize laboratory equipment in the intervention group was higher than the control group. Submission of information becomes more effective when assisted with the use of appropriate learning media (Sunaengsih, 2016).



The results showed that in the intervention group the average ability to recognize laboratory equipment before being given the intervention was 37.5 and after being given the intervention there was an increase to 75.0 while in the control group the ability to recognize laboratory equipment before being given the intervention was 37.2 and after being given the intervention there was an increase to 62,8 with the *p-value*,  $0.00 < 0.05$ , which means that there are differences in the ability to recognize laboratory equipment before and after treatment, both in the intervention group and in the control group.

In the control group, the results of statistical tests showed that there was an effect of the lecture method in increasing the ability to recognize laboratory equipment. Lectures are one way to convey information. This intervention will change the balance of the attitude component so that a new balance is formed (Ngestiningrum et al., 2017). The lecture method is often used in the learning process, especially for the large number of students or masses. The learning process in the form of lectures and counseling can increase knowledge, attitudes and make it possible to change behavior. The results of this study are in line with research (Ngestiningrum et al., 2017) which suggests that the lecture method is effective in increasing knowledge, attitudes and behavior *personal hygiene* during menstruation in adolescents.

Analysis of the effect of *Index Card Match method* in increasing the recognition ability of laboratory equipment shows a significant effect. This is in line with research (Ngestiningrum et al., 2017) where *index card match* method is effective in increasing knowledge, attitudes and behavior *personal hygiene* during menstruation in adolescents. Likewise with research (Susanti & Kartiyani, 2016), where the method *index card match* is also effective in increasing the knowledge of cadres about early detection of danger signs in pregnancy. In this study, the results of statistical tests showed that there was an effect of *index card match* method in improving adolescent attitudes about personal hygiene during menstruation (sig value 0.00).

The mean *N-Gain score* for the control group (conventional method with lectures) was 41.1%. Based on the category table for the interpretation of the effectiveness of the *N-Gain value* (%) according to Hake (1999), it can be concluded that the use of conventional methods is less effective as a method of introducing laboratory equipment. Meanwhile, the mean *N-Gain score* for the intervention group (*Index Card Match Method*) was 60.6% so that the use of the *index card match* method was quite effective as a method of introducing laboratory equipment compared to using the lecture method.

*Index card match* method is one of the cooperative learning processes. In this study, students in the intervention group played an active role in learning the introduction of laboratory equipment so as to create a fun learning process and the material was easier to accept and implement. According to the theory, assistive devices function to assist the learning process which is based on human knowledge and then received through the five senses so that the more senses are used to receive messages, the more knowledge is obtained (Zolekhah et al., 2020).

The *Independent t test* of the mean *N-Gain value* in the control group and the intervention group obtained a *p-value* of  $0.00 < 0.05$ . Thus, it can be concluded that there is a significant difference in effectiveness between the use of the *Index Card Match* method and conventional methods to improve the ability to recognize laboratory equipment in students.

The difference in effectiveness in the method of introducing laboratory equipment using the *index card match* method and the lecture method is influenced by the differences in the methods of the two methods. In the lecture method, students only listen to explanations so that the knowledge gained is less and is quickly forgotten when compared to hearing, seeing, discussing and doing it simultaneously. This is increasingly less effective if students do not

concentrate in receiving the material. In contrast to the Index Card Match method, which is more fun, interesting and able to keep participants' attention focused on the learning process so that learning outcomes can be maximized (Susanti & Kartiyani, 2016).

*Index card match* method is proven to be able to increase the ability to recognize laboratory equipment in students, as well as to maximize student activities to obtain information. The information obtained will then be conveyed to other students so that all know the information obtained from each pair. In addition, by using the method, *index card match* it can be seen the level of student mastery of the material being studied so that it is quite effectively used in the learning process of introducing laboratory equipment.

### Conclusion and Suggestion

There are differences in the ability to recognize laboratory equipment before and after treatment, both in the intervention group and in the control group. The index card match method is quite effective in being used as a method to improve the ability to introduce laboratory equipment to students. The *index card match* method is more effective than the lecture method in increasing students' ability to introduce laboratory equipment.

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# IMPROVING THE QUALITY OF PERSONAL HEALTH CARE WITH COMMUNITY NURSING INTERVENTIONS FOR SCHOOL-AGE CHILDREN DURING THE COVID-19 PANDEMIC

Muflih Muflih<sup>1\*</sup> ; Sang Ayu Made Adyani<sup>2</sup> ; Endang Nurul Syafitri<sup>1</sup>

<sup>1</sup>Faculty of Health Sciences, Universitas Respati Yogyakarta

<sup>2</sup>Jakarta Veterans National Development University

[muflih@respati.ac.id](mailto:muflih@respati.ac.id)

## ABSTRACT

The COVID-19 pandemic is a vulnerable time for the health of school-age children. There is an ineffectiveness of personal health care due to restrictions on mobility and limited access to health care facilities. Therefore, nursing interventions are needed based on a community nursing approach that is appropriate to the problem. The purpose of this study was to determine the effectiveness of community nursing interventions on improving the quality of health care in the aggregate of school-age children during the COVID-19 pandemic. The research method used is action research. The research process is carried out online. The research stage begins with observing the data using the google form application. Nursing intervention design provided through google meet application. Evaluation of the results of its implementation uses indicators of knowledge and obedient behavior. The participants involved were 16 children aged 10-14 years in the Special Region of Yogyakarta, Indonesia. The results of the study showed that the knowledge outcome increased from the level of limited knowledge to high knowledge, the outcome of obedient behavior towards the recommended activities increased from the level of rarely showing to the level of often showing. The conclusion of the study was that community nursing interventions were effective in improving the quality of personal health care with community nursing interventions. So, Nurses in community services can optimize online-based nursing interventions for school-age children during the COVID-19 pandemic.

**Keywords:** *Community; Knowledge; Nursing Intervention; Obedience; School Age Children*

## Introduction

During the COVID-19 pandemic, the basic health of school children should remain a concern and not be neglected. One of them is the quality of personal health care during the pandemic such as hand washing activities, oral and dental hygiene, and compliance with using masks when outside the home. However, these health activities tend not to receive adequate attention.

School-age children should be given responsibility for their own health behavior. Because, school age is a time when a child acquires the basics of knowledge to adjust to adult life and acquire certain skills (1,2).

Riskesdas 2018 data shows the prevalence of handwashing behavior aged 10 years in Yogyakarta in the range of values of 40-60% (3). The results of previous studies showed that the understanding of elementary school-aged children about washing their hands properly was still low (4). The dental health status of school-age children is still low (5). Likewise, compliance with the use of masks is still not done properly (6). This condition is quite worrying because it can increase the risk of transmission of COVID-19. There needs to be an effort to improve this health behavior for the better.

The results of the windshield survey at the research site found that efforts to maintain the health of school-age children have not been effective. This is indicated by knowledge of how to wash hands, dental and oral health status and adherence to the use of masks which

are quite low. This condition can still be improved with outreach activities, health education, or other educational activities.

However, this is difficult to do face-to-face, due to restrictions on mobility and restrictions on crowding during the COVID-19 pandemic. So, it is necessary to carry out online-based health improvement activities. Activities undertaken to overcome these problems are a form of community nursing intervention, but not many have been reported scientifically. Therefore, further research is needed to be able to prove it scientifically. This study aims to identify the effectiveness of community nursing interventions to improve personal health maintenance in school-age children.

## **Methods**

The method used is action research. The study was conducted on a group of 16 school-age children who experienced the problem of ineffective personal health care in a village in the Yogyakarta region, Indonesia. The sample was selected by purposive sampling technique by meeting the criteria, namely: age range 10-14 years, can access the internet network, have dental and oral health problems, knowledge of hand washing is not fully correct, often do not use masks when outside the home.

The research activity was carried out in September 2020. The research stage began with collecting data on the Community As Partner (CAP) nursing theory framework, which used the google form application (7). The data obtained in the form of qualitative data which was analyzed and determined the diagnosis of nursing problems. The data analysis technique proceeds in an inductive-interpretation-conceptualization process.

The nursing intervention design provided was health counseling and watching educational videos, each of which was given 1 meeting. Another intervention is group teaching which includes teaching hand washing, dental and oral care and proper use of masks. All these interventions are given online through the google meet application. During the implementation of the intervention, feedback and reflection were carried out to provide input and answers to the responses or questions from the sample.

At the evaluation stage, data measurement uses instruments that focus on indicators of knowledge and obedient behavior. Measurement of data using the same application, namely google form. The data from the evaluation were analyzed to obtain conclusions and followed up into the next intervention plan. This research activity has applied research ethics and norms as appropriate.

## **Result and Discussion**

Based on the results of initial data collection or assessment of 16 participants, it was found that 10 children knew the correct rules about hand washing and dental and oral hygiene and the use of masks, while 6 others did not know. All participants had received health education in school, but had forgotten. There were 13 children who claimed not to use masks when doing activities outside the home. After the data was analyzed, it was concluded that the diagnosis of the nursing problem was the ineffectiveness of personal health care. Furthermore, the implementation of the intervention is in accordance with the predetermined design and evaluation measures are carried out based on indicators of knowledge and obedient behavior.

After the intervention, there was an increase in knowledge from a limited level to a large level and indicators of obedient behavior increased from the level of rarely showing, to the level of often showing. In detail the research results are described as follows:

### **Health Knowledge**

The data before the intervention showed that 10 of the total 16 samples stated that they did not know the rules of washing their hands properly. One of them said:

*"....saya tau kapan cuci tangan dan sikat gigi itu setelah makan.... lainnya tidak tau....."*. (".....I know when to wash my hands and brush my teeth after eating..... others don't know..."). Participant 1

*"....pernah mendapatkan pendidikan kesehatan tentang cara cuci tangan dan sikat gigi di sekolah, tapi sudah lupa..."*. ("....had received health education on how to wash hands and brush teeth at school, but had forgotten..."). Participant 3

*".... kalau main keluar jarang pakai masker. Sering lupa bawa masker...."*. ("... when I play outside, I rarely wear a mask. Often forget to bring a mask..."). Participant 7

After the health education intervention (health counseling and watching educational videos) there was an increase in health knowledge about hand washing rules, dental and oral health and the use of masks. During the implementation of the intervention all participants were very interactive when given health education, being able to mention when, benefits and steps of hand washing and dental and oral care. All participants were observed to be able to practice how to wash their hands and brush their teeth properly and correctly. This means that there is an increase in the level of knowledge that occurs from the level of limited knowledge to the level of much knowledge.

This is in line with an opinion that the purpose of providing health education is to achieve changes in the behavior of individuals, families and communities (8). Health education activities can be in the form of fostering and maintaining healthy behavior and a healthy environment, as well as playing an active role in efforts to achieve optimal health degrees (9). Knowledge is a determinant of a person's behavior change (10). One's knowledge of health is one of the important aspects before the occurrence of health behavior.

There is a change in the level of knowledge from limited knowledge to much knowledge, in line with the results of the study, namely there is a significant influence between the knowledge of respondents before and after being given health education (11,12). The results of a similar study showed that there was an effect of hand hygiene counseling on the behavior of elementary school students in North Minahasa (13). Other studies also show that there is a change in knowledge of how to use masks correctly after being given health education.

This shows that health education can have an impact on increasing the level of knowledge even though it is given online. This is similar to the results of reports from health education activities provided online that can provide the expected results.

Knowledge of personal health is the basis for efforts to prevent the transmission of COVID-19, especially in the school-age community. Increased knowledge is a trigger factor for the recommended health behavior. Therefore, personal health knowledge is important and needs attention by community health nurses.

### **Obedient Behavior**

Obedient behavior in this study was indicated by the willingness of the sample to demonstrate again the demonstration of washing hands, brushing teeth and using masks correctly.

The data obtained before the intervention was that 8 participants could demonstrate or practice how to wash their hands, brush their teeth and use masks, but the steps were not

appropriate and 3 participants did not want to because they were ashamed to practice it, and there were 5 other children who refused to do it.

During the intervention, it was seen that all participants were very cooperative and could practice hand washing, brushing teeth, and wearing masks properly and correctly. After the demonstration activity, all participants were asked to make a schedule about the activities that had been taught.

One participant stated that:

*".....saya sudah bisa cuci tangan, sikat gigi, pakai masker juga seperti tadi... benar kan... yakin caranya sama... kalau waktunya sudah tau kapan saja harus mencuci tangan...."* ("....I can already wash my hands, brush my teeth, wear a mask as well as before... that's right... I'm sure it's the same way... if it's time to know when to wash my hands....") Participant 8

This means that group teaching activities have succeeded in increasing obedient behavior from the level of rarely showing to the level of showing often. In addition, participants were committed to carrying out predetermined activities at home in the future.

This is in accordance with research which says that the correct behavior of washing hands with soap does not just appear, but must be used to it from childhood (14,15). Children will become agents of change in delivering education and teaching clean and healthy living behaviors, both for themselves and the surrounding environment. There have been many studies that show that infectious diseases can be reduced due to the behavior of washing hands using soap properly, one of which is COVID-19.

Washing hands with soap is one of the problems that often occurs in school-age children related to personal hygiene. School-age children are the most appropriate time to instill understanding and healthy living habits, especially hand washing with soap. The health of the community and the nation in the future can be determined by the health of school-age children (16). Proper hand washing is one of the aspects that become indicators of clean and healthy living behavior which is currently the world's concern. This is because not only in developing countries, but also in developed countries, there are still many people who forget to wash their hands properly, this shows that there is still a lack of practice or action to wash hands in the community (17).

By providing teaching on how to wash hands properly and correctly, it can increase the knowledge of school-age children so that it is expected to change good and correct hand washing compliance. The provision of health education in the form of counseling and demonstrations on how to wash hands has been proven to have an effect on school-age children (18,19)

Maintaining dental and oral hygiene requires personal awareness because the activities are carried out at home without any supervision from anyone. It completely depends on the knowledge, understanding, and willingness of the individual to maintain his oral health. Dental and oral care for school-age children should use the model and the technique as simple as possible, delivered in an attractive and attractive way without reducing the content (20). In this study, using online demonstration techniques and visual programs.

The demonstration method helps the child remember which parts of the teeth to clean while at home, so that the child understands better. If supported by children's concern for the maintenance of dental and oral health that is already quite good, the level of dental and oral hygiene will be maintained (21).

Health behavior in children can actually be caused by doing health habits. Behavior can be formed by habit or conditioning. The formation of behavior by getting used to behaving in accordance with what is expected will form a behavior, for example getting used to getting up early, brushing teeth, washing hands, and so on (22,23).

After the intervention was given, there was an increase in the practical ability and commitment of participants to use masks, especially when outside the home. The use of masks in school-age children is indeed difficult to implement. However, this still needs to be taught so that it remains a good habitual behavior. The use of masks is the key to preventing the spread of COVID-19.

Health education can provide the information needed to reduce bad behavior habits and can increase knowledge so that a person can determine a better attitude. In addition, it can reduce stress levels due to exposure to COVID-19 information (24). Health education is the addition of a person's knowledge and abilities through individual learning practices or instructions to increase awareness of the value of health, so that they have the awareness and willingness to change their behavior into healthy behavior. Therefore, health education is very important given to school-age children.

The follow-up plan from the evaluation results is that there is a need for a nursing action plan that aims to develop the ability of participants' knowledge and compliance levels, so that the effectiveness of self-care is achieved maximally. The suggested intervention plans include risk identification, decision support, health promotion behavior, and behavior management.

### **Conclusion and Suggestion**

There was an improvement in the level of knowledge from the level of limited knowledge to the level of much knowledge and the obedient behavior of school-age children from the level of rarely showing to the level of often showing. Knowledge and obedient behavior regarding hand washing procedures, dental and oral hygiene and using masks correctly, are important capital efforts to prevent the transmission of COVID-19. Community health nurses can optimize the delivery of online nursing interventions during a pandemic so that they can increase awareness and change the behavior of school-age children.

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# **COMPARISON OF THE EFFECTIVENESS OF RED BETEL (PIPER CROCATUM) EXTRACT AND WHITE GALANGAL (ALPINIA GALANGA) EXTRACT AS BASE INGREDIENTS HAND SANITIZER (RESEARCH PHASE I)**

**Nike Sari Oktavia<sup>1</sup>, Faridah BD<sup>2</sup>, Fithriani Armin<sup>3</sup>, Arifa Mustika<sup>4</sup>**

<sup>1,2</sup> Midwifery Program Health Ministry Polytechnic of Padang, Indonesia <sup>3</sup> Faculty of Pharmacy Andalas University, Indonesia <sup>4</sup> Faculty of Medicine Airlangga University, Indonesia

[ikesay@gmail.com](mailto:ikesay@gmail.com)

## **ABSTRACT**

3M is promoting the prevention of the Covid 19 outbreak, one of which is washing hands. Wash hands with running water or with hand sanitizer. The use of hand sanitizers has effects, including dry hands due to frequent use, and even some people experience allergies to the skin on their hands due to the high alcohol content. It is necessary to look for alternative natural ingredients that do not have side effects but still have effective benefits. The research method begins with the manufacture of ethanol extract and aqueous extract of Piper crocatum and Alpinia galanga. All extracts were made into 5%, 10%, 15%, 25%, and 50% and then into a liquid soaking carp meat pieces that had been put into a test tube. Positive control used alcohol and sterile aqua. The ethanol extract of Piper crocatum 50% and 25% and the ethanol extract of Alpinia galanga 50% and 25% which had the best antimicrobial ability on day 19. The phytochemical test results showed that the ethanol extract of Piper crocatum contained alkaloids, tannins, steroids, and titerpenoids. Phytochemical test of ethanol extract of Alpinia galanga contained flavonoids, tannins, steroids, and titerpenoids. In conclusion, the ethanolic extracts of Piper crocatum and Alpinia galanga 50% and 25% had the best antimicrobial abilities. In the next stage, the best ethanol extract will be tested for microbes in a petri dish, before being used as a basic material for hand sanitizer.

**Keywords : Piper crocatum, Alpinia galanga, extract, hand sanitizer**

## **INTRODUCTION**

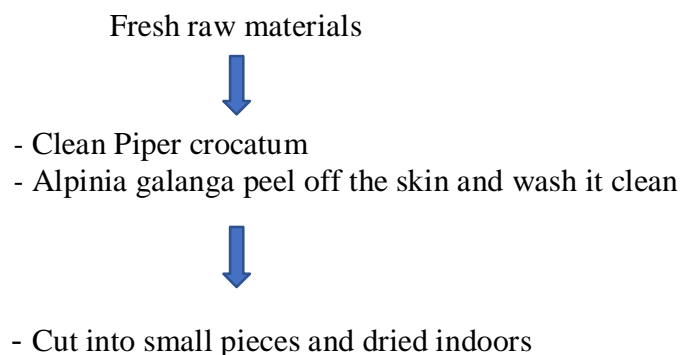
Disasters that occur both natural and man-made usually cause health problems, especially diseases or epidemics. The COVID-19 outbreak has hit the world, including Indonesia. Now we are running the “New Normal” condition, a new life with 3 rules, among others; Always wear a mask, wash your hands, and keep your distance. Washing hands with soap and running water or using hand sanitizer is absolute. If you are in an environment where there is no sink, automatically everyone must use hand sanitizer. This means that each individual must carry hand sanitizer with him wherever he goes. The majority of hand sanitizers on the market are made of alcohol with a fairly high percentage, one of the effects is that the hands become dry due to frequent use, some people experience allergies to the skin of their hands. The most terrible effect is because alcohol is flammable, causing a case of a woman who was about to cook but previously used a slightly excessive hand sanitizer, her hand caught fire. Of course this is very dangerous. Based on some of the effects of using hand sanitizers made from alcohol, it is necessary to think about using hand sanitizers from natural ingredients or natural ingredients but still effective in killing germs.

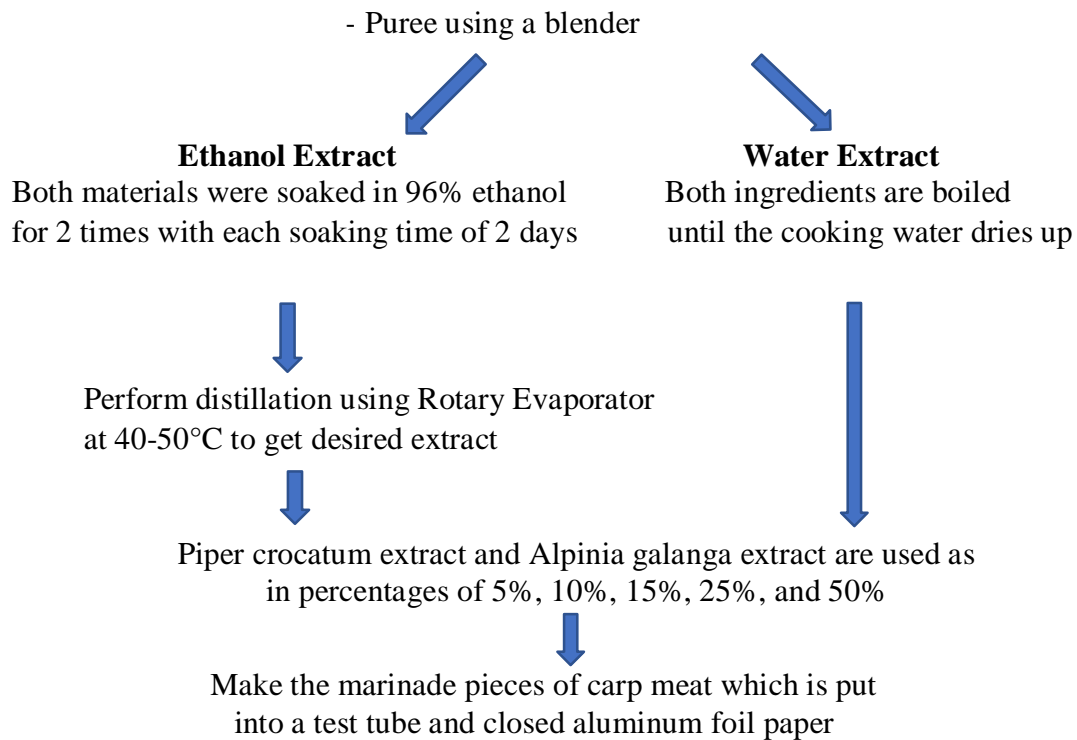
Several studies have found that some plants contain antioxidants, antibiotics, antifungals, and even antivirals. One of them is red betel. *Piper crocatum* extract or red betel leaf extract is one of the traditional ingredients that has long been used empirically to treat various diseases, including diabetes mellitus, hemorrhoids, inflammation, cancer, increased uric acid levels, hypertension, hepatitis, and gratitis. Red betel leaf has twice the antiseptic power of green betel leaf. The chemical constituents of red betel extract include essential oils, hydroxykavikol, kavikol, cavibetol, allylprokatekol, carvakrol, eugenol, p-cymene, cineole, cariofelen, cadmium estragol, terpenes, and phenyl propada. Carvakrol is a disinfectant and antifungal so it is used as an antiseptic medicine for bad breath and vaginal discharge. (Damarini S et al, 2013). Another plant, namely white galangal, also has antioxidant, antifungal, antibacterial substances such as red betel leaf and is even used for drugs to kill HIV/AIDS. Galangal is a tuber plant that consists of 2 types, namely galangal with white tubers (*Alpinia ganggala*) which is commonly used for cooking spices and galangal with red tubers (*Alpinia purpura*) which is commonly used for medicine. Research conducted by Lestari RP, Tendelilin R, and Handajani J at the Microbiology Laboratory of the Faculty of Medicine UGM in 2005 showed that at a concentration of 15% galangal, it was able to produce antibacterial inhibition with a diameter of 2,879 mm, while the control group that was given 5% alcohol concentration did not form a zone of inhibition. . The results of this study indicate that white galangal essential oil has antibacterial properties against *Staphylococcus aureus* 302 which is resistant to the antibiotics ampicillin, amoxicillin, penicillin G, kanamycin, mecilinam and keftazidime. (Lestari RP, Tendelilin R, and Handajani J, 2005). Research conducted by Salni, et al in the Biology laboratory of the Sriwijaya University Palembang in 2013 showed that *Alpinia galanga* has antifungal compounds including phenolic compounds, in the form of yellowish white crystals. The compound is an antifungal compound *Candida albicans* (Salni, Aminasih R, and Sriviona R, 2013)

Based on the description above, the researcher is interested in conducting a research "Comparison of the Use of *Piper crocatum* Extract and *Alpinia galanga* Extract as the Basic Ingredients for Making Hand Sanitizer". The research phase I research objective was to determine "Comparison of the Effectiveness of *Piper crocatum* Extract and *Alpinia galanga* Extract in Preserving Carp Flesh. This research is the basis for the next stage of research.

## METHOD

The implementation of the research began with the manufacture of *Piper crocatum* Extract and *Alpinia galanga* Extract. The manufacturing process can be seen in the flow chart below:





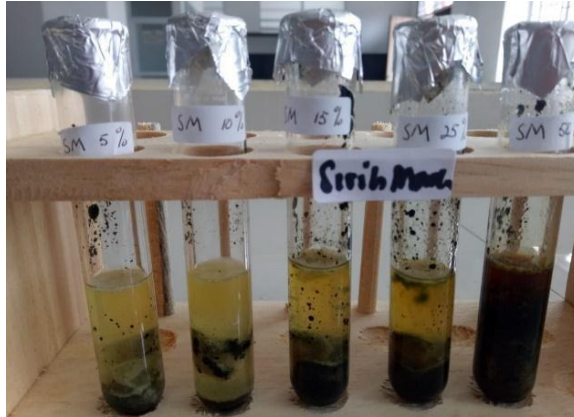
**Figure 1. Flowchart of Extract Making Process for Bath**

The use of 96% ethanol solution is used because the raw material conditions are rather humid, without drying by heating or at high temperatures, for example by microwave. This is in accordance with research conducted by Tirta Yasa IG, et al in 2019 which stated that ethanol concentration had a very significant effect on yield, total phenol, total flavonoid, and antioxidant activity (IC<sub>50</sub>). The 90% ethanol concentration was the best treatment (Tirta Yasa IG, Putra NK, Sri Wiadnyani AAI, 2019). Differences in ethanol concentration can cause changes in the polarity of the solvent so that it affects the solubility of bioactive compounds. Widarta and Arnata reported that the concentration of ethanol affects the bioactive components, the higher the concentration of ethanol, the higher the bioactive components produced (Widarta, I.W.R and I.W. Arnata. 2017). This research uses maceration or digestion technique for the separation process of ethanol and piper crocatum to get piper crocatum ethanol extract. According to Dewi SR, et al, one method that can be used is the extraction method by digestion, which is like maceration (soaking plant powder in a solvent) at a temperature of around 40-50°C. The solvent will penetrate the cell wall and enter the cell cavity containing the active substance, so that the active substance will dissolve and will be pulled out together with the solvent (Dewi SR, Nugroho WA, Hendrawan Y, and Nisa GK, 2015). The carp meat used is fresh fish meat that is brought alive to the laboratory and then cut into small pieces with a size of  $\pm 1 \text{ cm} \times 1 \text{ cm} \times 1 \text{ cm}$  so that it can be put into a test tube. The fish meat used is the white part of the meat. The assessment was carried out on the 3rd, 5th, 7th, 10th, 14th, 17th, and 19th days. The assessment was carried out by looking at the condition of the carp meat in the marinade of each solution with different percentages. Comparison of marinated carp meat pieces with Piper crocatum ethanol extract, Alpinia galanga ethanol extract, Piper crocatum water extract, Alpinia galanga water extract,

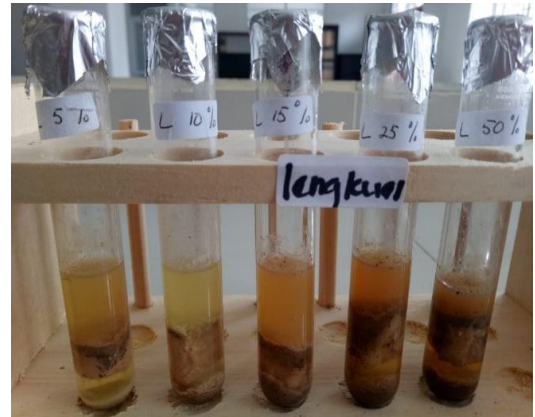
alcohol as a positive control with each 5%, 10%, 15%, 25%, and 50% respectively, and 100% sterile aqua was also a control.

## RESULT AND DISCUSSION

Below is the appearance of carp meat pieces on day 10.



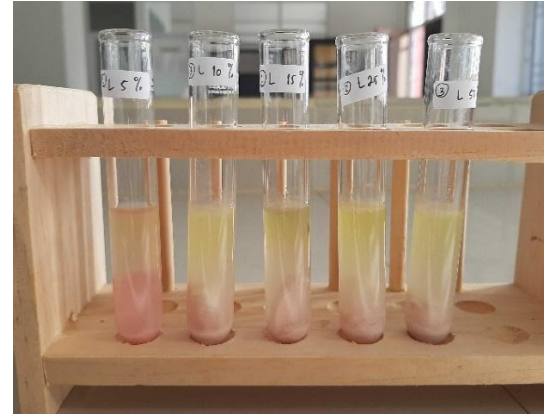
P1. Piper crocatum Ethanol Extract



P2. Alpinia galanga Ethanol Extract



P3. Piper crocatum Water Extract



P4. Alpinia galanga Water Extract



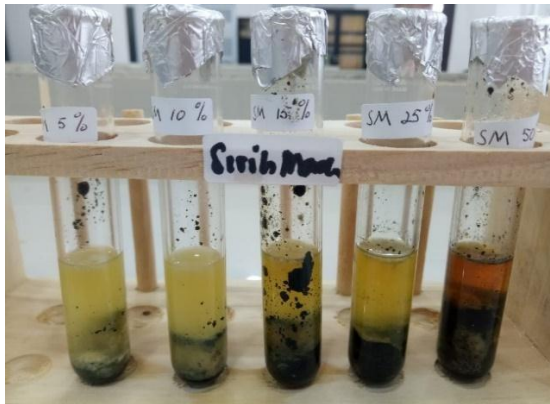
P5. Alcohol



P6. Sterile aqua

**Figure 2. The appearance of carp meat in the marinade on the 10th day**

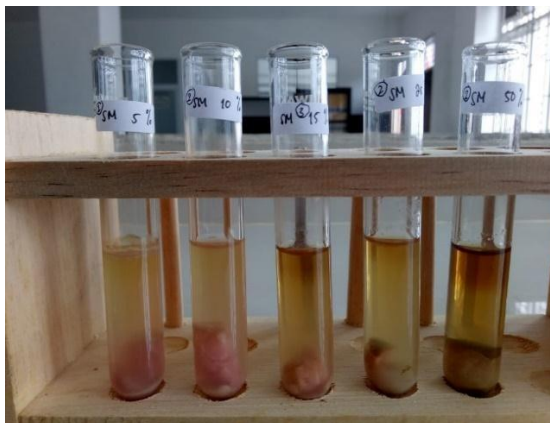
The picture below is the condition of the fish meat on day 17.



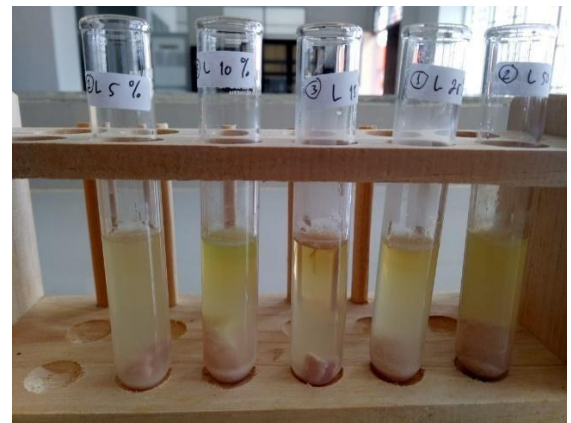
P1. Piper crocatum Ethanol Extract



P2. Alpinia galanga Ethanol Extract



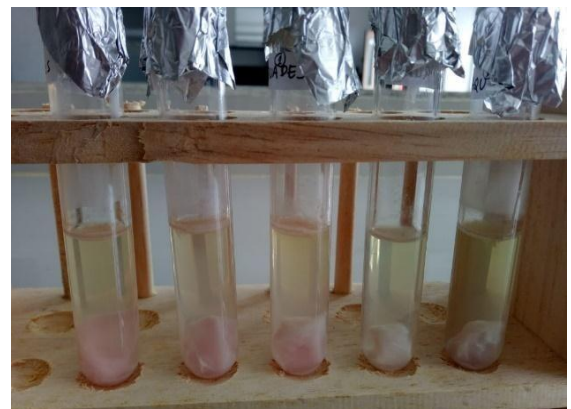
P3. Piper crocatum Water Extract



P4. Alpinia galanga Water Extract



P5. Alcohol



P6. Sterile aqua

**Figure 3. Appearance of carp meat in marinade on day 17**

It was found that carp meat soaked with 50% Piper crocatum ethanol extract was the best result, followed by 50% Alpinia galanga ethanol extract, 25% Piper crocatum ethanol

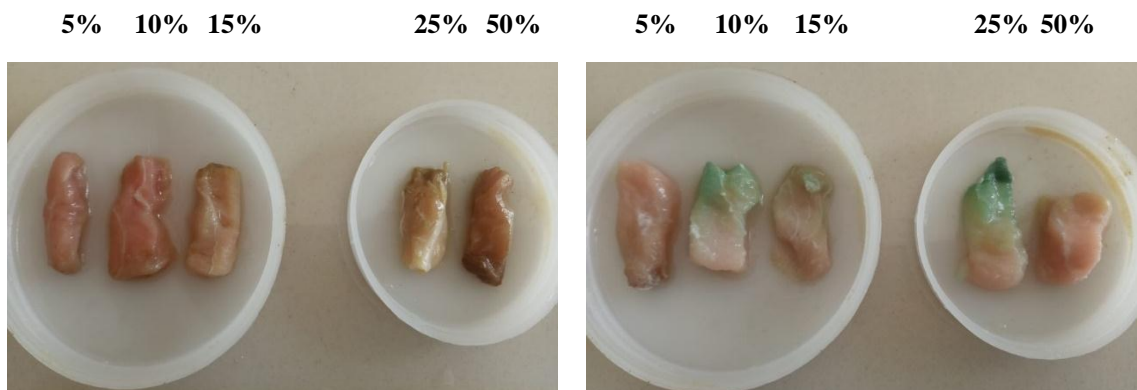
extract, and 25% *Alpinia galanga* ethanol extract. This is in accordance with research conducted by Mustika Tonahi JM, et al in 2014, the higher the concentration of red betel leaf extract, the higher the percentage of antioxidant activity of red betel leaf extract. (Mustika Tonahi JM, Nuryanti S, and Suherman, 2014). In this study, the percentage concentration of red betel extract used was 50% and the *Piper crocatum* ethanol extract 50% of carp meat on day 19 had the best condition. Pictures of carp meat cuts on the last day, which is the 19th day, can be seen in Figure 3 below:



P1. *Piper crocatum* Ethanol Extract

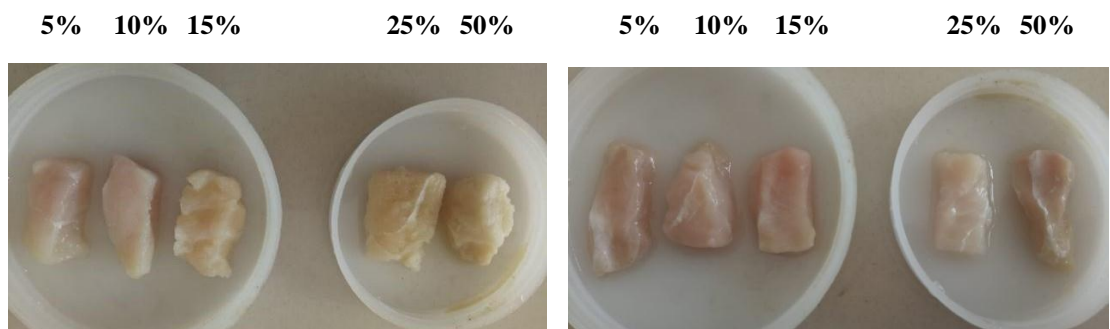


P2. *Alpinia galanga* Ethanol Extract



P3. *Piper crocatum* Water Extract

P4. *Alpinia galanga* Water Extract



P5. Alcohol

P6. Sterile aqua

#### **Figure 4. The appearance of carp meat in the marinade on the 19th day**

Alasalvar et al, (2001) conveyed that an assessment of the freshness of fish can be based on organoleptic (Kalista A, Redjo A, Rosidah U, 2018). The assessment of fish meat is in accordance with the organoleptic test of fresh fish according to SNI 2346:2011. In this study, organoleptic measurements were limited to mucus, meat, and texture (BSN, 2013). The odor test could not be carried out because on the 17th and 19th days it was difficult to distinguish the smell, especially the *Piper crocatum* water extract and *Alpinia galanga* water extract, all fish flesh had a foul smell accompanied by a crumbled texture. The color test was not carried out because red betel and white galangal give their own color due to the process of soaking the fish meat so that the assessment results can be biased.

In Figure 3 it is clearly seen that *Piper crocatum* ethanol extract and *Alpinia galanga* ethanol extract has a better appearance. The best percentage is the extract percentage of 50% on *Piper crocatum* and 50% on *Alpinia galanga*, then 25% on *Piper crocatum* and 25% on *Alpinia galanga*. Alcohol soaking in fish meat will also produce meat that is still good on the 19th day, because alcohol is indeed a substance that is used as a preservative. Meanwhile, fish meat immersion using sterile aqua looks less good than alcohol immersion, *Piper crocatum* ethanol extract, and white galangal ethanol extract. The appearance of meat with sterile aqua bath is almost the same as fish meat soaked with *Piper crocatum* water extract and *Alpinia galanga* water extract, which has a slightly thick layer of mucus and almost changes color, some even has mucus that is slightly lumpy and discolored. Dull cutlets, meat tissue is not strong and has a slightly soft texture.

After carrying out phytochemical tests on the ethanolic extract of *Piper crocatum* and ethanolic extract of *Alpinia galanga*, the results showed that the *Piper crocatum* ethanol extract contains alkaloids, tannins, steroids, and terpenoids. These results are in accordance with the results of a study conducted by Pangesti RD, et al with the research title Comparison of Antibacterial Power of *Piper betle* L. Extract and Oil against *Streptococcus mutans* bacteria. The results showed that the phytochemical screening results in *piper crocatum* extract were positive for flavonoids, saponins, tannins, terpenoids and phenols (Pangesti RD, Cahyono E, and Kusumo E. 2017). According to the results of research by Mustika Tonahi JM, et al, the results of *Piper crocatum* leaf extract have an IC<sub>50</sub> value of 47.45 ppm and are included in the group of very strong antioxidants (Mustika Tonahi JM, Nuryanti S, and Suherman, 2014).

The results showed that *piper crocatum* leaf extract has good antioxidants because it can preserve fish even on the 19th day. Research conducted by Candrasari A, et al showed that the ethanol extract of red betel leaf (*Piper crocatum* Ruiz & Pav.) had an inhibitory effect on growth of *Staphylococcus aureus* ATCC 6538 at concentrations of 10%, 20%, 40%, 80% and 100%. Candrasari A, Romas MA, Hasbi M, Astuti OR, 2012). According to Fitri Kusuma SA, et al, the results of testing the antitrichomonas activity of *Piper crocatum* ethanol extract showed that the greater the concentration of the extract used, the higher the number of dead *T. vaginalis* cells (Fitri Kusuma SA, Sumiwi SA, Febrina E, and Tjitraresmi A). 2009). From several research results on these bacteria, it shows that *piper crocatum* extract can kill germs and this supports the ultimate goal of this research to make *piper crocatum* extract as a basic ingredient for making hand sanitizers.



Meanwhile, the *Alpinia galanga* ethanol extract contains flavonoids, tannins, steroids, and terpenoids. These results are almost the same as the results of research conducted by Melanathuru V, et al, phytochemical screening of water extracts of *Alpinia calcarata* and *Alpinia galanga* has revealed the presence of flavonoids, terpenoids, phenols, carbohydrates and proteins (Melanathuru V, Rengarajan S, and Thangavel N, 2017). The ethanol extract of *Alpinia galanga* based on the observations of Rao K, et al, can fight pathogens, including; *Bacillus subtilis* MTCC 2391, *Enterobacter aerogenes*, *Enterobacter cloacae*, *Enterococcus faecalis*, *Escherichia coli* MTCC 1563, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* MTCC 6642, *Salmonella typhimurium*, *Staphylococcus aureus* and *Streptococcus epidermidis*. The conclusion of this study is that *Alpinia galanga* can be used as a source of new generation drugs. Galangal has a strong antimicrobial in the development of natural medicine, all parts of the galangal plant can be used (Rao K, Bhuvaneshwari Ch, Narasu LM, and Giri A. 2010). Research conducted by Joseph S and Mathew B in 2014 showed that nanoparticles of white galangal (*Alpinia galanga*) were evaluated for antimicrobial activity by the diffusion method both against *S. aureus*, *B. subtilis*, *V. cholera*, *S. paratyphi*, and *A. niger*, was highly toxic to all tested pathogenic strains (Joseph S and Mathew B, 2014) (Eam S, MD. Mujahid, Bagga P, Arif M et al, 2019). Melanathuru V, et al showed that white galangal (*Alpinia galanga*) extract showed the highest antioxidant activity in all tests than galangal (*Alpinia calcarata*). *Alpinia galanga* is rich in phenols and flavonoids which can be useful for the development of protein anticancer drugs (Melanathuru V, Rengarajan S, and Thangavel N, 2017).

## CONCLUSIONS AND SUGGESTION

So the conclusions in this study include; *Piper crocatum* Ethanol Extract has the best antimicrobial ability with a percentage of 50%, followed by a percentage of 25%. *Alpinia galanga* Ethanol Extract has the best antimicrobial ability with a percentage of 50%, followed by a percentage of 25%. The higher the percentage of *Piper crocatum* Ethanol Extract and *Alpinia galanga* Ethanol Extract the higher the antimicrobial content. *Piper crocatum* Ethanol Extract contains alkaloids, tannins, steroids, and terpenoids, whereas *Alpinia galanga* Ethanol Extract contains flavonoids, tannins, steroids, and terpenoids. Based on the results of this study, it can be recommended that *Piper crocatum* Ethanol Extract and *Alpinia galanga* Ethanol Extract can be used as basic ingredients for making hand sanitizers.

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# COMMUNITY EMPOWERMENT ANALYSIS REGARDING ENVIRONMENTAL SANITATION IN FLOOD-PRONE AREAS

**R. Firwandri Marza<sup>1</sup>, Basuki Arioseno<sup>1</sup>, Kamal Kasra<sup>2</sup>**

<sup>1</sup> Poltekkes Ministry of Health Padang, Indonesia

<sup>2</sup> FKM UNAND Padang

[firwandrimarza@gmail.com](mailto:firwandrimarza@gmail.com)

## ABSTRACT

A disaster situation is an event or event that has the potential to cause damage to environmental facilities and infrastructure, such as the provision of clean water and sanitation conditions. Diseases that have the potential to occur in such conditions are diarrheal diseases and infectious diseases that are transmitted through the 'fecal-oral route'. The purpose of this research is the analysis of community empowerment regarding environmental sanitation in flood-prone areas in Jorong Aia Taganang, Galanggang Tengah, Kenagarian Salayo, Solok Regency. The research was carried out with a qualitative approach, with a descriptive approach, with in-depth interviews (in-depth interview) Research results in Almost all respondents said that environmental health problems are important to be available, but some say, clean water is necessary to clean, while disposal of feces is a problem, just defecate in heavy water, carry on defecating it. Meanwhile, trash is washed away when the flood comes. Suggestions are requested for the Solok Regency Government to socialize the importance of Sanitation during a Disaster. The follow-up of this research is in the form of community service regarding Community Empowerment regarding improving the quality of clean water and environmental sanitation.

**Keywords:** Sanitation, Disaster, Bad Health Impact

## Introduction

The 2019 National Disaster Management Agency report recorded 3,814 disaster events. Hydrometeorological disasters dominate, among others, putting money in 1,387 events, forest and land fires 746 events, floods 789 landslides 719 events. The impact of the 2019 period disaster, 478 people died, 3,422 were injured, 111 people were missing and 6.1 million suffered and were displaced (BNPB, 2019).

Throughout 2019, the West Sumatra (West Sumatra) region was hit by 746 natural disasters. Floods, flash floods, and landslides evenly occurred in 19 districts and cities. 154 flood disasters, 13 flash floods, 12 earthquakes damaged houses, 8 collapsed bridges, 6 smog, 99 forest and land fires, 3 drowned people, and 36 cyclones. Meanwhile, 10 people died, 78 people were injured, and 3,026 people were evacuated. The disaster also caused 453 rice fields to be submerged, 703 houses damaged, 25 houses of worship, 22 schools, and 2 roads collapse (BPBD West Sumatra, 2019)

Solok Regency BPBD Data Throughout 2019 the disasters that often occurred in this area were landslides, earthquakes, floods, and other disasters. Conditions such as the above can cause damage to the facilities and infrastructure of the residential environment, such as damage to the clean water supply system, sewage disposal/waste management latrines, and waste disposal. Another consequence that can occur due to the disaster of

food shortages, is the emergence of certain infectious diseases. People affected by disasters are generally very vulnerable to falling ill and even dying from infectious diseases, especially in a long period with poor sanitation conditions, water supply that does not meet the quality and quantity requirements, and not maintaining clean living habits. ' [1]According to Subiyantoro (2010: 13) disaster management is not the task and responsibility of the government alone but is the responsibility and obligation of the wider community which is carried out through efforts to anticipate disasters through community-based strength, namely community empowerment that relies on the ability of human resources. local (community disaster management). Empowerment is “ *to help clients gain the power of decision and action over their own lives by the effect of social or personal blocks to exercise existing power, by increasing capacity and self-confidence to use power and by transferring power from the environment to clients* ”

Moving on from the problems above, this study wants to analyze community empowerment about environmental sanitation in disaster-prone areas in Solok Regency, West Sumatra.

## **METHOD**

This study uses a qualitative method, with a descriptive approach (John W. Creswell, 2016). The data used are primary (interviews) and secondary (documentation). The informant selection technique in this study was *purposive sampling* , namely Walinagari Selayo, Aia Taganang Disaster Preparedness Group, Galanggang Tengah and the flood-affected community. Data analysis in qualitative research will take place simultaneously with other parts of the development of qualitative research, namely collecting data on flood disaster risk management and writing findings (Neuman, 2017).

## **Results and Discussion**

### **A. Result**

The results of in-depth interviews and to several informants, both the Disaster Preparedness Group (KSB) of Galanggang Tengah, several communities affected by flooding in the Handyard and Walinagari Selayo, Kubung District, Solok Regency, are as follows:

The Disaster Preparedness Group (KSB) of Galangan Tengah was formed in 2012. The formation of the Disaster Preparedness Group (KSB) began with the frequent flooding of Jorong Gelangang Tengah Selayo, Kubung District, Solok Regency. The Disaster Preparedness Group (KSB) was formed from CBDRM activities (Community-Based Disaster Risk Reduction) from UNDP, accompanied by the NGO, Jamari Sakato. Assistance by the NGO Jamari Sakato in the form of training and simulations. The NGO Jamari Sakato accompanied the Selayo community for approximately 1 year, then the Disaster Preparedness Group (KSB) was formed. The scope of the Disaster Preparedness Group (KSB) consists of fields such as preparedness, public kitchens, early warning, and SAR and health. Interviews conducted with the head and treasurer of the Disaster Preparedness Group (KSB) Aia Taganang Galanggang Tengah almost matched the answers.

*“...Formation of Aia Taganang Disaster Preparedness Group (KSB) at the initiative of UNDP's CBDRM (Community-Based Disaster Risk Reduction) activity accompanied by the NGO Jamari Sakato...”*

Furthermore, from the interview, it was also known that the Secretary of the Disaster Preparedness Group (KSB) did not yet have a fixed place. Meanwhile, cross-

sectoral involvement has not been so real, but since 2019 it has shown its roles, such as the Nagari Government, District, Social Service, and BPBD.

Meanwhile, regarding environmental sanitation, which was asked both to the Management of the Disaster Preparedness Group (KSB) and to the community affected by the disaster, the answer was slightly different in view of the sanitation problem as revealed in in-depth interviews. The management of the Disaster Preparedness Group (KSB) views clean water, the informants view it as very important. Clean water and drinking water are both very important during a disaster. It is difficult to get clean drinking water. If it is possible, the government or those who help, help us with clean water. With what our community will get water. Our stove is all wet, it can be all wet. Plenty of water but not suitable for toilets. While we are under siege, we also need to do activities, so our community really needs water.

*"...The management of the Disaster Preparedness Group (KSB) views clean water, the informants view it as very important. Clean water and drinking water are both very important during a disaster. It is difficult to get clean drinking water. If it's possible, the government or those who help, help us with clean water..."*

But the community has a different view of Clean Water/Drinking Water, the informants view it as very important. Clean water and drinking water are both very important during a disaster. It is difficult to get clean water and drink only the available water that we drink. But we can still use our wells, when the flood is over, we can use them immediately. However, not all community informants said that there were still 2 informants who said that if our wells were entered by floodwater after the flood the waters receded without us cleaning it first, our water could not be used. So if possible, the Puskesmas / Health Office of Sokok Regency could kill the germs that entered our well. *'...regarding Clean Water/Drinking Water, the informant views it as very important. Clean water and drinking water are both very important during a disaster. It is difficult to get clean water and drink only the available water that we drink. But we can still use our wells, when the flood is over, we can use them right away...'*

Meanwhile, it was revealed from the informants that the management of the Disaster Preparedness Group (KSB) almost all said the problem of excreting feces. They said that when it was flooded, a lot of it was scattered about because the toilets and septic tanks were full, of course, the feces in them would come out. If possible, after the Septic flood, our community's houses could be vacuumed.

*'...The Disaster Preparedness Group (KSB) almost all said about the matter of excreting feces. They said that when it was flooded, a lot of it was scattered about because the toilets and septic tanks were full of course the feces in them would come out...'*

If their community informants agree that there is no problem with defecating during a flood, we just defecate where the water is heavy, then the feces will disappear as well.

*"... If their community informants agree that there is no problem with defecating during a flood, we just defecate where the water is heavy, the feces will disappear too..."*

Regarding waste disposal due to flooding and waste disposal, the management of the Disaster Preparedness Group (KSB) said that it would not be a problem, if there was a lot of garbage in the flood, we just had to carry out the same thing as the community informants said.

*"... Garbage disposal and waste disposal are not a problem, if there is a lot of garbage in the flood, we just have to shake it up..."*

## **B. Discussion**

## 1. Handling of Clean Water Quality and Sanitation

Clean water As it is known that water is the main need for life, as well as refugee communities, must be affordable by the availability of adequate clean water to maintain their health. When clean water and sanitation facilities are available, it is necessary to monitor and improve the quality of clean water and sanitation facilities. At the initial stage of a disaster or evacuation, the availability of clean water needs attention, because without clean water it greatly affects hygiene and increases the risk of transmission of diseases such as diarrhea, typhus, scabies, and other infectious diseases. The main purpose of water quality improvement and monitoring is to prevent health risks from using water that does not meet the requirements

## 2. Dirt disposal

If there is a flood disaster and no evacuation occurs but the facilities are flooded so that they cannot be used, mobile latrines or emergency collective latrines must be provided by using drums or other materials. However, when an evacuation occurs, the steps needed are as follows: 1) at the beginning of an evacuation, it is necessary to build a public latrine that can accommodate the needs of some refugees. Examples of latrines that are simple and can be provided quickly are latrines with trenches, collective latrines (plural latrines), collective latrines using used drums, and mobile latrines (can be drained).

For the maintenance and utilization of mobile latrines, collaboration is carried out between the District/City Health Office and the Sanitation Service/Public Works Service, especially in draining latrines when necessary. At the beginning of the evacuation 1 (one) latrine was used by 50-100 people. Maintenance of latrines must be carried out and monitored closely and disinfect the area around the latrine using lime, Lysol, and others; 2) On the following day after the emergency period ends, the construction of emergency latrines must be carried out immediately and 1 (one) latrine is recommended to be used by no more than 20 people. It is recommended that latrines be built-in refugee locations: 1) have separate designations for men and women; 2) the location is a maximum of 50 meters from the refugee tent and a minimum of 30 meters from the water source. 3) the minimum distance between the latrines and the location of the clean water facilities is 10 meters; 4) the construction of the latrine must be strong and equipped with a lid on the latrine hole so that it does not become a breeding ground flies, cockroaches, and other nuisance animals. In addition, it must also consider the groundwater level, season, and soil composition; 5) the construction of latrines must be adapted to the social, cultural, beliefs, and habits of the refugees by taking into account the number of refugees and their distribution as well as the availability of local materials.

## 3. Sanitation of waste management

The composition of waste in refugee camps generally consists of waste generated by refugees (domestic waste) and health service activities (medical waste). Waste management in refugee shelters must receive attention from all parties, considering the risks that can arise if it is not managed properly, such as the emergence of flies, mice, odors, and can contaminate existing clean water sources/supplies. In waste management in evacuation centers, cooperation between refugees, district/city health offices, district/city cleaning services must be carried out for the process of collecting and transporting waste to the final disposal site.

Activities carried out in sanitation efforts for waste management include 1) waste collection; a) the waste generated must be accommodated in the family or group of family trash bins; b) it is recommended to use a trash can that can be closed and easy to move/lift to avoid flies and odors. For this reason, pieces of drums or plastic trash bags with the

size of 1 MX 0.6 m for 1 – 3 families are recommended; c) placement of trash cans a maximum of 15 meters from the place of residence; d) the garbage in the trash can for a maximum of 3 (three) days must have been transported to the final disposal site or temporary collection point. 2) waste transportation; Garbage can be transported using a garbage cart or by a garbage truck to be transported to the final disposal site. 3) final disposal of waste; Final disposal of waste can be carried out in several ways, such as burning, stockpiling in dug holes or trenches with a size of 2 meters deep, 1.5 meters wide, and 1 meter long for the needs of 200 people. It should be noted that the final disposal site must be far from residential areas and a minimum distance of 10 meters from water sources. 4) vector supervision and control. Various types of vectors such as flies, rats, and mosquitoes can develop from improper waste management in refugee sites. Efforts are made in the form of a) proper disposal of waste/food waste; b) if necessary can use insecticides; c) maintain personal hygiene while in the refugee location; d) provision of proper wastewater disposal (SPAL) and waste disposal facilities

#### 4. Supervision and security of food and beverages

In the management of food and beverages in disasters (for the consumption of many people), must pay attention to food and beverage sanitation hygiene rules (HSMM), to avoid the occurrence of foodborne diseases including diarrhea, dysentery, cholera, hepatitis A and typhoid, or food and beverage poisoning, based on WHO guidelines Ensuring food safety in the aftermath of natural disasters, among others, namely: 1) all food and food ingredients to be distributed must be suitable for human consumption both in terms of nutrition and culture; 2) the food to be distributed should be in dry form and the recipient knows how to prepare the food; 3) stock should be checked regularly and separate the defective stock; 4) food preparers must be trained in hygiene and the principles of safe food preparation; 5) staff preparing food should not be sick with the following symptoms: jaundice, diarrhea, vomiting, fever, sore throat (with fever), infected skin lesions or discharge from the ears, eyes or nose; 6) cleaners must be trained in keeping public kitchens and surrounding areas clean; 7) water and soap are provided for personal hygiene; 8) food should be stored in containers that protect it from rodents, insects or other animals; 9) in flood-affected areas, whole foods should be moved to dry places; 10) throw away damaged, or leaky canned food; 11) inspect all dry food for physical damage, mold growth from vegetables, fruit and dry cereals; 12) clean water for preparing food

### **Conclusion and Suggestion**

1. In general, environmental health problems in flood conditions need to be considered considering the impact that occurs can cause various kinds of diseases and can even cause death if not handled quickly.
2. In general, the informants said it was important to provide clean water when a flood-hit, especially if the flow of clean water was disrupted.
3. An informant said that the disposal of feces is not very important because if a flood comes we can still defecate in the floodwater, but the informant said otherwise if the septic tank floods the house is also submerged so that a lot of feces are scattered, and this also causes problems when it floods.
4. There is an informant who said that waste management and waste management do not need to exist when there is a flood, because they can be cleaned by the flood. While others say that real estate will be clogged when the flood comes,

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# **THE GROUP SUPPORTIVE THERAPY MODEL AND DISASTER PREPAREDNESS TRAINING IN IMPROVING THE PREPAREDNESS OF SCHOOL COMMUNITY TOWARD DISASTER IN WEST SUMATERA**

**Renidayati, Zolla Amely Ilda, Reflita**  
**Health Polytechnic Padang Ministry of Health, Department of Nursing**  
**Jalan Simpang Pondok Kopi, Siteba, Padang**  
 email: [renidayati72@gmail.com](mailto:renidayati72@gmail.com)

## **ABSTRACT**

West Sumatra gets the fifth ranks in the top disaster-prone province in Indonesia. The level of disaster preparedness in the school environment is at the lowest position compared to the preparedness in the community. This study aimed to implement the Model Group Supportive Therapy and Disaster Preparedness Training to improve the school community's preparedness for disasters in West Sumatra. The research design used "Quasi experimental pre-post test without control group". It was carried out in four public elementary schools in Pariaman and Padang with 166 respondents taken by purposive sampling. The results of the first stage of the study showed an increase in preparedness to face potential disasters in students before and after being given the Model Group Supportive Therapy Model and Disaster Preparedness Training. There was an increase in preparedness to face potential disasters by 23,614 students. The Group Supportive Therapy model and disaster preparedness training program are effective in increasing school preparedness against potential disasters by 62.71%. It is recommended to the Education Office in West Sumatra that elementary school communities receive Model Group Supportive Therapy training and Disaster Preparedness School Training. The completion of the Model Group Supportive Therapy module and disaster preparedness training program needs to be carried out as one of the interventions in an effort to increase school community preparedness against potential earthquake disasters and the tsunami in West Sumatra

**Keywords: Group Supportive Therapy-Disaster Preparedness School Training-Student School Community.**

## **Introduction**

The National Disaster Management Agency reported that as of the end of August 2020, 1,724 natural disasters had occurred in Indonesia. West Sumatra ranks in the top five as a province with a disaster-prone area in Indonesia., (BNPB, 2020). This incident had a major impact on various sectors, including the education sector (Momeni, 2020). The results of the study (Aprilin, Haksama, & Makhludi, 2018) stated that the level of preparedness for disasters in the school environment was at the lowest position compared to preparedness in the community setting.

The high potential for the school community to be exposed to disaster threats and the possible impact of damage is necessary to increase understanding of disaster risk so that they can know how to respond in dealing with disaster situations (BNPB, 2018). One of the efforts to improve disaster preparedness is through capacity building of the school community consisting of students, teachers and other school components. Improving school community preparedness can be done through disaster safe school training which is strengthened by the development of the Group Supportive therapy model for the school community (Stafford, Schonfeld, Keselman, Ventevogel, & Stewart, 2019).

Group Supportive therapy carried out in the school community is a group technique and process in creating a therapeutic relationship between therapists and the school community consisting of students, teachers, school principals, and school committees in implementing five preparedness parameters, namely knowledge and attitudes, disaster warning systems, response plans, emergencies, policies and guidelines, and resource mobilization in schools (Herdiana, 2019).

Data from the Education Office of Padang Pariaman Regency in 2020 recorded 24 elementary schools located in Padang Pariman and in Padang City there were 348 elementary schools and 76 elementary schools located on the coast of Sumatra. There has been no form of effort to increase community resilience through the development and application of the Group Supportive therapy model and the Disaster Preparedness School training program carried out in the school community on the coast of West Sumatra. The research was conducted in line with the 2017-2045 National Research Master Plan on Disaster. At the same time as institutional strengthening in Poltekkes Kemenkes Padang to become the Center for Excellence in Science and Technology (PUI) for health-based disaster management and local wisdom. This is the background for the need for implementing Model Group Supportive therapy and training for Disaster Preparedness Schools based on local wisdom in increasing school community preparedness to face disasters in the Coastal area of West Sumatra.

## **Methods**

The study used a quantitative research approach with "Quasi Experimental pre and post test with control group" in increasing school preparedness to face disasters for school-age children, in the coastal area of West Sumatra. This research was carried out in four public elementary schools in Pariaman and Padang whose schools are located in the coastal areas of Padang and Pariaman. Phase I research time (February-November 2021). The population in this study were all elementary school students in 4 (four) public elementary schools in Pariaman City, Padang Pariaman Regency and Padang City, totaling 671 people. The sampling technique was purposive sampling. (Lemeshow, Hosmer, Klar & Lwanga, 1997). The number of samples in the study 166 respondents consisting of students in Pariaman City and Padang Pariaman Regency 83 people and 83 students on the coast of Padang Beach. Data was collected by means of

interviews and questionnaires. The research instrument uses the Widyatun, et al (LIPI, 2008:10) instrument to measure the school community's preparedness for the parameters of knowledge and attitudes (KAP), action, emergency response plans (RTD), disaster warning systems (PB), and resource mobilization (MSD).

## Results And Discussion

Table 1. Characteristics of Respondents by (Gender and Class) at SDN West Sumatra in 2021

Characteristics	Intervention Group (GST+Training) N= 83		Intervention Group (Training) N =83		Pvalue
	f	%	f	%	
<b>Gender</b>					0.13
a. Male	46	55,4	29	34,9	
b. Woman	37	44,6	54	65,1	
<b>Class</b>	f	%	f	%	0,43
a. V	50	60,2	36	43,4	
b. VI	33	39,8	47	56,6	

Based on table 1, more than half (55.4%) of the respondents were male in the group that received the intervention of the Group Supportive therapy model and the disaster preparedness training program and more than half (65.1%) of the female respondents in the group that received the disaster preparedness training program. More than half (60.2%) of the respondents were in class V in the group given the Model Group Supportive therapy and disaster preparedness training program. In the group that was given disaster preparedness training, 56.6% were in class VI.

Table 2. Characteristics of Respondents by Age at SDN West Sumatra in 2021

Characteristics	Group Type	f	Mean	SD	Min - Maks	P Value
Age	GST+P	83	11,24	0,674	10-12	0,149
	Training	83	11.14	0,751	10-13	

Table 2 shows that the average age of respondents who received the Model Group Supportive therapy and disaster preparedness training program in school preparedness was 11.24 years with a standard deviation of 0.674 with the youngest age being 10 years and the oldest 12 years. Respondents who only received disaster preparedness training programs in school preparedness with an average age of 11.14 years with a standard deviation of 0.751 with the youngest age being 10 years and the oldest being 13 years old.

## 2. Knowledge and attitudes, actions, disaster warning systems, policies, guidelines and disaster emergency response plans, and resource mobilization and school preparedness for disasters

Table 3. Analysis of Respondents' Scores based on Knowledge and attitudes, actions, disaster warning systems, policies, guidelines and disaster emergency response plans, and resource mobilization and school preparedness to face disasters Prior to Intervention at SDN West Sumatra in 2021

Ability	Group Type	Mean	SD	Min- max	f	<i>Pvalue</i>
Knowledge and Attitude	GST+P	4.76	1.007	2-7	83	0.202
	Training	4.87	0.908	2-5	83	
Action	GST+P	3.35	0.706	2-5	83	0.874
	Training	3.34	0,701	2-5	83	
Disaster Warning System	GST+P	2.02	0.765	1-4	83	0.885
	Training	2.16	0,961	1-4	83	
Guidance Policy And Disaster Response plan	GST+P	2.14	0.646	1-3	83	0.196
	Training	2.13	0.546	1-3	83	
Resource Mobilization	GST+P	1.76	0.554	1-3	83	0.196
	Training	1.75	0.622	1-4	83	
Disaster Preparedness	GSP+P	14.04	1.811	10-19	83	0,391
	Training	14.20	1.606	9-16	83	

Based on Table 3, it is known that the average score of respondents' knowledge and attitudes about disaster preparedness before intervention is 4.76. The lowest score 2, the highest score 7 in the group that received the Group Supportive therapy model and disaster preparedness training program. In the group that was only given disaster preparedness training, the average score of respondents' knowledge about disaster preparedness was 4.87, the lowest score was 2, the highest score was 5. The knowledge equality test between the two groups before the intervention was equivalent, namely  $> 0.05$ . The average respondent's actions in disaster preparedness were 3.35 with the lowest value, the lowest 2, the highest value, 5 in the group that received the Model Group Supportive therapy and disaster preparedness training program. And respondents who only received the disaster preparedness training program the average was 3.34 with the lowest score of 2 and the highest score of 5. The average respondent's disaster warning system in disaster preparedness was 2.02 with the lowest score of 1, the highest score of 4 in the group receiving the Model Group Supportive therapy and standby training program. And the average disaster warning of respondents who only received a

disaster preparedness training program was 2.16 with the lowest score of 1 and the highest score 4. The average of the Disaster Response Policy Guidelines and plans for respondents in disaster preparedness was 2.14 with the lowest score of 1 being the highest 3 in the group receiving the Model Group Supportive therapy and program disaster preparedness training. And the mobilization score of respondents who only received a disaster preparedness training program was 2.13 with the lowest score of 1 and the highest score of 3. The average mobilization of respondents in disaster preparedness was 1.76 with the lowest score of 1 being the highest 3 in the group receiving the Model Group Supportive therapy and disaster preparedness training program. And the mobilization score of respondents who only received a disaster preparedness training program with the lowest score of 1 and the highest score of 3. The average score of disaster preparedness was 14.04 with the lowest score of 10 and the highest score of 19 in the group receiving the Model Group Supportive therapy and disaster preparedness training program. And respondents who only received the disaster preparedness training program, the average score of disaster preparedness was 14.20 with the lowest score of 9 and the highest score of 16.

Table 4. Changes in disaster preparedness Respondents Before and After Model Group Supportive therapy and disaster preparedness training programs at SDN West Sumatra 2021

Group	Disaster Preparedness	f	Mean	SD	SE	P Value
SGT+P	Before	83	14.04	1.811	0.199	0,000
	After	83	37.65	1.152	0.126	
	Difference		<b>23.614</b>			
Training	Before	83	14.20	1.606	0.176	0,000
	After	83	15.60	1.489	0.163	
	Difference		<b>1.398</b>			
Group	Knowledge and attitude Facing Disaster	f	Mean	SD	SE	P Value
SGT+P	Before	83	4.76	1.007	0.111	0,000
	After	83	15.08	0.736	0.081	
	Selisih		<b>10.325</b>			
Training	Before	83	4.87	0.908	0.100	0.129
	After	83	5.07	1.314	0.144	
	Difference		<b>0.205</b>			
Group	Actions for Disasters	f	Mean	SD	SE	P Value

SGT+P	Before	83	3.35	0.706	0.077	0,000
	After	83	7.70	0,487	0.053	
	Difference		<b>4.349</b>			
Training	Before	83	3.34	0.720	0.079	0.000
	After	83	3.96	0.740	0.081	
	Difference		<b>0.627</b>			
<b>Group</b>	<b>Disaster Warning System</b>	<b>f</b>	<b>Mean</b>	<b>SD</b>	<b>SE</b>	<b>P Value</b>
SGT+P	Before	83	2.02	0.765	0.084	0,000
	After	83	4.46	0.501	0.055	
	Selisih		<b>2.434</b>			
Training	Before	83	1,95	0.707	0.078	0.040
	After	83	2.16	0.582	0.064	
	Difference		<b>0.205</b>			
<b>Group</b>	<b>Guidance Policy And Disaster Response plan</b>	<b>f</b>	<b>Mean</b>	<b>SD</b>	<b>SE</b>	<b>P Value</b>
SGT+P	Before	83	2.14	0.646	0.071	0,000
	After	83	4.73	0.444	0.049	
	Selisih		2.590			
Training	Before	83	2.14	0.646	0.071	0,014
	After	83	2.39	0.581	0.064	
	Difference		<b>0,241</b>			
<b>Group</b>	<b>Resource Mobilization in preparedness</b>	<b>f</b>	<b>Mean</b>	<b>SD</b>	<b>SE</b>	<b>P Value</b>
SGT+P	Before	83	1.76	0.554	0.061	0,000
	After	83	5.67	0.497	0.055	
	Selisih		<b>3.916</b>			
Training	Before	83	1.75	0.622	0.068	0,051
	After	83	2.04	0.454	0.050	
	Difference		<b>0.289</b>			

Table 4. shows that the average disaster preparedness in the group given the Group Supportive therapy model and the disaster preparedness training program before the intervention was 14.02 with a standard deviation of 1.811 and after being given the intervention the average disaster preparedness was 37.65 with a standard deviation of 1.152. The results of statistical tests showed that there was a significant increase in respondents' preparedness to face disasters before and after being given Model Group Supportive therapy and disaster preparedness training programs with p value = 0.000 (P Value <0.05).

Table 5. Differences in disaster preparedness of respondents after the intervention of the Group Supportive therapy model and disaster preparedness training program at SDN West Sumatra in 2021

Variabel	Group	f	Mean	SD	SE	PV
Preparedness (Post Test)	SHG+P	83	37,65	1.152	0.126	0,000
	Training	83	15,60	1.489	0.163	
Difference			22,65			

Table 5 explains that the preparedness of respondents who received the Group Supportive therapy model and the disaster preparedness training program after the intervention increased significantly more than respondents who only received the disaster preparedness training program ( $P < 0.05$ ). The average preparedness of respondents in the group that received the Model Group Supportive therapy and disaster preparedness training program was 37.65 and the average preparedness of respondents in the group that was only given the disaster preparedness training program was 15.60.

Table 6. Differences in knowledge and attitudes in dealing with disaster respondents after the Intervention Model Group Supportive therapy and disaster preparedness training program at SDN West Sumatra in 2021

Variabel	Group	f	Mean	SD	SE	PV
Knowledge and attitude (Post Test)	SHG+P	83	15.08	0.736	0.081	0.031
	Training	83	5.07	1.314	0.144	

Table 6 explains that the preparedness of respondents who received the Group Supportive therapy model and the disaster preparedness training program after the intervention increased significantly more than respondents who only received the disaster preparedness training program ( $P < 0.05$ ). The average preparedness of respondents in the group that received the Model Group Supportive therapy and disaster preparedness training program was 15.08 and the average preparedness of respondents in the group that was only given the disaster preparedness training program was 5.07.

Table 7. Differences in respondent's response to disasters after the intervention of the Group Supportive therapy model and the disaster preparedness training program at SDN West Sumatra in 2021

Variabel	Kelompok	f	Mean	SD	SE	PV
Action (Post Test)	GST+P	83	7.70	0.487	0.053	0.015
	Training	83	3.96	0.740	0.081	

Table 7 explains that the actions in preparedness of respondents who received the Group Supportive therapy model and the disaster preparedness training program after the intervention increased significantly more than respondents who only received the disaster preparedness training program ( $P < 0.05$ ). The average action in the respondent's readiness in the group that received the Model Group Supportive therapy



and disaster preparedness training program was 7.70 and the average respondent's action in the group that was only given the disaster preparedness training program was 3.96

Table 8. Differences in the disaster warning system in dealing with respondent disasters after the intervention of the Group Supportive therapy model and the disaster preparedness training program at SDN West Sumatra in 2021

Variabel	Group	f	Mean	SD	SE	PV
Disaster Warning System (Post Test)	GST+P	83	4.46	0.501	0.055	0.010
	Training	83	1.95	0.582	0.064	

Table 8 explains that the Disaster Warning System in dealing with disasters, respondents who received the Group Supportive therapy model and the disaster preparedness training program after the intervention increased significantly more than respondents who only received the disaster preparedness training program ( $P < 0.05$ ). The average disaster warning system for respondents in the group that received the Model Group Supportive therapy and disaster preparedness training program was 4.46 with a standard deviation of 0.501 and the average preparedness of respondents in the group that was only given the disaster preparedness training program was 1.95 with a standard deviation of 0.582.

Table 9. Differences in Disaster Response Policy Guidelines and plans for responding to respondent disasters after the intervention of the Group Supportive therapy model and disaster preparedness training program at SDN West Sumatra in 2021

Variabel	Group	f	Mean	SD	SE	PV
Policy Guidance And Disaster Response Plan (Post Test)	GST+P	83	4.73	0.444	0.049	0.000
	Training	83	2.39	0.581	0.064	

Table 9 explains that the Guidance Policy and Disaster Response plan of respondents who received the Group Supportive therapy model and the disaster preparedness training program after the intervention increased significantly more than respondents who only received the disaster preparedness training program ( $P < 0.05$ ). The average of the Guide Policies and Disaster Response plans of respondents in the group that received the Model Group Supportive therapy and disaster preparedness training program was 4.73 and the average Disaster Response Plan and Guide Policies of respondents in the group that was only given the disaster preparedness training program was 2.39

Table 10. Differences in resource mobilization in dealing with respondent disasters after the intervention of the Group Supportive therapy model and disaster preparedness training program in West Sumatra in 2021

Variabel	Group	f	Mean	SD	SE	PV
Resource Mobilization in preparedness (Post Test)	<u>GST+P</u>	<u>83</u>	<u>5.67</u>	<u>0.497</u>	<u>0.055</u>	
	Training	83	2.04	0.454	0.050	0,000

Table 10 explains that the resource mobilization of respondents who received the Group Supportive therapy model and the disaster preparedness training program after the intervention increased significantly more than respondents who only received the disaster preparedness training program ( $P < 0.05$ ). The average resource mobilization of respondents in the group who received the Model Group Supportive therapy and disaster preparedness training program was 5.57 and the average resource mobilization of respondents in the group that was only given the disaster preparedness training program was 2.04

Table 11. Effectiveness of Group Supportive therapy and disaster preparedness training programs in school preparedness for disasters at SDNS Sumatra Barat in 2021

Group	Disaster Preparedness	N	Mean	Efektifitasnya Model
GST+P	Before	83	14,04	62,71%

The effectiveness of the Model Group Supportive therapy and disaster preparedness training program on school preparedness against the potential for the Padang and Pariaman City Earthquake and Tsunami before and after receiving the intervention was 62.71%

## Discussion

The results of the analysis showed that the preparedness of elementary school students who followed the Model Group Supportive therapy and disaster preparedness training program increased significantly ( $P < 0.05$ ). The preparedness of elementary

school students who only participated in the disaster preparedness training program also increased significantly ( $P$  value  $< 0.05$ ).

The readiness of elementary school students who took part in the Model Group Supportive therapy and disaster preparedness training program was seen to be higher than that of elementary school students who only participated in the disaster preparedness training program. There was an increase in the preparedness of elementary school students by 62.71% after being given Model Group Supportive therapy and disaster preparedness training which was carried out at SDN Pariaman City and Padang Pariaman District. Preparedness of school structures for disasters is a series of preparations, actions and activities carried out in individual, group and community settings in dealing with and anticipating every disaster threat that threatens survival through planned, effective and efficient organizational efforts. (Sugaya, Shirasaka, Takahashi, & Kanda, 2019)

Preparedness to face a disaster is an important factor that is of concern considering that preparedness is a determining factor for disaster risk reduction that can be carried out and pursued from an early age (LIPI-UNESCO, 2006). (Gogot Suharwoto, Nurwin, 2015). The results of the study (Momeni, 2020) the importance of implementing disaster mitigation education in schools need to be carried out early, in order to provide deepening of knowledge and readiness for actions that need to be taken before/when an unexpected natural disaster occurs to minimize any impacts that will occur. Thus, it can lead to the ability to think and act effectively in the event of a disaster. (Wisnu Widjaja Medi Herlianto, 2017).

In addition, social cohesion, supportive groups, mutual assistance, and mutual trust are the adhesive values of social capital that greatly help individuals, families, groups and communities to strengthen each other in preparing, responding, and rising from adversity due to disasters. (Alhadi & Sasmita, 2014). Addition to disaster education and training, this preparedness can be strengthened through: Group Supportive therapy is a group or peer where each member shares both physical and emotional problems or certain issues (Stuard and Larai, 2018). (Akbar, Hapsari, & Tola, 2017). (Johan, Mayub, & Wardana, 2021) (Adiyoso, 2013).

Disaster education and training activities in schools are an effective, dynamic, and sustainable strategy in an effort to disseminate disaster education with the method of providing mutual reinforcement in groups other than through disaster education and training (Ernawati, Dirdjo, & Wahyuni, 2021). This preparedness can be strengthened through Group Supportive therapy. Group Supportive therapy is a group or peer where each member shares

both physical and emotional problems or certain issues (Stuard and Larai, 2018). In this study, the Group Supportive therapy model and disaster preparedness training carried out for elementary school students is a therapy with group techniques and processes whose basic implementation can create a therapeutic relationship between the therapist and students so that it is useful for increasing strength, coping skills.

According to Stuard (2010) the implementation of the Model Group Supportive therapy and disaster preparedness training must pay attention to the principle that students in this case students play an active role with two-way communication. Each student plays an active role in sharing knowledge and hopes for solving problems and finding solutions through groups. Each member of the group must express his thoughts and feelings. The results of the research that has been carried out above and supported by the results of previous studies prove the hypothesis that there is a significant difference in increasing teacher preparedness in dealing with potential earthquakes and tsunamis through the implementation of the Model Group Supportive therapy and disaster preparedness training carried out regularly. Increased preparedness of students in schools against potential earthquake and tsunami disasters through Model Group Supportive therapy and disaster preparedness training because the information provided is well communicated, clear contracts and provides positive reinforcement. Furthermore, students are trained to practice new ways that are taught and trained to do it every day (M. Twenge, H. Spitzberg, & Keith, 2019). Through the development of the Model Group Supportive therapy model and disaster preparedness training that is trained to students as an effort to increase preparedness for the potential for earthquake and tsunami disasters in the school community, it is necessary to evaluate and monitor its implementation.

### **Conclusions And Suggestions**

There is a significant difference in the average increase in preparedness to face the potential for earthquake and tsunami disasters in elementary school students before and after being given the Group Supportive therapy model and disaster preparedness training with groups receiving only disaster preparedness training. In the group of elementary school students who were given the Group Supportive therapy model and disaster preparedness training, there was an increase in preparedness to face the potential for earthquake and tsunami disasters of 23,614. In the group that only received disaster training, there was an increase in preparedness of 1,398. Elementary school students who received the Model Group Supportive

therapy and disaster preparedness training program after the intervention increased their preparedness for the potential for earthquake and tsunami disasters significantly compared to elementary school students who only received the disaster preparedness training program. . The Group Supportive therapy model and the disaster preparedness training program are effective in increasing school preparedness against the potential for the Padang and Pariaman City Earthquake and Tsunami before and after receiving the intervention, which is 62.71%.

Based on the results of the study, it is suggested that the Model Group Supportive therapy and disaster preparedness training program given to elementary school students can improve school preparedness against the potential for earthquake and tsunami disasters, so that this therapy can be applied in various school settings. Group Supportive therapy model and disaster preparedness training program, in order to be able to apply it to groups of school-age children, teachers and families guided by the Group Supportive therapy model and existing disaster preparedness training programs. Through the Principals in Pariaman City, Padang Pariaman Regency and Padang City provide tools to support the implementation of the Group Supportive therapy model and disaster preparedness training program and the room where it is carried out.

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## **DIETARY MODELLING IN INCREASING CARDIORESPIRATORY RESISTANCE THE STUDENT OF EDUCATION AND TRAINING CENTER**

**Rina Hasniyati<sup>1</sup>, Defniwita Yuska<sup>1</sup>, Zulkifli<sup>1</sup>, Kasmiyetti<sup>1</sup>, Edmon<sup>1</sup>, Novelasari<sup>2</sup>, Rapitos Sidiq<sup>2</sup>**

<sup>1</sup>Department of Nutrition, Padang Health Polytechnic

<sup>2</sup>Department of Health Promotion, Padang Health Polytechnic

Email: rinahasniyati43@gmail.com

### **ABSTRACT**

The Sport Development Index (SDI) survey in 2006 reported that the fitness level of students in Indonesia tended to be low. Dietary factor is among the most important determinant for cardio-respiration resistance. This study aims to develop a dietary model to increase cardio-respiration resistance of athletes at Student Education and Training Center (SETC) in Padang, West Sumatra, Indonesia. This study used a cross sectional design. The population is all students of SETC as many as 77 people. According to the inclusion criteria, a sample of 46 people was obtained. Sampling is done by simple random sampling method. Primary data collection includes data on characteristics, cardiorespiratory resistance, energy intake, fe intake, and physical activity. Data were analyzed univariately uses descriptive statistical measures. Bivariate analysis uses the Pearson and the Spearman correlation test. The results obtained an average cardiorespiration resistance of 102.8, energy intake of 2957.9 kcal, carbohydrate intake of 447.8 grams, protein intake of 105.7 grams, fat intake of 85.9 grams, intake of fe 11, 5 grams and physical activity averaged 8,1. Pearson correlation test results had a significant relationship between energy intake, carbohydrate intake and fat intake with cardiorespiratory resistance ( $p < 0.05$ ). Multiple linear regression test obtained a model equation to increase cardiorespiratory resistance with one independent variable, Cardiorespiration resistance =  $71,324 + 0.070$  carbohydrate intake. After calculating the needs according to the type of exercise, a significant relationship was found between the needs and resistance of cardiorespiration. It is hoped that the results of the equation found and can be applied by SETC.

**Keywords:** cardiorespiratory resistance, intake, physical activity

### **INTRODUCTION**

A very tight competition in the era of globalization requires every individual to have a healthy and fit physical condition (Afriwardi 2011). Someone who has a low level of fitness will be at risk for various types of diseases including cardiovascular disease, diabetes,



hypertension and cancer (Arsenault et al. 2011). Fitness is a person's ability to do everyday tasks easily without feeling too tired, and still has extra energy to do leisurely activities (Afriwardi 2011; Wiarto 2013). The Sport Development Index (SDI) in 2005 reported the level of fitness for students which tended to be low, namely the level of fitness with excellent the results mean good of 5.66%, moderate of 37, 66%, 45.97% fair, and poor of 10.71%. Based on research conducted by Lubis et al in 2013 in Padang 91.7% students observed had poor cardiorespiratory resistance (Lubis and Sulastri 2015). Fitness is influenced by many factors including age, gender, heredity, smoking habit, exercise and food, (Afriwardi 2011; Wiarto 2013) and the type of muscle fiber (Arsenault et al. 2011).

Micronutrient which plays an important role in a person's health and fitness is iron. It plays a role in folate metabolism associated with DNA synthesis and tissue development. In addition, iron also plays a role in the breakdown of fatty acids so that it produces energy when a person is physically active (L 2004). The presence of iron as a supporter of fitness is closely related to energy intake. Lack of calorie intake and nutrition will have an impact on the decreasing ability of the body to do its activities. This occurs because muscle contraction requires ATP while the supply of ATP in the muscle is limited so that additional energy is needed to replace or reshape ATP (Afriwardi 2011). This is consistent with the results of research conducted by Putra in 2014 which concluded that there was a significant relationship between energy intake and cardiorespiratory resistance.

Apart from dietary factors in supporting fitness, physical activity is a factor that cannot be ruled out. Someone who performs regular physical activity will have more glycogen stores in his or her muscles than people who don't move. Besides, regular physical activity also increases maximum oxygen consumption. So people who are accustomed to physical activity are more resistant to activity and they are not feeling tired. so that their fitness is well maintained (Wiarto 2013). This is consistent with the research conducted by Diana et al in 2009 on 937 male workers of PT Semen Padang aged 18-56 years, which produced workers with low physical work activities compared to workers with high physical work activities who had 10 times higher risk of experiencing poor physical fitness (Diana, Basuki, and Kurniarobbi 2009).

Resistance cardiorespiration is a direct guide and the best single component in assessing one's fitness level (Afriwardi 2011). Cardiorespiratory resistance illustrates the ability to take oxygen from one person and send it to the central muscles of another cell and use it to supply energy. A person with good cardiorespiratory resistance, has an efficient heart, effective lungs and good blood circulation which can also supply muscles. (Broersen

and Dull 2011). Based on the description above, the researcher is interested in conducting research with the title " Dietary Modelling in Increasing Cardiorespiration Resistance the Student of Education and Training Center ".

## **METHODS**

The study used a quantitative method with cross sectional study. The population is all students of the West Sumatra Student Education and Training Center (SETC) the number of 77 students, based on established sample criteria, a sample of 46 students was obtained. The collected data includes data on the characteristics and resistance of cardiorespiration of students collected with the help of Physical Education graduates. Cardiorespiratory resistance tests are carried out with several conditions, namely respondents in good health, which can be seen from PAR Q and YOU questionnaire. Then the data were obtained through a pulse count after going up and down the bench for 5 (five) minutes guided by the Harvard Step Test. Energy and Fe intake data were obtained through interviews with students, using a semi-quantitative FFQ questionnaire. Students physical activity was assessed through interviews, using a questionnaire modified from Baecke (Baecke, Burema, and Frijters 1982). Data processing was done through the process of editing, coding, entry and cleaning. Data analysis was univariate analysis uses descriptive statistical techniques. Relationship between the two variables used Pearson correlation test was conducted for normally distributed variables and Spearman's correlation for variables that were not normally distributed. Next, multivariate analysis used logistic regression.

## **RESULTS AND DISCUSSION**

### **Sample Characteristics**

The distribution of research samples by age and gender can be seen in the following table.

Table 1. Sample distribution according to the age group and gender

Age (years)	Total
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	male	%	female	%
14	0	0	2	15
15	11	69	5	39
16	10	77	3	23
17	12	80	3	23
Total	33 (71.7%)	100	13 (28.3%)	100

Based on table 1, it is known that 71.7% male and 28.3% female, the largest proportion of male students 80% is 17 years old while women 39% are 15 years old.

### **Cardiorespiration resistance, energy intake, carbohydrates, protein, fat, fe, and physical activity measurements**

The average results of measurements of cardiorespiration resistance, energy intake, carbohydrates, protein, Fe fat and physical activity can be seen in table 2 below:

Table 2. Distribution of cardiorespiratory resistance, energy intake, carbohydrate, protein, fat, fe and student physical activity measurements

No	Variable	Mean	SD	Med	Min	Max
1	Cardiorespiration resistance	102.8	21.59	100.3	67.4	142.8
2	Energy intake	2957.9	759.3	2807.3	1163	5129
3	Carbohydrate intake	447.8	132.8	451.9	180.3	788.6
4	Protein intake	105.7	30.9	104.	36	200
5	Fat intake	85.9	29.7	82.9	11,8	165.7
6	fe intake	11.5	6.39	11.0	3	41
7	physical activity	8.1	2.1	8.5	2.5	10.9

Based on table 2 above, it can be seen that the average resistance of the cardiorespiration of respondents is 102.8 (in the fit range), the average energy intake of respondents per day was 2957.9 cal, carbohydrate was 447, 8 g, protein was 105.7 g, fat was 85.9 g, fe was 11.5 mg, and the average the respondent's physical activity level was 8.1.

Nutritional needs especially energy depends on age, physical activity and gender. According to the 2018 Recommended Dietary Allowances (RDA), the recommended energy adequacy for men aged 13-15 years is 2400 cal / day and ages 16-18 is 2650 cal / day, while women aged 13-15 years are 2050 cal / day and ages 16-18 are 2100 cal / day (RDA, 2018).

When it is compared to the Nutrition Adequacy Rate, the average energy intake of respondents is above RDA.

The high intake of respondents from RDA is caused by their role as both students and athletes who run routine exercises every day. Based on the calculation of athletes' needs, soccer athletes must meet the intake of 4.166 kcal for ages 16-18 years and 3.941 kcal for ages 13-15 years, takraw athletes 3.575 kcal for ages 16-18 years and 3.350 kcal for ages 13-15 years, martial athletes themselves 3.55 kcal for ages 16-18 years and 3,630 for ages 13-15 years, running athletes with 2.601 for ages 13-15 years and archery athletes 2.536 kcal for ages 16-18 years.

The result is still below the level of nutritional adequacy recommended in 2013 which was 19 mg for men aged 13-15 years and 15 mg for men aged 16-18 years, while for women aged 13-18 years was 26 mg. This study also shows that the average physical activity was active. Although, there was no statistically significant difference sex, but the average physical activity of men was higher than women, which was 8.52 in men and 6.89 in women.

#### **Different mean measurements test by genders**

The average difference test results of the measurement of variables can be seen in the following table:

Table 3. Different test results on average cardiorespiratory resistance, energy intake, fat, protein, fat, fe and physical activity according to sex

<b>Variable</b>	<b>sex</b>	<b>n</b>	<b>Mean</b>	<b>SD</b>	<b>p value</b>
<b>cardiorespiratory resistance</b>	male	33	108.2	20.1	0,005*
	female	13	89.1	19.6	
<b>energy intake (kcal/day)</b>	male	33	3137.6	705.6	0,009*
	female	13	2498.4	718.9	
<b>carbohydrate intake (gr/day)</b>	male	33	482.1	125.1	0,004*
	female	13	361.0	113.8	
<b>protein intake (gr/day)</b>	male	33	111.4	31.2	0,041*
	female	13	91.0	25.4	
<b>fat intake (gr/day)</b>	male	33	89.8	27.3	0,158
	female	13	76.0	34.2	

<b>Fe intake (gr/day)</b>	male	33	12.4	7.1	0,116
	female	13	9.1	3.1	
<b>Physical Activity</b>	male	33	8,5	1,7	0,016*
	female	13	6,8	2,5	

\* significancy (p <0.05)

Based on table 4, it was significance difference to the average cardiorespiratory resistance, energy intake, carbohydrate, protein and physical activity in men and women (p <0.05), while fat and fe intake are not different significantly.

The difference in energy, carbohydrates, and protein intake between male and female athletes lies on the fact that there were some female athletes who were in a weight loss program so there is a difference in intake with athletes who were during so. Based on the observal menu and interview with respondents, it was found that athletes who join a weight loss program the intake of animal fat and protein was reduced this may not cause significant differences in Fe and fat intake between male and female athletes.

The results of this study also found a significant difference between the physical activity of male and female respondents, this might be influenced by sports involved in athletes. Most male athletes were found of soccer and women chose martial arts. It caused the differences and training techniques they did so as to affect the level of their physical activity.

### **The relationship between energy intake, cabohydrates, protein, fat, Fe and physical activity with cardiorespiratory resistance**

To see relationship between variables, Pearson's test for normally distributed variables and Spearman's tests for variables that are not normally distributed. Were to conducted find out whether there is a relationship between variables. While the closeness of the relationship between variables is seen from the value of r. The results of the test of the relationship between variables can be seen in the following table.

Table 4. Relationship of Energy, intake Carbohydrate, Protein, Fat, and Fe Intake Physical Activity with students Cardiorespiratory Resistance

Variable	Cardiorespiratory Resistance (seconds)	
	R	p value
energy intake	0.411	0.005
carbohydrate intake	0.432	0.003
protein intake	0.255	0.088
fat intake	0.299	0.044

fe intake	0.270	0.067
physical activity	0.150	0.324

Based on table 4, it was found that is energy intake, carbohydrate intake and fat intake with cardiorespiratory resistance show moderate correlation ( $r = 0.411, 0.432$  and  $0.299$ ) have a positive pattern, means that the higher the intake of energy, carbohydrates, protein and fat the higher the level of cardiorespiratory resistance. Based on statistical tests, the results found that there was a significant difference between energy, carbohydrate, protein and fat intake with cardiorespiratory resistance. Mean while there was no correlation between intake and physical activity with cardiorespiratory resistance.

Energy intake is needed to do muscle work obtained from food consumed every day which consists of macro nutrients, including carbohydrates, protein, and fat (Williams and Rollo 2015). Energy from food is transferred to a storage molecule called adenosine triphosphate (ATP). Muscle contractions for each sport or physical activity produced by movements using muscles are supported by energy released from the separation of high-energy phosphate from ATP.

Although ATP is a direct source of energy for muscle contraction, the amount of ATP found in the muscles is very small (only about 85 grams) which must be continuously refilled or it will be exhausted after a few seconds of high intensed exercise. ATP is replenished by two separate systems, namely the anaerobic system and the aerobic system. Anaerobic systems produce ATP without oxygen from the storage of small ATP-creatine phosphate (CP) and lactate systems while the aerobic system uses oxygen (Antony 2011). If the athlete's energy intake is fulfilled, then cardiorespiratory resistance can be increased.

This study also found a significant relationship between carbohydrate intake with cardiorespiratory resistance. The results of this study are also in line with the research done by Rizki H, 2018 which concluded that there is a significant relationship between carbohydrate intake and cardiorespiration resistance. (Rizqi and Udin 2018)

Carbohydrate is one of the macro nutrients which act as the main energy source at various levels and types of physical activity. There are two types of carbohydrates. There are namely simple and complex carbohydrate. Glucose is a simple carbohydrate that can be used directly as a source of energy by the body's cells, but if the amount is excessive it can be converted into glycogen reserves in the liver and muscles. If it is still excessive it will be stored in the form of fat in adipose tissue. Complex carbohydrate is long-chain carbohydrate which is a combination of 3 or more glucose molecules. There is another form of

carbohydrate, namely fiber (including cellulose) which cannot be digested by digestive enzymes (I.Ilyas 2004).

When doing physical exercise, the body's muscles, heart system, and blood and breathing circulation are activated. At the beginning of aerobic exercise, the main source used is glucose which is derived from muscle glycogen stores. Furthermore, if the exercise portion is increased, the use of glucose comes from liver reservation (Thankachan et al. 2012). So the better the intake of carbohydrates, is the better the glycogen stores so that it will play a role in maintaining performance in physical exercise. This research also produced a significant relationship between fat intake and cardiorespiratory resistance. The results is consistent with the study conducted on Sholehah et al 2018 which concluded that there was a significant relationship between fat intake and good fitness level.(Sholeha, Humairoh R, Katrin E 2018)During physical exercise, the process of breaking down fat into ATP or beta oxidation occurs. The amount of ATP produced depends on the C (carbon) atom content of certain types of fat(Williams and Rollo 2015).

Fat is the main source of energy for long physical activities such as long distance running and marathons. Fat is also an ideal source of energy for body cells because each molecule contains a large amount of energy. It is also easily transported and changed when needed. One gram of fat contains 9 KKal, 2 times the amount of energy contained in carbohydrates and protein (I.Ilyas 2004).

Fat is also the main source of energy for growth and physical activity for children. Fat is stored in the form of triglycerides in muscle tissue and adipose tissue in the body. When exercising, triglyceride stores will be broken down into glycerol and free fatty acids and then metabolized to produce energy. Burning fat contributes more than burning carbohydrates, especially in low intensity sports (walking, jogging, etc.) the its contribution will decrease as increasing of sport intensity. To help maintaining energy and adequate nutrition, fat consumption should be around 20-35% of the total energy needs. One essential function of fat is a source of energy for muscle contraction(L 2004).

The research also found a significant relationship between protein intake and cardiorespiratory resistance. People who often do physical exercise really need adequate protein intake because it will cause the formation of muscle mass. Muscle mass plays a role in the formation of energy in a fast time, so that when the body conducted its activities in the first minutes, it will burn muscle mass. If protein intake is insufficient, it will cause a decrease in muscle mass. This can result in decreased muscle function and physical performance of a person. (Pasiakos et al. 2017) Protein is needed for growth, development

of muscle formation, formation of red blood cells, the body's defense against disease, enzymes and hormones, and the synthesis of other body tissues. Protein requirements after exercise increase slightly because they are used for tissue recovery and muscle mass gain. The recommended protein consumption is 12 to 15% of the total energy needs.(L 2004)

The result of this study did not find a significant relationship between Fe intake and cardiorespiratory resistance. This study is not in line with the Refiana study, 2015 which found there was a relationship between iron intake and the level of fitness of students in UNY soccer UKM with p values = 0.042 and  $r = 0.341$ . A person who practices every day is very susceptible to loose Fe even in small amounts, because the body can loose Fe through sweat. This makes athletes who have resistance such as runners at risk of experiencing Fe deficiency. Without enough iron, the body cannot use oxygen properly to produce energy. This incident will interfere with the ability of athletes to compete. A common problem for athletes with Fe deficiency is the inability to maintain constant heart rate during moderate to severe exercise. Another problem that is the respondents of this study are athletes and teenagers as well. Adolescence is an important period of nutritional insecurity due to the increasing need for food to grow and develop. The need for Fe increases as a result of intensive growth and muscle development, which means an increase in blood volume exists; thus, it is very important to meet the intake of Fe. (Taylor et al. 2013).

The result of this study did not find a significant relationship between physical activity and cardiorespiratory resistance. Physical activity continuously and regularly will made cardiorespiratory resistance will be good because energy sources to be used more efficiently, thus allowing glycogen storage in the liver and muscles and causing greater muscle mass, and will more resistant to activity and not easily tired as well. (Wiaro 2013). Physical activity also causes maximal oxygen uptake, decreasing heart rate and blood pressure, increasing work efficiency of the heart muscle, increased resistance in physical exercise, increasing activity of aerobic enzymes in skeletal muscle and increasing muscle strength and metabolism (Wiaro 2013). More over, physical activity will make the blood distribution to muscle fibers more smoothly so that capillaries will increase, a result body fitness will be maintained well.(Broersen and Dull 2011)

Multivariate analysis was conducted using multiple linear regression analysis. The results of the analysis were used to model the cardiac resistance of the heart in the form of a regression equation. The results of multivariate analysis are shown in the following table: Table 5. The results of multiple linear regression analysis



Variable	Coef. Beta	SE	T	p-value	
Const.	71.324	10.315	6.915	0,000	R =0.432
Carbo intake	0.070	0.022	3.182	0,003	R2= 0.187

Based on table 5 it is known that carbohydrate intake is a more dominant variable affecting cardiorespiratory resistance with the equation of the cardiorespiratory resistance model obtained is:

$$\text{Cardiorespiration resistance} = 71.324 + 0.070 \text{ carbohydrate intake}$$

The determinant coefficient (R<sup>2</sup>) of the equation obtained is low, R<sup>2</sup> = 0.187, which means that the equation can explain the proportion of variable diversity in the cardiorespiratory resistance variable which is only 18.7%.

Carbohydrates are the most important fuel source for athletes because they provide glucose which is used for energy. One gram of carbohydrate contains about four kilocalories of energy. Glucose is stored as glycogen in the muscles and liver. Muscle glycogen is the most available energy source for working muscles and can be released faster than other energy sources (Hoch, Goossen, and Kretschmer 2008). Carbohydrates must comprise 45% to 65% of total calorie intake for ages 4 to 18 years (Hoch et al. 2008; Otten, Hellwig, and Linda 2006).

Carbohydrates are needed in aerobic exercise, because the energy obtained comes mainly from carbohydrates at that time, energy derived from the aerobic process originally comes from muscle glycogen. If sport activity continues, the formation of ATP comes from the glucose and liver glycogen reservation, whereas glycogen reservation will not be formed without carbohydrates. Carbohydrates are important for endurance. Athletes with strenuous exercise require energy output 2-3 times greater than individuals who do not practice (L 2004).

## CONCLUSION

The results of multivariate analysis are carbohydrate intake is a more dominant variable affecting cardiorespiratory resistance with the equation of the cardiorespiratory resistance model obtained is:

$$\text{Cardiorespiration resistance} = 71.324 + 0.070 \text{ carbohydrate intake}$$

It is hoped that the results of the equation found and can be applied by SETC.

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**EFFECTIVENESS OF OVITRAP TOOL MODEL  
YELLOW LIGHT WITH WHITE WATER MODIFICATION  
SINDANG KELINGI DISTRICT IN 2021**

**Rustam Aji<sup>1</sup> ; Agussalim<sup>2</sup> ; Gustomo Yamistada<sup>3</sup>**

Curup Nursing Study Program at the Bengkulu Ministry of Health Poltekkes  
Makassar Health Polytechnic Nursing Department  
Jambi Health Polytechnic Department of Health  
[adjieroestamadje@gmail.com](mailto:adjieroestamadje@gmail.com).

**ABSTRACT**

Indonesia is a tropical area which is an excellent place for mosquito breeding, because the temperature, weather, and seasons in Indonesia are very supportive in the mosquito breeding process, so that the mosquito population becomes high and very dangerous for human life, the existence of vectors that are detrimental to human life, because Mosquitoes are vectors that cause and transmit diseases in human life. To control the mosquito population, it is necessary to eradicate it by reducing the mosquito population.

This study aims to determine the effectiveness of the yellow light ovitrap model with a modified water bottle, in the intervention group and the control group. Observational research, cross sectional study design. Survey of mosquito locations on the terrace of the house. The survey data were analyzed using the chi-square test. The results of Chi-square analysis obtained P value = 0.08 > 0.05. So Ho is accepted and Ha is rejected, which means that there is no statistically significant relationship between the yellow light ovitrap and the modified water bottle. does not rule out the possibility of 2.33 times being found trapped mosquitoes

Keywords: Modeli, yellow light Ovitrap and mosquitoes.

**Introduction**

Indonesia is a tropical area which is an excellent place for mosquito breeding, because the temperature, weather, and seasons in Indonesia are very supportive in the mosquito breeding process, so that the mosquito population becomes high and very dangerous for human life, the existence of vectors that are detrimental to human life, because Mosquitoes are vectors that cause and transmit diseases in human life. To control the mosquito population, eradication needs to be done by reducing the mosquito population, with the effectiveness of the yellow light ovitrap device model with modification of white water, researchers used it as a mosquito trap tool on the terrace of the house that was installed at night.

This study aims to determine the effectiveness of the yellow light ovitrap model, with a modified water bottle, in the intervention group and the control group. The research location is on the terrace of the house,

**Methods**

Observational research, cross sectional study design. Survey of mosquito locations on the terrace of the house. The survey data were analyzed using the chi-square test. This study uses a quasi-experimental design, with a post-test only control group design, namely there is an experimental group and a control group. The experimental group was given X1 treatment and the control group was not given treatment (Nursalam, 2008)

Research Hypothesis

The hypotheses in this study include:

1. Ho: The yellow light ovitrap model is more effective with a modified bottle filled with water
2. Ha : The yellow light ovitrap model is not effective with a modified bottle filled with water

## Result and Discussion

### Research result

The results of Chi-square analysis obtained P value =  $0.08 > 0.05$ . So  $H_0$  is accepted and  $H_a$  is rejected, which means that there is no statistically significant relationship between the yellow light ovitrap tool and the modified bottle filled with water. , it is possible 2.33 times to find trapped mosquitoes

Table 1. The effectiveness of the yellow light ovitrap model with a modified bottle filled with water, in the intervention group and the control group on the terrace of the house

Number	Modification	Effectiveness						P	OR	CI (95%)	
		Yellow Light		No Light		Total				Lower	Upper
		F	%	F	%	F	%				
1	without water	5	13.9	2	5.61	7	9.7	0.233	2.742	0.496	15.17
2	Water	31	86.1	34	94.4	6	90.3				
Total		36	100	36	100	7	100				

Based on Table 1, it is known that almost 34 mosquitoes (94.4%) were trapped in the ovitrap model without a lamp, a modified bottle filled with water. Based on Chi-square analysis, the P value =  $0.233 > 0.05$ . So  $H_0$  is accepted and  $H_a$  is rejected, which means that there is no statistically significant relationship between the ovitrap tool without a lamp, a modified bottle filled with water.

### Conclusion

In the ovitrap model without lights, modify the bottle containing water, where mosquitoes want to put their eggs in a bottle filled with white water.

Botol Plastik Mineral



Gambar.1 Pemotongan Botol Plastik

Botol Ovitrap



Gambar 2 ilustrasi nyamuk terperangkap

### Suggestion

The Health Office is expected to be able to disseminate information to the public regarding the use of ovitrap as an alternative in controlling the *Aedes aegypti* mosquito vector, by only using plastic bottles used for drinking mineral water.

Further research needs to be done with a modified fermented ovitrap model based on the rainy or summer season and the transition season

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## VEGETABLE COOKING MODEL IN THE EFFORT TO INCREASE VEGETABLE CONSUMPTION FOR SCHOOL CHILDREN IN THE WORK AREA OF THE KURANJI COMMUNITY HEALTH CENTER IN 2020

**Safyanti, Andrafikar**

**Department Of Nutrition Polytechnic Ministry Of Healthy Padang**

[safyanti63@gmail.com](mailto:safyanti63@gmail.com)

### ABSTRACT

Basic Health Research data in 2013 showed that the population aged 10 years who consumed less fruit and vegetables in Indonesia was 93.5% and Riskesdas data in 2018 was 95.5%, while West Sumatra in 2013 was 97%, (Depkes.2013). Based on Riskesdas, West Sumatra is still above the Indonesian average. This study aims to determine the effectiveness of the vegetable cooking model in increasing vegetable consumption for school children. The research was conducted in the working area of the Kuranji Community Health Centre. The population in this study were junior high school students in the Korong Gadang village, Kuranji district. Samples were taken purposively as many as 35 people. To find out the amount of consumption of the vegetable model consumed by the child, it was done by weighing using a digital food scale with an accuracy of 0.1 grams and a questionnaire to determine the identity of the sample and the sample's response to the vegetable cooking model. The provision of food is carried out in the time span for interlude, namely at 10.00-11.00 or at 16.00-17.00. Each child is only given one type of cuisine in 1 day. For data collection, it is assisted by graduates of the Department, who previously conducted a perception equation. The data was processed using a computer and analyzed descriptively. Most of the samples stated that the portion of the vegetable dish model given was in the medium category, namely the highest vegetable bakwan as much as 88.6%, skotel vegeta 80%, and others above 50% and most samples liked the vegetable model given, which was the highest in vegetable bakwan (74 ,3%) while the others were above 50% and no sample stated that they did not like the given vegetable model. The number of vegetables contained in the vegetable model available for one serving ranges from 35gr – 50gr. So that by presenting just one type of vegetable model in one day, it can increase vegetable consumption in the sample by around 35gr –50 gr. It is necessary to disseminate information to the community so that the community can produce models of vegetable dishes that are already available and cooperate with the school to provide vegetable cooking models so that they are always available in the school canteen.

Keywords; Vegetable Cooking Model, For School Children

### BACKGROUND

In Indonesia, vegetables and fruit are foodstuffs that are very easy to obtain, even each region has vegetables and fruit as a characteristic for that area. Fruits and vegetables with various types and colors can complement each other's nutritional needs needed by the body, besides that foods that contain lots of fiber are found in vegetables and fruit. (Abas B Jahari 2001)

Indonesia is a country that is rich in a variety of fruits and vegetables, but it is unfortunate that the consumption of fruit and vegetables in Indonesia is still very low (Ramayulis 2015). Data from the results of the 2013 Basic Health Research shows that the population aged 10 years who consume less fruit and vegetables in Indonesia is 93.5 while



West Sumatra is 97%, with the fourth rank in Indonesia, previously occupied by the Provinces of South Kalimantan, Riau and West Sulawesi Provinces. . (Ministry of Health RI 2013) and Riskesdas in 2018 in Indonesia there was an increase to 95.5% and the province of West Sumatra was above the Indonesian average.

Consumption of vegetables and fruit in junior high school (SMP) children is influenced by two factors, namely external factors and internal factors. External factors are opportunities and obstacles that affect the consumption of vegetables and fruits that come from outside themselves while internal factors come from within. (Ramayulis 2015)

In today's youth, external factors have a very large influence, this can be seen from the way school children choose food/snacks, where teenagers really like contemporary food which is a model of foreign food or from other countries. For that, one way that needs to be done in a long time and sustainable but whose sustainability can be guaranteed is by modifying food that is adapted to the habits and lifestyles of school children who spend most of their time outside and generally eat snacks at school.

### **Formulation of the problem**

Can the vegetable cooking model made increase vegetable consumption in school children (Junior High School Teens)

### **General purpose**

This study aims to determine the effectiveness of the vegetable cooking model in increasing vegetable consumption in school children

### **Benefit**

The results of this study will be input for planning and improving nutrition programs, especially those related to the cultivation of vegetable consumption for school children.

## **RESEARCH METHODS**

### **Research Types and Design**

This research was conducted in stages. Phase I, which was carried out in 2019, is a descriptive study to describe the level of knowledge and actions of mothers, as well as the driving and inhibiting factors felt by mothers in providing vegetables for school children, describing the type, frequency and amount of vegetable consumption in school children, factors driving and inhibiting factors in vegetable consumption, as well as vegetable models favored by school children

Phase II research is to determine the acceptance of school children to the given vegetable cooking model

### **Research Time and Location**

This phase II research was conducted in 2020, namely to conduct a trial of the model obtained and measure the level of vegetable consumption in school children from the given model. This research was conducted at SMPN 18 Padang City, which is the location of the first phase of the research, but due to the COVID-19 pandemic conditions and the absence of activities at school, the research was conducted in the Korong Gadang sub-district, Kuranji sub-district, which is located close to SMPN 18 Padang.

### **Population and Sample**

The population in this study were junior high school students in the Korong Gadang village, Kuranji district. Samples were taken purposively as many as 35 people with the consideration that it was difficult to get a good sample

### Research Instruments

To determine the amount of vegetables consumed, the instruments used were digital food scales with an accuracy of 0.1 grams and a questionnaire to determine the identity of the sample and a form regarding sample responses to the vegetable cooking model

### Research Implementation

The application of the model is done by providing a vegetable dish that has been modified in the form of a snack consisting of 6 kinds of modified vegetable dishes in the form of: 1) Carrot sandwich, 2). Carrot Pempek, 3). Bakwan vegetables, 4). Vegeta skotel, 5). Dim Sum, 6). Carrot Spinach.

The provision of this food is carried out in stages, namely one type of vegetable food for one time with large portions adjusted to the portion of snacks or snacks. Feeding is carried out at intervals for interlude. Each child is only given one type of food in 1 day. Children's receptivity is assessed for each type of cuisine and asks the child to get the taste of the food using the form provided.

### Types and Techniques of Data Collection

Data on the level of vegetable consumption was carried out by weighing vegetables given before and after eating. The data collection was assisted by graduates of the Department of Nutrition, who previously conducted an equalization of perceptions and data on the taste assessment of vegetable dishes were collected using a questionnaire.

### Data processing

The data is processed using a computer to find out what percentage of vegetable dishes are consumed. Students' assessment of taste is seen for each type of cuisine by looking at the average sample assessment of the taste aspect which consists of large portions and the taste of vegetable dishes.

### Permission and Research Ethics

The research permit was carried out through the Padang City Research and Development Agency and ethical clearance through the Ethics Commission of the Faculty of Medicine, UNAND Padang.

## RESULTS AND DISCUSSION

### Research result

#### Sample Assessment of the Large Portion of Vegetable Models Given

The sample assessment of the large portion of the given vegetable model can be seen in the following table.

**Tabel 1. Frequency Distribution of Sample Opinion About Model Portion Size Given Vegetables**

Vegetable Model	Portion							
	Small		Medium		Slighty Large		Total	
		%	n	%	N	%	n	%
Carrot Sandwich	6	17,1	20	57,1	9	25,7	35	100
Dimsum	6	17,1	24	68,6	5	14,3	35	100
Pempek Carrot	9	25,7	22	62,9	4	11,4	35	100
VegetableBakwan	0	0	31	88,6	4	11,4	35	100
Skotel Vegeta	2	5,7	28	80	5	14,3	35	100
Spinach Burger	4	11,4	27	77,1	4	11,4	35	100
<b>Mean</b>	<b>4</b>	<b>11,4</b>	<b>25</b>	<b>70,5</b>	<b>6</b>	<b>17,1</b>	<b>35</b>	<b>100</b>

Table 1 shows that most of the samples stated that the portion of the vegetable model given was in the medium category, which was the highest for carrot pempek as much as 88.6%, vegeta skotel 80%, and others above 50%. The sample that said the portion size was rather large was at dinsum, which was 25.7% and for the other models it was around 11.4%-14.3%. The average sample stating the portion was small was 11.4 and none said the portion was too large.

### Sample Responses About The Taste Of The Given Vegetable Model

The results of the sample assessment of the taste of the given vegetable model can be seen in the following table.

**Table 2. Frequency Distribution Of Sample Opinions About The Taste Of The Vegetable Model Which Is Given**

Vegetable model	Level of Pleasure							
	Very Like		Like		Less Like		Total	
	n	%	n	%	N	%	n	%
Carrot Sandwich	8	22,9	20	57,1	7	20	35	100
Dimsum	11	31,4	21	60	3	8,6	35	100
Pempek	7	20	22	62,9	6	17,2	35	100
Carrot Vegetable	5	14,3	26	74,3	4	11,4	35	100
Skotel Vegeta	8	22,9	23	65,7	4	11,4	35	100
Spinach Burger	6	17,1	22	62,9	7	20	35	100
<b>Mean</b>	<b>8</b>	<b>22,9</b>	<b>22</b>	<b>62,9</b>	<b>5</b>	<b>14,3</b>	<b>35</b>	<b>100</b>

The results showed that most of the samples liked the given vegetable model, which was the highest in the vegetable bakwan (74.3%) while the others were above 50%. The sample who stated that they did not like the vegetable model that was given the highest on the carrot sandwich and spinach burger was 20% and the sample that stated that they really liked it the highest was the dimsum, which was 31.4%.

### Vegetable Ingredients for One Vegetable Model

The vegetable model created can be used as a portioned meal or a snack. The number of vegetables contained for one serving can be seen in the following table

**Tabel 3. Frequency Distribution of Number of Vegetables for One Serving According to Vegetable Cuisine Model**

Vegetable Model	Portion Given	Number of Vegetabled (gram)
Carrot Sandwich	1 bh	42
Dimsum	4 bh	35
Pempek	2 bh	50
Vegetable Bakwan	2 bh	50
Skotel Vegeta	2 bh	35
Spinach Burger	1 bh	50

The number of vegetables contained in the modified vegetable model for one serving ranges from 35 gr – 50 gr. The highest amount of vegetables was found in pempek, vegetable sandwich, and spinach burger, while the least was in skotel vegeta dimsum, which was 35gr.

### Consumption Rate of Sample Vegetables from Given Vegetable Model

The results showed that in general the sample could finish all the given vegetable cooking models. Of the 6 models given, only 7 samples were left, namely 4 (11.4%) for the carrot sandwich and 3 (8.6%) for the spinach burger with an average remaining 18.2gr (16.5%) for a carrot sandwich and 15.6 g (16.4%) for a spinach burger. The reasons for not spending it are because they are full, the portion is rather large, and they don't like it.

Based on the acceptability of the sample for the given vegetable model, it can be seen that in general the sample can finish any given vegetable cooking model. Giving just one type of vegetable model in one day can increase vegetable consumption in the sample by around 35gr –50 gr.

## Discussion

The vegetable model given to children in this study was not a complement to the main food menu but in the form of snacks or snacks. From the results of the study, it was found that the vegetable model given to junior high school children was generally acceptable. Of the 6 models given, only 11.4% of children could not finish the carrot sandwich and 8.6% for the spinach burger with an average remaining 16.5% for the carrot sandwich 16.4% for the spinach burger.

Giving vegetables in the form of snacks or snacks can increase the level of children's vegetable consumption by as much as 35 grams-50 grams per day and can also increase the availability of vegetables for school children outside the home because based on phase I research the reason children do not consume vegetables is due to the unavailability of vegetables. and the variety of vegetables available.

The existence of this vegetable cooking model will be able to provide a vegetable menu for children not only at the family level but can also be provided outside the home such as at school. This vegetable model made will be able to be an alternative to the snacks provided by the school.

Judging from the activities of school children, that most of the time children are outside the home and in general they meet their consumption needs with street food

## CONCLUSIONS AND RECOMONNDATIONS

The taste of the vegetable cooking model provided in the form of snacks / snacks can be accepted by school children both in terms of large portions and in terms of taste, with the vegetable content contained in the model ranging from 35-50 grams for 1 serving. In general, children can spend on vegetable cooking models. There needs to be socialization to the community through housewives, schools, and street food sellers

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**ANALYSIS OF THE QUALITY, NUTRITIONAL AND  
SUPPLEMENTARYFOOD SHELF LIFE ATION (MP-ASI),  
WHICH IN SUBSTIUSI WITH FLOUR CATFISH (CLARIAS  
GARIEPINUS) AND PUMPKIN FLOUR  
(CUCURBITHA MOSCHATA)**

**Sri Darningsih<sup>1</sup>, Iswanelly Mourbas<sup>1</sup>, Ismanilda<sup>1</sup>**

1).Poltekkes Kemenkes Padang. Jln Simpang Pondok Kopi Siteba Nanggalo Padang  
[oneng.pdg@gmail.com](mailto:oneng.pdg@gmail.com)

**ABSTRACT**

Malnutrition in infants will cause growth and development problems, if not addressed early can continue into adulthood. Age 0-24 months is a period of rapid growth and development, or also known as the golden period as well as a critical period. The golden period can be realized if during this time infants and children obtain appropriate nutritional intake for optimal growth and development.<sup>1</sup> Provision of nutrient-dense and safe food for infants as complementary foods (AS-ASI) should be given from the age of six months. Babies need additional energy by 24-30% because the nutritional content of milk is not sufficient. One of the local food sources of protein that can be used as MP-ASI material is catfish (*Clarias gariepinus*). Catfish is a freshwater fish that is easily found and has a protein content of 68.6%. The purpose of this study is to determine the nutrient content, both in microbiology and chemistry as well as the shelf life of MP-ASI instant baby porridge with the substitution of catfish flour and pumpkin flour. This research is a continuation of previous research. This research evaluates the food quality of MP-ASI, both chemically, microbiologically and in nutrients and looks at the shelf life of MP-ASI. Type of experimental research, descriptive data processing. Results: The best assessment results in the first stage of 2018 were Formula A, namely substitution of 15% catfish flour, 10% Pumpkin flour. The results of the quality and microbiology tests obtained were tests of water content, ash content, metal contamination and microbiological tests of MPASI pulp substituted with catfish flour and yellow pumpkin flour were within the standard limits of the instant MPASI SNI set by the Government. The nutritional value of MPASI is in the range of SNI 01-7111-1-2005 and the shelf life of MPASI has been up to five months. There are no signs of organoleptic damage to the color, taste, aroma of the porridge both stored at room temperature and stored in the refrigerator. It can be concluded that MPASI porridge substituted with catfish flour and pumpkin flour is safe for consumption by babies 6-12 months, has good nutritional value and can be used as an alternative food to prevent malnutrition and stunting. It is recommended that this MPASI be used for handling infants who are experiencing acute malnutrition both at the Posyandu and at the Puskesmas as Supplementary food to Babies from local food. Further research needs to be given to infants aged 6-12 months, and see changes in body weight.

Keywords: Quality, Catfish Flour, Pumpkin, MPASI.

## INTRODUCTION

Malnutrition in infants will cause growth and development disorders, if not treated early it can continue into adulthood. Age 0-24 months is a period of rapid growth and development, or also known as the golden period as well as a critical period. The golden period can be realized if at this time infants and children receive appropriate nutritional intake for optimal growth and development

Malnutrition in toddlerhood contributes to increasing morbidity and mortality, impaired intellectual development, reduces work productivity and even increases the risk of various diseases in adulthood (WHO 2012). The prevalence of short and very short nutrition in 2018 in Baduta was still quite high, namely 29.9%, the prevalence of short and very short undernutrition was 17.1% and 12.8%. (Risksedas 2018). The same condition was found in West Sumatra 27.7%. The prevalence of Short and very Short in 2018 was 9.1% and 18.6%, respectively.

The provision of nutrient-dense and safe foods to infants as complementary foods (MP-ASI) should be given from the age of six months. Babies need an additional 24-30% of energy because the nutritional content of breast milk is insufficient. 1 Absolute nutritional needs are met so that the baby's growth does not stop or slow down. According to Hermina & Prihatini 2, that growth in infants and nutritional problems in children are often caused by the inaccuracy of parents in their habits of inappropriate breastfeeding and complementary feeding, and mothers are less aware that babies aged 6 months already need complementary foods. Breast milk in good quantity and quality.

Important nutritional components in infancy include protein and vitamin A. Protein for infants plays a role in cell growth and maintenance, while vitamin A plays a role in immune system function, protects the integrity of epithelial cells lining the skin, eye surface, inside of the mouth, and digestive and respiratory tract. 2,3 . The manufacture of instant baby porridge MP-ASI must primarily meet the nutritional needs of infants. This has been regulated by the government, including a minimum energy content of 400 Kcal, a protein content of 15-22 g, and vitamin A of 250-350 g in 100g of ingredients.1,5 In general, the ingredients for MP-ASI instant baby porridge come from a mixture of rice flour, skim milk, refined sugar, and vegetable oil.2 To increase the nutritional content, these ingredients can be substituted with local food sources of protein and vitamin A

One of the local food sources of protein that can be used as MP-ASI is catfish (*Clarias gariepinus*). Catfish is a freshwater fish that is easy to find and has a protein content of 68.6%. 10 One form of processing catfish that is suitable for MP-ASI is flouring. 100 g of fish meal contains 60-75 g of protein, while the protein content in 100 g of skim milk is only 30 grams. 2,13 Foodstuffs rich in vitamin A also need to be used to meet the requirements for vitamin A content in MP-ASI. Pumpkin (*Cucurbita moschata*) is one of the local foodstuffs that contains quite high beta-carotene, namely 1,569 g/100 g.<sup>1,4</sup> Research on the characterization and potential utilization of minor food commodities, including pumpkin, is still very small compared to main food commodities, such as rice and soybeans. Pumpkin can be processed into flour so that it can be used as an ingredient for making MP-ASI. In addition, the protein contained in pumpkin flour has a digestibility of 99% so it is suitable for consumption by babies

## B. Research Objectives

### 1. General Purpose

Knowing the quality, nutrient content, and shelf life of instant baby porridge MP-ASI with substitution of catfish flour and pumpkin flour to produce instant baby porridge which is high in protein and vitamin A.

### 2. Special Purpose

- a. Microbiological quality is known for instant porridge MP-ASI with substitution of catfish flour and pumpkin flour.
- b. Knowing the nutritional content of MP-ASI instant baby porridge with substitution of catfish flour and pumpkin flour
- c. To know the shelf life of instant baby porridge MP-ASI with substitution of catfish flour and pumpkin flour.

## C. Research Benefits

### 1. For the Government (health sector and related sectors)

As an alternative to processing appropriate formulas for intervention in handling malnutrition problems, especially the handling of toddlers who experience acute malnutrition / wasting.

The results of this study are expected to be useful in the short term with the availability of complementary feeding formulas that are high in protein and vitamin A, so as to optimize the growth and development of undernourished children aged 6-12 months. This writing is expected to provide information for the community that by

making MP-ASI which is rich in nutritional content and can overcome the problem of malnutrition or anxiety.

## RESEARCH METHODS

### A. Research Type and Design

The type of research used is experimental. This research is a follow-up study in the first year of 2018, the best results from previous research in 2018 were an assessment of the quality, nutrients and shelf life of complementary foods substituted with catfish flour and pumpkin flour.

### B. Time and Place of Research

This research was conducted in the 2019 fiscal year, which is from February 2019 to November 2019, where experimental research for the manufacture of complementary feeding products, especially the manufacture of pumpkin flour, was carried out at the Food Science Laboratory, Department of Nutrition, Poltekkes, Ministry of Health, Padang. For testing the composition of nutritional quality, microbiological safety of MP-ASI was carried out at the Laboratory of Research and Standardization of Industrial Standards in Padang and testing for Vitamin levels was carried out at PT. Saraswanti Indo Genetech Bogor

### C. Research Tools and Materials

Tools for making pumpkin flour include: preparation, processing and packaging tools. Tools for testing nutrients and tools for quality testing, namely laboratory equipment for chemical testing, microbiological quality testing.

Pumpkin material is a type of bokor which is round in shape and the flesh is dark orange in color. Catfish Flour was purchased from PT Clarmeritha Lestari Bogor. Other ingredients such as rice flour, milk flour and vegetable oil are purchased at the nearest market in the city of Padang.

### D. Procedure/method of data collection.

The production of MPASI baby porridge which substitutes catfish flour and pumpkin flour is done by dry mixing method. The milled rice flour is then roasted until dry to reduce the moisture content so that it can be stored for a long time and is sieved through a 60 mesh sieve.

Making catfish flour, by first cleaning the fish and separating the bones from the head, cooking in an autoclave at 1210C for 2 hours, then separating the bones and pressing so that the fish meat is slightly dry, then the fish meat is dried with a drum drier. After



drying, the fish meat is ground and sifted and then stored in an airtight container. The production of catfish meal followed the modification of Clara M et al. 2009.20

Pumpkin flour is made by means of thinly sliced pumpkin meat / crab then dried in the sun to dry. Then it was milled and then sieved with 60 mesh, making pumpkin flour following the Vanty 2012 procedure.

Quality, microbiological and nutritional value tests of the MPASI porridge formula substituted with catfish meal and pumpkin flour were carried out at the Baristan Padang Laboratory and PT Saraswanti Indo Genetech Bogor.

Testing the shelf life of instant MP-ASI substituted with catfish flour and pumpkin flour was carried out by means of instant baby porridge which was packaged in a thick plastic bag and pressed and then stored at room temperature and cold (refreegerator). Observed and recorded every week / month changes that occur organoleptically.

#### E. Data Analysis and Data Processing

The data obtained from the research results are presented in tabular form, and compared with the MP-ASI SNI Standard and analyzed descriptively.

#### F. Ethical Clearance -□ Attached.

### RESULTS

The research carried out consisted of several stages, starting from making pumpkin flour, making catfish flour, and preparing other ingredients. After the flour is made, the ingredients are mixed using dry mixing. Then the organoleptic test was carried out, after obtaining the best formula, the nutrition was tested from the selected MPASI. The results of the analysis of the nutrients in the MPASI porridge substituted with catfish flour and pumpkin flour are as follows:

#### 1. Quality Requirements and Microbiology of MP-ASI

Quality requirements of nutrients contained in instant powdered MP-ASI must be able to accompany Mother's Milk (ASI) to achieve nutritional adequacy in certain age groups. Instant MP-ASI can be in the form of powder, flakes, crystals and granules. MP-ASI Instant powder when added to liquid produces a smooth porridge, free from lumps and can be fed with a spoon. The results of quality testing of MPASI carried out obtained the following results:

##### a. Water content

Moisture content is the amount of water contained in the material expressed in percent. Water content is also one of the most important characteristics of foodstuffs,

because water can affect the appearance, texture, and taste of foodstuffs. The water content in foodstuffs determines the freshness and durability of these foodstuffs, high water content makes it easy for bacteria, molds, and yeasts to breed, so that changes will occur in foodstuffs.

The results of the analysis of water content obtained by the research are 5.28 grams per 100 grams. Standard No more than 5.0 grams per 100 grams. The results obtained are slightly higher than the standard set by SNI for MPASI Instant porridge. This is because the water content of pumpkin flour obtained from the analysis is quite high, namely 9.49%. This is because the process of making solid food is done by dry mixing, mixing it dry, because after it is mixed it should not be reheated because it will damage the nutrients from the solid food. This allows the level of MPASI produced to be higher.

Food spoilage is generally a microbiological, chemical, enzymatic process or a combination of the three. The process of these three processes requires water where free water can help the process take place (Anonymous, 2010). High water content will accelerate the occurrence of food spoilage. Food preservation technology is basically in two alternatives, namely the first to inhibit enzymes and microbial activity/growth by lowering the temperature to below the freezing point of 0oC. The second is to reduce the water content of foodstuffs so that there is less/no opportunity for the growth of microbes by drying the water content inside and on the surface of the foodstuffs, until they reach certain conditions.

#### b. Ash Level

Research results MPASI porridge substituted with catfish and pumpkin flour contains ash content of 3.39 grams per 100 grams. In the standard set by SNI 01-7111.4-2005, the ash content of MPASI is required to be no more than 3.5 g per 100 grams of MP-ASI product. The resulting formula still meets the stipulated SNI requirements.

The ash content of a food material has a relationship with the mineral content which is an inorganic substance. The amount of minerals in the body must be within optimal limits. Both excess and deficiency of minerals can interfere with health. 7,19 Therefore, the ash content in MP-ASI needs to be limited, according to the recommended nutritional adequacy of the baby.

#### c. MP-ASI Kamba Density Test

Kamba density shows the ratio between the weight of the material to its volume, it can describe the perfection of the processing of the ingredients for making MP-ASI. The

results of the research on the density of the MP-ASI formula kamba were 0.46 g/ml (46g/100ml). This shows the kamba density is close to 50%. Kamba density is a very important characteristic in looking at the level of nutrient density and energy contained in MP-ASI.

The density of the MPASI porridge with the substitution of catfish and pumpkin flour was around 0.46 g/ml. This value is in the density range of commercial kamba pulp, which is 0.37-0.50 g/ml. MP-ASI which has a high density of kamba indicates that the product is more compact (non-voluminous). Food products that have a high density of kamba show a high nutritional density as well.<sup>22</sup> The functional capacity of the baby's stomach is only 30 g/Kg body weight so that food with a high density of kamba is needed so that babies do not feel full quickly and nutritional intake is met.<sup>21,6</sup>

#### d. Metal Contamination Test

The quality requirements for metal contamination in instant porridge MPASI for babies 6-12 months must not exceed the standards set by the Government. The results of the metal contamination test on MPASI products from the research can be seen in the following table:

Table 1. : Metal Pollution Quality Requirements

Parameter Uji	Hasil Analisa ( Mg/Kg)	Standar SNI 01-7111.1-2005
Arsen ( As)	0,0086 mg/kg	Tidak lebih dari 0,38 mg/kg
Tembaga (Cu)	0,4473 mg/kg	Tidak lebih dari 1,14 mg/kg
Timbal (Pb)	0.2314 mg/kg	Tidak lebih dari 1.14 mg/kg
Raksa ( Hg)	<0,0058 mg/kg	Tidak lebih dari 0,114 mg/kg

From the results of the study in table 6, it can be seen that all metal contamination tested was included in the limit not exceeding the SNI standard for MPASI instant porridge. It can be said that the MPASI porridge which is substituted with catfish flour and pumpkin flour meets the standard requirements set by the Government, there is no metal contamination that is harmful to the health of the baby.

#### e. Microbial Test

Quality requirements for MPASI instant porridge must be free from harmful microbes, the microbial test must be negative. The results of the microbial test on MPASI substituted with Catfish Flour and Pumpkin Flour can be seen in the following table:

Table 2. : Quality Requirements for Microbial Contamination in Substituted MPASI With Catfish Flour and Pumpkin Flour.

Parameter Uji	Hasil Analisa/Satuan	Standar SNI 01-7111.1-2005
Angka lempeng Total	2,8 x 10 <sup>5</sup> koloni/gram	Tidak lebih dari 1.0 x 10 <sup>4</sup> koloni/gram
Escherichia Coli	Negatif	Negatif
Salmonella	Negatif	Negatif
Kasimpulan	Aman	Aman

From the results of the study in table 7, it can be seen that all the tested microbes were included in the safe limit, all results were negative, not exceeding the SNI standard for MPASI instant porridge. It can be concluded that the MPASI porridge which is substituted with catfish flour and pumpkin flour meets the requirements for microbial content standards set by the Government. It can be concluded that MPASI products are safe to be consumed by infants aged 6-12 months.

The Total Plate Number (ALT) test is carried out to determine the number or number of aerobic mesophyll bacteria that may contaminate a product, be it food, drink or traditional medicine.

There are several points that need to be considered in processing food or drinks. Among them are raw materials, processing processes, equipment used, storage of raw materials and finished materials, distribution, presentation, environmental cleanliness, and others. In food and beverage processing, bacteria can come from workers, raw materials, the environment, animals and fomites (inanimate objects). These points can affect the quality of hygiene and health of food or beverages, either directly or indirectly (Ismail, 2012)26

#### b. Nutritional Value of MP-ASI Formula

Calculation of the nutritional content of the formula based on the composition of macronutrients and micronutrients from MPASI Baby Porridge substituted with catfish flour and pumpkin flour can be seen as follows:

Table 3. : Nutritional Value of MP-ASI Formula in 100 grams

Kandungan Zat Gizi	F1 (Formula Terbaik)	Standar SNI SNI 01-7111.1-2005
Energi	423 Kkal	400 - 450 Kkal /100 gr
Protein	18,38 gr	Tidak kurang 16 – 22 gr/100 gr
Lemak	17,41 gr	Tidak kurang dari 15 gr /100 gr
Karbohidrat	48,46 gr	Tidak kurang dari 30 gr/100 gr
Kalsium ( Ca)	226,1mg	Tidak kurang dari 200mg/100 gr
Besi (Fe)	38,91mg	Tidak Kurang dari 15 mg /100 gr
Natrium ( Na)	0,15 mg	Tidak lebih dari 100 mg/100 kkal
Seng ( Zn)	19,24mg	Tidak Kurang dari 2,5 mg/100 gram
Vitamin A	253,52 mcg	250- 350 mcg
Vitamin D	0,67 mcg	0.75 mcg /100 gr

In table 8 above, it can be seen that the nutritional value of the MPASI formula produced when compared to standard food formulas regulated by the government in accordance with the nutritional requirements of MP-ASI in 100 grams, namely 400 Kcal Energy, 15 Gr Protein, Vitamin A 250-350 Micrograms. The research results obtained exceed the standards that have been set by the Government. This shows that MP-ASI which is substituted with catfish flour and pumpkin flour is very good to be used as an alternative to MP-ASI which is good for tackling nutritional problems for infants aged 6-12 months and can be developed in the community as MP-ASI . Consumption of one serving of MPASI baby porridge substituted with catfish flour and pumpkin flour weighing 95-100g a day given two meals can contribute 33.56% to the protein adequacy rate and 107.2% to the vitamin A adequacy rate for infants aged 8 months with a weight of 7.8 kg.

## DISCUSSION

### a. Energy

The minimum energy content required in the MPASI specification is 400 kcal/100g. The MPASI porridge formula which was substituted with catfish flour and pumpkin flour was obtained from research results of 423 kcal, has met the Ministry of Health's requirements.<sup>12</sup> The average energy requirement of infants aged 6-8 months is 769 kcal/day. If the baby gets breast milk of moderate quality and quantity, energy intake of 423 kcal can be met through complementary feeding. The deficiency of 346 kcal is expected to be met through breast milk.<sup>6</sup> Therefore, the minimum energy required for complementary feeding is 400 kcal/100g. The results of the MPASI test which were

substituted with catfish flour and pumpkin flour obtained an energy yield of 423 kcal, which met the minimum required energy requirements.

#### b. Protein Level

In the specification of instant MP-ASI powder for infants aged 6-12 months, a protein content of 15-22 g is required in 100 g of MP-ASI. amounted to 18.38 gr, in accordance with the specifications within the specified range. High-quality protein is needed for baby's growth and development. Infants aged 6-12 months is a critical period because of rapid growth and infants need additional food.<sup>15</sup> Food sources of protein used in infant porridge for complementary foods are catfish meal and skim milk. Both are animal proteins that have a higher protein quality than vegetable protein. Fish has an amino acid score of 71 while the amino acid score of cow's milk is 95.18. Both of them have met the quality requirements of the established complementary food, namely an amino acid score of at least 65.8.

#### c. Fat level

The MPASI baby porridge substituted with catfish and pumpkin flour has a fat content of 17.41 gr. The resulting instant baby porridge formulation contains fat higher than the required range, which is not less than 15 g in 100 g of MP-ASI.<sup>12</sup> Instant baby porridge formula substituted for catfish and pumpkin flour (15% and 10%) contains high fat. This is due to the addition of fat sources from vegetable oils in the manufacture of instant baby porridge. The purpose of adding vegetable fat sources to MPASI is to increase the nutritional value and also provide high energy and add a good taste.

#### d. Carbohydrate Level

Carbohydrates for infants are the main source of energy. Carbohydrate intake should meet at least 52-54% of energy needs. Carbohydrate content is calculated by carbohydrate by difference. The calculation of this method is strongly influenced by the content of other nutrients such as water, ash, fiber, protein, and fat. The ingredients for baby food porridge containing high carbohydrates include gelatinized rice flour, skim milk, pumpkin flour, and powdered sugar. SNI for the carbohydrate content of MPASI should not be less than 30 grams / 100 grams. Carbohydrate content of MPASI porridge substituted with catfish and pumpkin flour was obtained at 48.46 mg. When compared with the standard requirements for instant porridge MPASI, it has met the baby's needs by 88.9%, the adequacy of infants 8-12 months. This has met the requirements for energy needs from carbohydrate sources.

#### e. Calcium

Calcium obtained from the tests carried out was 226.1 mg/100 grams, in accordance with the established standards, which was not less than 200 mg/100 grams. Calcium is needed by babies for the growth of bones and teeth. For infants and toddlers, calcium is useful for assisting in the growth process of the brain, bones and teeth, helping the development and health of the baby's brain. Infants aged 0-6 months need 200 mg/100 grams of calcium. Infants 6-12 months, the RDA increases to 260 mg per day. At the period 0-6 months babies get exclusive breastfeeding, calcium needs can be met from breast milk alone. After the baby's age increases from 6-12 months, they need additional food (MPASI), because the volume.

Calcium is an essential mineral for the body for the formation of bones and teeth. Bone size and mass increase during childhood to adulthood, peaking at age 30. In addition to the formation and growth of bones and teeth, another function of calcium is to help other body functions, such as heart function, blood vessel contraction, muscle function, nerve transmission, intracellular signaling, and hormone secretion.

#### f. Iron

From the analysis of the iron content of the MPASI porridge, it was found that the iron value was around 38.91 mg, this was in accordance with the established standards, which should not be less than 15 mg/100 gr. From the results of the analysis of berries, it turns out that MPASI has a high enough value, so it is very good for the health of babies.

The 2013 Nutrition Adequacy Rate (RDA) determined by the Ministry of Health, the iron needs of infants aged 7-11 months is 7 mg per day. This need certainly cannot be fulfilled by breast milk alone because the iron content in breast milk is very small. This is one of the reasons why babies aged 6 months and over should receive complementary foods with breast milk (MPASI).

#### g. Vitamin A

The level of Vitamin A in the instant baby porridge produced is 253.52 mcg or is at the set standard. Vitamin A is essential for vision, growth, cell differentiation and proliferation, reproduction, and the immune system.<sup>15</sup> An important function of vitamin A is to support the development of vision function and the health of the baby's skin. Not only that, the function of vitamin A also plays an important role in boosting the immune system and accelerating the growth process of the baby's bones and tissues. Giving vitamin A to infants must be adjusted to the age of the baby. This





## CONCLUSIONS AND SUGGESTIONS

### A. Conclusion

From the results of the research that has been done, the following conclusions can be drawn:

1. Microbiological quality of instant porridge MP-ASI which is substituted with catfish flour and pumpkin flour is very good and in accordance with the SNI standard for instant porridge for commercial MPASI.
2. The nutritional content of MP-ASI baby porridge which is substituted for catfish flour and pumpkin flour are all within the nutritional adequacy range set by the government in accordance with the SNI standard on MPASI for infants 6-12 months
3. The shelf life of MP-ASI instant baby porridge with the substitution of catfish flour and pumpkin flour for more than 5 months has not seen any signs of abnormalities, and if stored at low temperatures in good packaging it will last longer.

### B. Suggestion.

1. It is recommended that in making MPASI instant baby porridge, which is substituted with catfish flour and pumpkin flour, it can follow the composition of the ingredients that have been made, namely catfish flour 15 gr and pumpkin flour 10gr, in the best organoleptic manner.
2. This MPASI can be used to treat infants who are acutely malnourished both at the Posyandu and at the Puskesmas as Supplementary food for infants from local food.
3. It is necessary to conduct trials of giving children under the age of five who are malnourished or stunted and see changes in nutritional status/weight and height.

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# ANALYSIS OF PREPARATION FOR IMPLEMENTATION OF POSYANDU TODDLERS IN NEW NORMAL CONDITION

**Syahrum Deharnita Gafar<sup>3</sup>**  
*Health Polytechnic of the Ministry of Health Padang*  
[syahrum130661@gmail.com](mailto:syahrum130661@gmail.com)

## ABSTRACT

With the Covid-19 outbreak hitting many countries in the world, including Indonesia, it has an impact on the implementation of posyandu, Posyandu is a form of social life in the community which is one form of community-sourced effort. The purpose of the study was to obtain a description of the behavior of mothers of children under five in preparing for the implementation of posyandu in new normal conditions.

The qualitative research design aims to obtain an overview of the preparation for the implementation of posyandu in new normal conditions in Solok City. The research was carried out in Solok City in 2021. Data were collected using in-depth interviews with informants of mothers of toddlers, cadres, people in charge of posyandu, Head of PPSDK, and Heads of The Department of Health then processed and analyzed the data

The results showed that most mothers of children under five did not know that the delivery person must be in good health to come to the posyandu. All mothers of toddlers said that they had prepared their masks to come to the posyandu, while the health officers and cadres were prepared by the health office. Almost all mothers said that one person brought their toddlers to the posyandu.

It is suggested that the results of this study can be used as input for making a policy regarding the importance of carrying out health protocols at every posyandu visit

*Keywords: Posyandu, toddlers, new normal*

## Introduction

Posyandu is seen as very beneficial for the community, so the government held a Posyandu revitalization program. The target of this Posyandu revitalization activity is all Posyandu with the main priority being Primary and Madya Posyandu. Toddlers' visits to the Posyandu are related to the mother's role as the person most responsible for the health of toddlers because toddlers are very dependent on their mothers. The main reason mothers bring toddlers to Posyandu is because they want their children to get maximum health services. Therefore, a mother's motivation in using Posyandu for toddlers has a big role in improving the health of her toddler (Palupi et al., 2013).

Based on PMK Number 43 of 2016 concerning Minimum Service Standards in the health sector, it is stated that every toddler gets standard services which include weighing at least 8 times a year, measuring length/height at least 2 times a year, giving vitamin A capsules 2 times a year, and giving immunizations. complete base. In Riskesdas 2018, weighing and measuring length/height are counted as 1 (one) if there is at least 1 weighing in the same month. If in a month there are 2 or more weighings, only 1 weighing is counted. Weighing does not include weighing carried out at the time the Riskesdas data collection was carried out (Ministry of Health, 2018).

Weighing is one of the main activities of a nutrition improvement program that focuses on preventing and improving children's nutritional status. Weighing infants and toddlers is an effort by the community to monitor their growth and development. Community participation in the weighing is described in the comparison of the number of children under five who are weighed (D) with the total number of children under five (S). The higher the community participation in weighing, the more data that can describe the nutritional status of toddlers (Yuliana, 2019).

Monitoring the weight of toddlers can be successful if there is active participation from the community which is marked by the presence of mothers weighing their children at the Posyandu. Age between 0-59 months is a very important period for child growth, so children need to be weighed regularly and growth can be followed her weight. Healthy children will grow rapidly, get older and gain weight. The results of the Basic Health Research show the prevalence of undernutrition and malnutrition is 17.7%, very short and short nutrition is (30.8%). The Posyandu program will be beneficial if toddlers visit the Posyandu actively and regularly. The regularity and activeness of visiting the Posyandu is very necessary for the participation of mothers (Ministry of Health, 2018) .

With the Covid-19 outbreak hitting many countries in the world, including Indonesia. The Covid-19 outbreak is not only a national problem in a country, but has become a global problem. The spread of Covid-19 is so fast and deadly, transmission through physical contact is transmitted through the mouth, eyes, and nose. Covid-19 has an impact on people's social life. The death rate due to the coronavirus in Indonesia is the highest in Asia after China, 181 people died, the percentage of deaths was 9.11%, the number of coronavirus cases was 1,986 cases, 134 people recovered. 164 people and 198 people died (Syafri, 2020).

The COVID-19 outbreak also has an impact on the implementation of Posyandu, Posyandu is a form of social life in the community which is a form of community resourced effort whose health services are provided from, by, and for the community to empower and provide convenience to the community in obtaining basic health services to accelerate the reduction in maternal and infant mortality. A toddler's visit to the Posyandu is the arrival of a toddler to the Posyandu to get health services such as weighing, anthropometric measurements, immunization, nutrition counseling, and so on so that they have to leave the house (Community & Gumayesty, 2017).

In the city of Solok, before the COVID-19 pandemic outbreak hit, Posyandu activities were held simultaneously every second Sunday, Wednesday, and Thursday every month. With the Covid-19 pandemic, the Posyandu implementation can no longer run as usual. From the results of interviews with health workers who are in charge of one of the Posyandu in Solok City, it was said that in March, May 2020 Posyandu in Solok City was carried out in health centers against targets that were immunized only. So that when viewed from the achievement of indicators of community participation, it is very low as measured by the number of targets compared to those who come.

With the end of the emergency response to the COVID-19 pandemic in Indonesia on May 29, 2020, at the beginning of June, the New Normal period was implemented in Indonesia, even though the curve of the corona case had not been sloping, the government continued to prepare for the implementation of New Normal or a new normal during the covid pandemic. People can return to their activities but still comply with health protocols, including activities at the Posyandu.

According to (Blum, 1982) the degree of health is influenced by four factors. These four factors are the determinants of the emergence of health problems, the four factors consist of behavioral/lifestyle factors (lifestyle), environmental factors (social, economic, political, cultural), health service factors (type of coverage and quality), and genetic factors (

descendants). Among these factors, human behavior is the biggest determinant and the most difficult to handle, followed by environmental factors.

To realize activities at the Posyandu which are accompanied by changes in community behavior, Green's theory (1980) explains that public health is influenced by *behavioral factors* and non-behavioral factors. *behavioral factors* ). Behavioral factors are influenced by 3 main factors, namely: 1) Predisposing factors (*predisposing factors*) are factors that facilitate or predispose to the occurrence of a person's behavior, including knowledge, attitudes, beliefs, beliefs, values, traditions, and so on. 2) *Enabling factors* manifested in the physical environment (availability of facilities, health facilities). 3) The driving factors (*reinforcing factors* ) are manifested in the attitudes and behavior of officers. The occurrence of changes in health behavior (health *behavior* ) is not just knowing (*knowledge* ) and acting (*attitude* ), but must be done in everyday life (*Practice* ). The ultimate goal is for people to be able to live a healthy lifestyle (healthy *lifestyle*).

The results of the study (Komunitas & Gumayesty, 2017) show that education, work, the role of cadres, are related to toddlers' visits to Posyandu. Meanwhile, age, income, health facilities have no relationship with toddler visits to Posyandu. In line with research (Sukfitriyanti et al., 2018) Mother' knowledge about Posyandu for toddlers is quite good although there are still those who do not understand the lines in the Posyandu services for toddlers because they rarely go to Posyandu, but they understand and know the benefits. Mother's attitude towards the use of Posyandu for toddlers is generally very good, where the mother considers Posyandu very helpful because it is easier to reach and does not take too long and when there is counseling mothers need to set an example or practice it at home and it is very beneficial for family health. The actions of mothers or families towards the use of Posyandu for toddlers are generally very lacking, where mothers of toddlers do not have their initiative to come to Posyandu without being called by cadres or officers, they prefer to finish their work or wait for their children to wake up and they are even more enthusiastic about going to the Posyandu. Posyandu if there is the provision of vitamin A, PMT, and drugs.

## Methods

The qualitative research design aims to obtain an overview of the preparation for the implementation of posyandu in new normal conditions in Solok City. The research was carried out in Solok City in 2021. Data were collected using in-depth interviews with informants of mothers of toddlers, cadres, people in charge of posyandu, Head of PPSDK, and Heads of Department of Health. All qualitative data collection processes are recorded and then transferred into a written format (transcription). and analyzed.

## Results and Discussion

### A. Result

#### 1. Toddlers and toddler carriers are in good health.

The day before the implementation of the posyandu, what mothers or toddlers who introduce to the posyandu must know is to make sure the condition of the child and the delivery person are in good health. This is very important to avoid disease transmission during posyandu implementation. Based on the results of interviews with respondents, it is known that most mothers of toddlers do not know that the introduction must be in a healthy condition, there are no symptoms related to Covid 19.

*"As far as we know, a hot child should not be brought to the posyandu, but if you are now a little afraid to take your child to the posyandu, especially if the child has a fever, it is not possible to bring it"*

The results of interviews with cadre informants found that some cadres said that they had informed the introduction and toddlers who came to the posyandu were in good health but had not explained the symptoms that were related to covid 19.

*"In the mosque it was announced that tomorrow there will be posyandu activities, mothers with toddlers are expected to come to the posyandu complying with health protocols, if fever is not allowed to come"*

**Table 1 . Construction of interview results for toddlers and introduction to healthy toddlers**

informant	Meaning Unit	Conclusion	Indicator
Inf , 2, 3, 5,6,7,8,10	Condition healthy if no fever	Mother toddler need knowing condition healthy without symptom covid 19	Knowledge mother
Inf,1, 2,4	Condition healthy arrived right use Protocol Health	Informed _ condition healthy that can come to Integrated Healthcare Center	Role cadre

#### 1. Prepare masks to come to the posyandu

Preparing masks to come to the posyandu is very important, to avoid the transmission of covid 19. if you have to leave the house or interact with other people whose health status is unknown (who may be able to transmit COVID-19). For mothers of toddlers, masks must be prepared by themselves. From the results of interviews with respondents, it is known that mothers of toddlers all prepare masks.

*"At home, there are always masks, and they are prepared by themselves. Besides that, if you go anywhere you have to wear a mask, sometimes there are also raids on the use of masks"*

From the results of interviews with cadre informants, mothers of toddlers or caregivers who come to the posyandu must prepare their masks. As for the cadres at the beginning of the COVID-19 pandemic, masks are prepared

*"The masks for us cadres were prepared at the beginning by the Health Service but lately no one has come again"*

The results of the interview with the informant in charge of the Posyandu that at the beginning of the COVID-19 pandemic all PPE for health workers and cadres were prepared

*"In the beginning, the cadres were assisted by being given PPE in the form of cloth masks, that was at the beginning of the pandemic, then the officers with full clothes, fashion, masks"*

Then it was also conveyed by the informant from the Head of the PPSDK that for health workers masks were prepared, including for cadres, but mothers of toddlers prepared their masks.

*"If the procurement of masks is indeed once a year according to the existing budget, it is held in the PPSDK field, precisely in the SDK Session, masks are only for officers, not for the mother."*

*"We always provide for the health workers, but for the cadres, it is according to the request of the puskesmas. "*

**Table 2 . Construction of Interview Results preparing masks to come to the posyandu informant**

informant	Meaning Unit	Conclusion	Indicator
Inf , 1,2,3,4,5,6,7,8,9,10	Prepare masks for come posyandu	Mother toddler will prepare your own mask	attitude mother
Inf , 1,2,4	in the beginning, before there is prepared by service Health	PPE preparations run out Prepare alone when	Role cadre
Inf , 17	PPE for officer health and cadre	Provision PPE procurement	Policy
Inf , 16	Procurement of masks is once a year	Policy Procurement of PPE in Solok City	Policy

## 2. Restrictions on introduction of 1 person to Posyandu

Interview results with the informant mother of toddlers, it was found that almost all of them said that the condition of the COVID-19 pandemic and gatherings were not allowed, so those who delivered toddlers to the Posyandu were only allowed 1 person

*"I usually go to the posyandu with my sister but because of covid 19 I came alone, I was afraid to bring my brother while his sister had to be immunized,*

According to several cadre informants, this was also conveyed to mothers of toddlers that due to the COVID-19 pandemic conditions and gatherings were not allowed, one person brought the toddlers to the posyandu.

*"There are posyandu activities, mothers with toddlers are expected to come, comply with health protocols, avoid gatherings for toddlers accompanied by mothers or grandmothers.*

This was also emphasized by the head of the service informant that the implementation of the posyandu refers to the existing rules and regulations such as the Minister of Home Affairs Instruction No. 30 of 2021 and the Regulation of the Minister of Health No.

Hk.01.07/Menkes/382/2020 Health Protocols for the Community in Places and Public Facilities in the Context Prevention and Control of Corona Virus Disease 2019 (Covid-19).

*"The implementation of our first posyandu refers to the instruction of the Minister of Home Affairs No. 30 of 2021 regarding the level of micro PPKM. In addition, in 2020 there will be a regulation from the minister of health that emphasizes the health protocol for the community."*

**Table 3. Construction of Interview Results Limitation of the introduction of 1 person to Posyandu**

informant	Meaning Unit	Conclusion	Indicator
Inf , 1,3,4,6,8	I come alone to Integrated Healthcare Center	Mother toddler/introduction limit come alone to Integrated Healthcare Center	Attitude mother



Inf , 11,13,14	avoid gather together child toddler delivered by mother or grandma .	Notice by cadre	Role cadre
Inf , 15	Implementation Integrated Healthcare Center refers to on instructions interior minister and regulation health minister	Policy Enforcement Restrictions Activity society	Policy

## B. Discussion

Before the implementation of the posyandu there was a New Normal Condition (H-1) There are some things that mothers should know, including a) Ensuring that the mother of toddlers/delivery and children are in good health to come to Posyandu, b) Prepare masks to come to Posyandu c) Limitation of the introduction of 1 person to Posyandu .

Public places and facilities are areas where people carry out social life activities and carry out activities to fulfill their needs. The risk of movement of people and the gathering of people in public places and facilities has a large potential for COVID-19 transmission. (Ministry of Health, 2020)

Health protocol is an effort to prevent and control COVID-19 in public places and facilities by taking into account aspects of individual health protection and critical points in public health protection, involving managers, organizers, or persons in charge of public places and facilities as well as the user community.

results research conducted \_ Afrianti and Cut (2021) , that 163 respondents known that is part large (74.2%) of the public own high knowledge \_ to protocol health. same thing obtained by Wiranti, Ayun, and Wulan (2020) where there is Public own good knowledge \_ to protocol health (55.3%)

## Conclusion and Suggestion

1. Some mothers of toddlers do not know that the delivery person must be in good health to come to the posyandu.
2. All mothers of toddlers said they had prepared their masks to come to the posyandu
3. Almost all mothers said that one person brought their toddlers to the posyandu.

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## ANALYSIS OF COMPLIANCE WITH DM MANAGEMENT DURING THE COVID-19 PERIOD AT THE SOLOK CITY HEALTH CENTER

**Tintin Sumarni<sup>1</sup>, Yulastri<sup>2</sup>, Novi Herawati<sup>3</sup>**

Health Polytechnic Padang Ministry of Health, Department of Nursing  
Jalan Simpang Pondok Kopi, Siteba, Padang  
[titins262@gmail.com](mailto:titins262@gmail.com)

### ABSTRACT

Based on the 2018 Basic Health Research (RISKESDAS), one of the PTM whose prevalence has increased significantly is diabetes mellitus reaching 8.5%. prevalence in West Sumatra was 13,834, while the City of Solok was 1,796 in 2018. Diabetes mellitus can increase the risk of death in Covid-19 patients. The purpose of this study was to determine the compliance of Type-II DM patients in the management of the five pillars of DM (diet, taking medication, physical activity, education, and blood sugar control). This study used a descriptive-analytic cross sectional approach. The population was type 2 DM patients who visited the posbindu). The last 3 months amounted to 65 people. The results showed that adherence to medication, diet, education, and blood sugar control had a significant relationship with blood sugar levels with  $p$  value =  $<0.05$ . it turns out that the most dominant relationship with blood sugar levels is the regularity of taking medication with ( $p$  value 0.002) OR = 72.500. It is hoped that people who suffer from diabetes mellitus can understand the importance of implementing DM management. There is a policy from the Health Office involving family members to care so that the five pillars of DM management can be implemented properly so that DM patients can lead a life without complications.

Keywords: Adherence, DM Clients, Management, Five Pillars of DM

### INTRODUCTION

Non-communicable diseases (NCD) are one of the health problems that cause high mortality rates in Indonesia. The main non-communicable diseases that occur in Indonesia include hypertension, diabetes mellitus (DM), cancer, and chronic obstructive pulmonary disease. Based on Basic Health Research<sup>1</sup>. One of the PTM whose prevalence has increased significantly is diabetes mellitus, namely, in 2013 it was 6.9% and in 2018 it increased to 8.5%.<sup>1</sup> The international organization Diabetes Federation (IFD) estimates that there are at least 283 million people aged 20-79 years in the world suffering from diabetes in 2019 or equivalent to a prevalence rate of 9.3% of the total population at the same age. The prevalence of diabetics is 9% female and 9.65% male. It is predicted that this number will continue to increase to reach 587 million in 2030.<sup>2</sup> The results of Riskesdas 2018 show that the prevalence of diabetes mellitus in Indonesia based on a doctor's diagnosis at the age of 15 years is 2%. This figure shows an increase compared to the prevalence of diabetes mellitus in a population of 15 years in the 2013 Riskesdas results of 1.5%. However, the prevalence of diabetes mellitus according to the results of blood sugar examination increased from 6.9% in 2013 to 8.5% in 2018. This figure shows that only about 25% of diabetics know that they have diabetes.<sup>2</sup> The number of Covid-19 cases in Indonesia as of July 13, 2020, was 76,981, recovered cases were 36,689, and cases died were 3,656. Of all the confirmed cases, some patients already had comorbidities or comorbidities. Diabetes mellitus is one of the non-communicable diseases that has been reported to be suffered by some Covid-19 patients.<sup>2</sup> Based on the results of a preliminary study on Non-Communicable

Diseases (NCD) in Indonesia, it is still relatively high, one of which is Diabetes, the prevalence in West Sumatra is 1,396, while the City of Solok is 1,796 in 2018.<sup>6</sup> Diabetes is an important public health problem and is one of the four priority non-communicable diseases targeted for follow-up by world leaders. The number of cases and prevalence of diabetes has continued to increase over the last few decades.<sup>3</sup> Diabetes mellitus (DM) is a common chronic disease in adults that requires continuous medical supervision and patient self-care education. However, depending on the type of DM and the patient's age, the patient's nursing needs and care can be very different.<sup>16</sup> Based on the description above, it is necessary to optimize an approach or modification of the educational model during the pandemic to maintain adherence to diet, take medication, exercise, and control blood sugar and can optimize the implementation of the PTM Posbindu Program which focuses on the interaction system of DM patients to improve DM patient compliance in health management. Therapeutic management of diabetes mellitus management consists of 5 main pillars including education, nutritional therapy, physical activity, blood sugar monitoring, and pharmacological interventions.<sup>7</sup> The purpose of the study was to determine the compliance of Type II DM patients in the management of DM by complying with diet, taking medication, and carrying out physical activities, education, and blood sugar control during the COVID-19 pandemic in the Work Area of the Public Health Center in Solok City.

## Methods

This study uses a descriptive analytic cross sectional approach that is measuring the dependent and independent variables at the same time. The population is type 2 DM sufferers who visit the PTM Posbindu for the period April to June 2021 in the working area of Puskesmas throughout Solok City. Samples were adult patients aged 20–65 years, patients were taking DM medication, had controlled blood sugar in the last three months as many as 65 people. Data were collected by questionnaire. Data analysis in this study used univariate data analysis, bivariate with Chi-Square test, and multivariate with logistic regression.

## Results and Discussion

The results showed that type 2 DM patients were in compliance with DM management such as diet, taking medication, physical activity, education, and blood sugar control.

Table 1 Compliance with Type 2 DM patients in the management of DM (n=65)

Management of Diabetes Mellitus	f	%
Take medicine		
- Obey	26	40
- Not obey	39	60
Diet		
- Obey	30	45
- Not obey	35	55
Sport		
- Regular	8	12
- Irregular	57	88
Education		
- There is	14	35
- There is not any	51	65
Blood Sugar Control		

- Regular	34	58
- Irregular	31	52
Blood Sugar Level		
- < 200 mg/dL	35	53,8
- > 200 mg/dL	30	46,2

From the table above, it can be seen that more than half (60%) of respondents do not comply with taking medication, more than some (55%) of respondents do not comply with diet management, most (88%) of respondents do not do regular exercise, more than half (65%) respondents did not receive education according to the needs of the five pillars, and more than half (52%) did not regularly control blood sugar. Partial deficiency (46.2%) of the patient's blood sugar level > 200 mh/dl

### Bivariate Analysis

Table 2 The relationship between DM management and blood sugar levels

Variable	Blood Sugar Level						P-Value	OR	95% CI
	< 200mg/dL		>200mg/dL		Total				
	n	%	n	%	n	%			
Take medicine									
- Obey	25	96,2	1	3,8	26	100	0,000	72,50	8,6-606,4
- Not obey	10	25,6	29	74,4	39	100			
Diet									
- Obey	21	70	9	30	30	100	0,024	3,500	1,2-9,8
- Not obey	14	40	21	60	35	100			
Sport									
- Regular	4	50	4	50	8	100	1,000	0,839	0,1-3,6
- Irregular	31	54,4	26	45,6	57	100			
Education									
- There is	12	85,7	2	14,3	14	100	0,013	7,304	1,4-36,0
- There is not any	23	45,1	28	54,9	51	100			
Blood Sugar Level									
- Regular	27	79,4	7	20,6	34	100	0,000	11,08	3,4-35,2
- Irregular	8	25,8	23	74,2	31	100			

From the table above, it can be seen that of the 39 respondents who did not comply with taking medication, 74.4% experienced blood sugar levels > 200 mg/dL, the Chi-Square test results had a significant relationship with a p value of 0.000. Of the 35 people who did not adhere to the diet, 60% experienced an increase in blood sugar levels. Chi-Square test results had a significant relationship with a p value of 0.024. As many as 51 people who did not receive education on the five pillars of DM, 54.9% had high blood sugar levels. Chi-Square test results have a significant relationship with a p value of 0.013. A total of 31 people who did not regularly control blood sugar 74.2% had high blood sugar levels. Chi-Square test results have a significant relationship with a p value of 0.000.

Table 3. Multivariate Analysis Results

NO	Variable	Koef-B	P-Value	OR	95% CI
1.	Take medicine	4,406	0,002	72,500	5,2-1,2
2.	Diet	1,367	0,061	3,500	0,9-16,4
3.	Education	-0,214	0,880	7,304	0,0-13,0
4.	Blood Sugar Level	0,028	0,978	11,089	0,1-7,6

The table above shows that the results of logistic regression analysis using the backward method show that the variable that most influences blood sugar levels is medication adherence with OR = 72,500 (5,2 – 1,2)

## DISCUSSION

Disobedience to taking medicine because of a lack of understanding, according to them, when the body is comfortable, there is no need to take medicine, and they also forget, during this pandemic it is rare to control so you cannot get medicine. Some respondents chose the answer because the reason for not taking medication was also because they felt the side effects of the drug or were afraid of the side effects of the drugs taken every day. Oral diabetes medications such as glimepiride, metformin, and acarbose have some side effects such as stomach discomfort and can cause bloating or diarrhea.<sup>9</sup> This study is in line with<sup>11</sup> that 57% of DM patients have a low level of adherence, where the main reason for non-adherence is 42% of patients forgetting to take their medication. Patient adherence to medication plays an important role in the success of diabetes mellitus treatment.<sup>3</sup> According to research,<sup>12</sup> the factors that cause non-adherence to diabetes mellitus patients in treatment are forgetfulness (38.36%) and several other reasons such as busy activities, not routine control, boredom/ lazy, and tired.<sup>17</sup> Adherence to taking medication is an attitude or obedience to fulfill health recommendations without being forced to take action. A person is said to be obedient to taking medication during treatment if he takes medication according to the rules of the drug package and on time to take medication until completion of treatment. Regular.

Disobedience to the diet because of the lack of understanding about the importance of regulating eating, the explanation of the size / dosage of the diet that they should not get optimally. Respondents want a family to remind, or provide food according to the size, Dietary regulation adjusts to the calorie needs needed by people with diabetes mellitus, combined with their daily physical activity so that they are fulfilled properly. The settings include the content, quantity and timing of food intake (3 J-Type, Amount, Schedule) so that people with diabetes mellitus have an ideal weight and blood sugar can be well controlled.<sup>12</sup> The recommended diet for clients with type 2 diabetes mellitus is to eat a balanced composition of carbohydrates, protein and fat.<sup>12</sup> Healthy diet management is needed to regulate diet, so that people with diabetes get balanced nutrition, where the energy intake consumed is proportional to the physical activity carried out. Most of the physical activity/sports performed by DM patients (88%) were irregular, most of the patients assumed that their daily routine included exercise, they considered walking at home, gardening as exercise, even though it did not meet the requirements in the management of DM. Research<sup>13</sup> shows that patients with diabetes mellitus who do low physical activity tend not to be able to control their blood sugar levels compared to patients with diabetes mellitus who do

moderate and high physical activity. The ADA recommendation (American Diabetic Association) that physical exercise that can be done by type 2 diabetes mellitus clients is light exercise (regular walking) for 30 minutes, moderate exercise (brisk walking/jogging for 20 minutes and vigorous exercise (aerobic) for 20 minutes. 10 minutes.<sup>7</sup> Physical exercise should be done regularly at least three to five times a week at 30-minute intervals.<sup>4</sup> As many as 51 people who did not receive education on the five pillars of DM, 54.9% had high blood sugar levels. Chi-Square test results have a significant relationship with a p value of 0.013. Research<sup>14</sup> shows the need to continue to educate patients with diabetes mellitus who do not have a good diet in terms of the amount and frequency of eating. The provision of education and counseling is very important because diabetes is a disease that is related to the patient's lifestyle. By providing education and counseling, patients are expected to have sufficient knowledge about diabetes, which in turn can change their attitudes and behavior so that they are expected to control disease conditions and blood sugar levels and can improve their quality of life.<sup>14</sup> Diabetes mellitus patients who do not regularly control blood sugar show an increase in blood sugar, the results of interviews with participants that many still do not control their blood sugar regularly, because every posyandu does not always have blood sugar checks, and the patient's perception is still wrong, namely when the body feels healthy it is not Need for blood sugar control, regular blood sugar control Most sufferers already have a tool for self-examination. Family involvement to encourage people with diabetes to adhere to medication, behave in a healthy life, or modify their lifestyle to be healthier is also the key to the success of people with diabetes mellitus to control their disease.<sup>2</sup> Collaboration with family members is very important.<sup>2</sup> Collaborate with family members when setting goals related to family health to be achieved. Positive cooperative relationships are based on mutual respect and trust. Let the family take control as far as possible.<sup>8</sup>

### Conclusion and Suggestion

Adherence to taking medication, undergoing diet, education and blood sugar control were significantly related to blood sugar levels with p value <0.05 from the results of the multivariate test, it turned out that the most dominantly related to blood sugar levels was the regularity of taking medication with (p value 0.002) OR= 72,500. It is hoped that people who suffer from diabetes mellitus can understand the importance of implementing DM management. There is a policy from the Health Office involving family members to care, so that the five pillars of DM management can be implemented properly, so that DM patients can lead a life without complications.

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# ORGANOLEPTIC QUALITY OF NUTRIENT DENSE NOODLES BASED ON LOCAL FOOD AS AN ALTERNATIVE TO EMERGENCY FOOD

**Vinny Pratiwi, Irma Eva Yani, Sri Darningsih**

Health Polytechnic Padang Ministry of Health, Department of Nursing' Jalan Simpang  
Pondok Kopi, Siteba, Padang  
[vinnypratiwi0@gmail.com](mailto:vinnypratiwi0@gmail.com)

## ABSTRACT

Noodles are one of the foods that are accepted not only by adult but also by children. Wet noodles are one type of noodle that contains high carbohydrates but low protein. There is a gap in the minimum protein content in the type of wet noodles commonly sold on the market, which is 8,4 grams. Therefore, it is necessary to add a protein source in the form of dry rebon shrimp flour. The purpose of this research was to determine the best treatment and organoleptic quality of nutrient dense noodles substituted with dried rebon shrimp flour. This research is experimental research in the field of food technology with a completely randomized design with one control, three treatment, and two repetitions. The organoleptic test was carried out at the Food Science Laboratory, Department of Nutrition at Polytechnic Health of Padang. The research was conducted from March 2020 to April 2021. Data analysis using the Kruskal Wallis test was followed by the Mann Whitney test if there were significant differences. The results of the Kruskal Wallis test showed significant differences in the colour, scent, flavor, and texture of wet noodles. The result found that the best treatment was a ratio of 75:25 grams. It is recommended to use substitution of 25 grams of dry rebon shrimp flour in making wet noodles.

*Keywords: Wet Noodles ; Rebon Shrimp ; Organoleptic*

## Introduction

Indonesian children are still experiencing double nutritional problems, namely that some are malnourished and some are overweight at the same time. Malnutrition problems include lack of protein energy, anemia, lack of vitamin A and disorders due to lack of iodine.(1)

Based on the results of the 2018 Basic Health Research report, children aged 5 – 12 years in Indonesia with indicators of Height/age have very short and short nutritional status as much as 6,7% and 16,7%, respectively. Nutritional status according to BMI/age indicators with very thin and thin categories as much as 2,4% and 6,8%, while children with fat and obesity categories as much as 10,8% and 9,2%, respectively.(2)

Schoolchildren need adequate and nutritionally balanced food consumption because they are still experiencing a period of growth and development. One component of balanced nutrition that must be met is the consumption of diverse and nutrient dense foods..(1)

School-age children spend more time on various school activities that are quite dense, so that there is a natural increase in appetite.(3) Snacking is a fun activity for children, and it is difficult to avoid when they reach school age.(4) Frequent snacks will result the

school children is not being able to spend a portion of food at home so that it can affect their nutritional status.(5)

According to the 2019 Nutrient Adequacy Rate, snacks contributed 200 and 190 kcal of energy, 5 and 5,5 gram of protein, 6,5 grams of fat and 30 and 28 grams of carbohydrates for boys and girls in the age group of 10 – 12 years old.(6)

Currently, noodles are a food that is highly accepted by all levels of society, not limited to adults, but also children.(7) Besides being filling, it is also relatively cheap, practical, has a taste that is not boring, and has a variety of type(8)

There are various type of noodles sold on the market, one of which is wet noodles. Indonesian Food Security Directory 2019 stated that the consumption of wet noodles by the Indonesian population in 2017 increased from 1,83 kg/cap/year in 2016 to 1,89 kg/cap/year in 2017.(9)

The habit of consuming noodles without additional vegetables and protein is inappropriate because not all of the body's nutritional needs are met. In Ratnasari's research (2012) to see the habit of consuming instant noodles in children aged 7 – 12 years, was found that 50 subject (62,5%) consumed instant noodles without the addition of other food ingredients.(3)

In the Indonesian Food Composition Table, 100 gram of wet noodles contains 88 kcal energy, 0,6 gram of protein, 3,3 gram of fat, 14 gram of carbohydrates, 14 gram of calcium, 13 mg of phosphorus, 0,8 mg of iron, and 80 gram of water..(10) Based on the National Standardization Agency (2015)(11) regarding the quality standard of wet noodles, in 100 gram wet noodles contain at least 9 gram of protein. Meanwhile, the protein content in wet noodles currently circulating is not up to the standard it should be, with a protein gap of 8,4 gram.

Wet noodles are dominated by flour, which is high in carbohydrates but defecient in other nutrients, so it is necessary to increase the nutrients. Protein is one of the few nutrients found in wet noodles. As a result, high protein source must be included. One of these food ingredients is rebon shrimp.

The protein content of dried rebon shrimp is higher than that of eggs and meat. In 100 gram of dried rebon shrimp contains 299 kcal of energy, 59,4 gram of protein, 3,6 gram of fat, 3,2 gram of carbohydrates, 2306 mg of calcium, 625 mg of phosphorus, 21,4 mg of iron, and 0,06 mg of vitamin B1.(10) In Rollinda (2019) found that the nutritional value of 100 gram of rebon shrimp flour contains 427,14 kcal of energy, 84,85 gram of protein, 5,14 gram of fat, 4,57 gram of carbohydrates, and 30,57 mg of iron.(12)

Dried rebon shrimp is an aquatic product that is abundant and easy to obtain, and the price is inexpensive. Based on a report from the Central Statistics Agency, the production of shrimp commodities in Indonesia in 2017 was 400,07 tons. Shrimp production in West Sumatera is 21,43 tons.(13) Meanwhile, shrimp consumption by the Indonesian people in 2018 has increased to 0.67 kg/cap/year, which in 2013 was 0.62 kg/cap/year and 0.54 kg/cap/year in 2014.(9)

Based on Madan research (2018), dried rebon shrimp contains 15 types of amino acids, ten of which are essential amino acids, and the other five are non-essential amino acids.(14) So with the addition of dried rebon shrimp into wet noodles, will be able to increase the nutritional value in particular protein and other micro minerals such as calcium, phosphorus, and iron.

Research by Mukhtia Helfina (2014) regarding the substitution of anchovy flour on the organoleptic quality and protein content of wet noodles found that the protein content of wet noodles produced was 22,52% or 28,1 grams.(15) While research by Candra and Hafni (2018) shows that by adding eel meat to the manufacture of wet noodles, the highest protein content is 5.57%.(16)

The purpose of this research was to determine the best treatment and organoleptic quality of nutrient dense noodles substituted with dried rebon shrimp flour.

## Methods

This research is experimental research in the field of food technology with a completely randomized design with one control, three treatments, and two repetitions. This research was conducted from March 2020 to April 2021 at the Food Science Laboratory Department of Nutrition Polytechnic Health of Padang. Organoleptic test using a moderately trained panel of 25 panelists.

### A. Tools and Materials

Cakra Kembar wheat flour, dried rebon shrimp flour, chicken eggs, baking soda, salt, water, and cooking oil are the main ingredients in wet noodles.

One control sample, three treatments samples, a panelist approval letter, an organoleptic test form, and mineral water were utilized in the organoleptic test.

The tools used for making wet noodles are basin, stove, spatula pan, blender, 60 mesh flour sieve, digital scale, spoon, napkin, ampia knife, stew pan, plate, bowl, and spoon. The tools used for the orgaboleptic test were 6A-size mica plastic, snack plates, and label paper.

### B. Procedure

#### 1. Making Dry Rebon Shrimp Flour

Rollinda Radianti (2019)(12) explains how to make modified dried rebon shrimp flour:

- a. Sand and other contaminants are removed from dry rebon shrimp by cleaning and washing them with water
- b. The shrimp are then drained to remove excess water and roasted over medium heat for a few minutes until the hot steam has dissipated
- c. After blending the flour, it is filtered through a 60 grit sieve.

#### 2. Making Wet Noodles Treatment

- a. Preparation and weighting of ingredients
- b. Forming a dough from wheat flour, dry rebon shrimp flour, baking soda, salt, chicken eggs, and water.
- c. Form the dough into a ball and knead it.
- d. Cover the dough with a clean napkin and set aside for 30 minutes.
- e. After 30 minutes the dough is divided into smaller portions.
- f. The dough is smoothed to a thickness of 5 mm with ampia and formed into noodles.
- g. Cook for 2 minutes in boiling water with one tablespoon of cooking oil added to keep the dough from sticking.
- h. Flowing drainage and watering.

## Results And Discussion

### A. Color

The color of the wet noodles produced is yellowish white to brownish yellow.

**Table 1. Panelist Acceptance Value of Wet Noodle Color**

	F1	F2	F3	F4	P value
Median	3.5 a	2.5 b	3.0 b	3.0 b	< 0.001
Min	2.5	2.0	2.5	2.0	
Max	4.	3.5	3.5	3.5	

*Note: Values followed by unequal lowercase letters are significantly different according to the Mann Whitney test.*

The results of the Kruskal Wallis test at the 5% level found that the p value < 0.05, i.e. 0.000, means that there is a significant difference in the color of the wet noodles. The results showed that the average color of wet noodles using the resulting median ranged from a scale of 2.5 to 3.5, with categories like to very much like. Based on observations, it is known that the more dried rebon shrimp flour is used, the darker the color of the wet noodles produced tends to be.

The brownish color produced by wet noodles substituted with dried rebon shrimp flour is thought to be due to the Maillard reaction, which is a non-enzymatic browning reaction that occurs due to a reaction between reducing sugars and free amine groups from amino acids or proteins in the presence of heating.

Maillard reaction on wet noodles substitution of rebon shrimp flour occurs because of the heating process when boiling noodles in boiling water. The Maillard reaction mechanism is very complex, where the amine sugar will undergo denaturation, cyclization, fragmentation, and polymerization to form a pigment complex called melanoidin.(17) Processed flour when heated at high temperatures (> 35°C) there will be a browning reaction between proteins and carbohydrates that produce a brown color.(18) In addition, the brownish color produced is also the influence of the basic color of the raw material for rebon shrimp which undergoes a 10-minute roasting process.

The brown hue of rebon shrimp cookies is altered by the substitution of rebon shrimp flour, according to study conducted by Riska Van Gobel et al (2016) on the formulation of rebon shrimp cookies. The more rebon shrimp flour used, the darker the color becomes.(19) For the highest value of the hue of the rebon shrimp flour substitute cookies, different results were obtained by as much as 10%. While the organoleptic test yielded the greatest value for the color substitution of dried rebon shrimp flour on wet noodles, up to 25 grams.

### B. Scent

The scent of the wet noodles produced is typical of noodles to typical of rebon prawns.

**Table 2. Acceptance Value of Wet Noodle Scent by Panelists**

	F1	F2	F3	F4	P value
Median	3.0 a	2.5 b	2.5 b	3.0 b	
Min	2.5	2.0	2.0	2.0	< 0.001
Max	4.0	3.5	3.5	3.5	

*Note: Values followed by unequal lowercase letters are significantly different according to the Mann Whitney test.*

The results of the Kruskal Wallis test at the 5% level found that the p value < 0.05, which is 0.000, means that there is a significant difference in the scent of wet noodles. The results showed that the scent of wet noodles produced ranged from a scale of 2.5 to 3.0 with a “like” category. The distinctive scent of rebon shrimp is getting stronger along with the increase in substitution of rebon shrimp flour. The results of the organoleptic test showed that the preference level of the panelists increased along with the increase in the substitution of dry rebon shrimp flour used.

The distinctive scent of rebon shrimp comes from compounds derived from aldehydes, ketones, amino acids, and volatile fats formed by enzymatic processes and microorganism activity. According to Fatty (2012) in Siregar (2019) states that the use of high heat will produce a strong scent in a material.(20) This occurs during the process of making rebon shrimp flour through the cooking of rebon shrimp with medium heat for 10 minutes.

Another study on the formulation of rebon shrimp cookies by Riska Van Gobel et al. (2016) discovered that the more rebon shrimp flour used, the stronger the shrimp scent of the resulting cookies. The lowest substitution of rebon shrimp flour is 10%. The result of the organoleptic test was that the highest scent value was found in the substitution of rebon shrimp, which was 27.5 grams.(19)

### C. Flavor

The flavor of the wet noodles produced is typical of noodles to typical of rebon prawns.

**Table 3. Panelist Acceptance Value of Wet Noodle Flavor**

	F1	F2	F3	F4	P value
Median	3.0 a	2.5 b	2.5 b	2.5 b	
Min	2.0	2.0	2.0	2.0	< 0.001
Max	4.0	3.5	3.5	3.5	

*Note: Values followed by unequal lowercase letters are significantly different according to the Mann Whitney test*

The results of the Kruskal Wallis test at the 5% level found that the p value < 0.05, i.e. 0.003, meaning that there was a significant difference in the flavor of wet noodles. The results showed that the flavor of wet noodles produced ranged from a scale of 2.5 to 3.0, with a liking category. From the results of observations, it was found that the more substitutions of dry rebon shrimp flour, the more savory the flavor of rebon shrimp was.

The resulting savory flavor is the influence of the amino acid glutamate present in rebon shrimp. Research conducted by F.A. Karim et al (2014) on the content of glutamic acid in shrimp paste with various raw materials has shown that the highest levels of glutamic acid are found in shrimp paste with rebon shrimp as the raw material. Glutamic acid is an amino acid that makes up protein, which is naturally found in high protein foods. According to Amaliafitri (2010) in F.A. Karim et al (2014) glutamic acid is the most dominant source of umami (savory) flavor and has an impact on the perfection or authenticity of the flavor itself.(21)

Riska Van Gobel, et al (2016) discovered that the higher the concentration of rebon shrimp flour utilized, the stronger the shrimp flavor in the cookies is created. It is caused by the baking process of cookies, which provide a more bitter taste, in addition to the strong flavor of shrimp. The amino acid lysine, which is also obtained from rebon shrimp, is hydrolyzed, giving it a bitter flavor.(19)

The highest value of the flavor of rebon shrimp cookies was found in the formula with the lowest substitution of rebon shrimp flour, namely 10%. Meanwhile, in this study, the organoleptic test results showed that the highest scent value was found in the substitution of rebon shrimp, amounting to as much as 25 grams.

#### D. Texture

The resulting wet noodle texture is chewy to less chewy.

**Table 4. Panelist Acceptance Value of Wet Noodle Texture**

	F1	F2	F3	F4	P value
Median	3.0 a	3.0 bc	3.0 b	3.0 c	
Min	2.5	2.0	2.5	2.0	< 0.001
Max	4.0	4.0	4.0	4.0	

*Note: Values followed by unequal lowercase letters are significantly different according to the Mann Whitney test.*

The results of the Kruskal Wallis test at the 5% level found that the p value <0.05, i.e. 0.001, means that there is a significant difference in the texture of the wet noodles. The results showed that the texture of wet noodles produced on a scale of 3 was in the “like” category. The texture produced by noodles tends to be less elastic and breaks easily as the percentage of substitution of dry rebon shrimp flour is increased.

The wet noodle texture, which is less chewy in the treatment with the addition of dried rebon shrimp flour, is due to the reduced use of wheat flour. Wheat flour contains gluten, which is insoluble in water and can make the dough chewy and expand because it is able to bind air.(22)

Gluten is a protein that is characteristically found in wheat flour and in small amounts in other cereals. Gluten is a protein that clumps, is elastic and will expand when mixed with water. Gluten is a mixture of gliadin and glutenin proteins that collect with starch in the endosperm of wheat. Gluten content can account for up to 80% of the total protein in wheat flour.(22)

This is consistent with study undertaken by Riska Van Gobel, et al (2016) on the formulation of Rebon Shrimp Cookies, which found that browned cookies had a soft texture that crumbles readily. This is also induced by the browning reaction that occurs in cookies.(19) even is the cookies have been roasted for a long period, the texture resulting from the substitution of rebon shrimp flour on cookies becomes brittle, crumbles readily, and is less crisp or soft.

The highest value of the flavor of rebon shrimp cookies was found in the formula with the lowest substitution of rebon shrimp flour, namely 10%. Meanwhile, in this study, the organoleptic test results showed that the highest texture value was found in the substitution of rebon shrimp by as much as 25 grams.

## E. Best Treatment

The organoleptic quality test findings were used to determine the optimal treatment for the four types of wet noodles.

**Table 5. Average Panelist Acceptance Value of Organoleptic Quality**

	F1	F2	F3	F4
Color	3.380	2.680	2.860	2.780
Scent	3.280	2.580	2.660	2.800
Flavor	3.040	2.600	2.760	2.660
Texture	3.260	2.960	3.060	2.780
Total	12.96	10,82	11.34	11.02
Average	3.24	2.705	2.835	2.755

The color, scent, flavor, and texture of wet noodles are all rated as “like” by the majority of panelists. Wet noodles with up to 25 grams of dried rebon shrimp flour were judged to be the best treatment, with a slightly brownish yellow color, a strong rebon shrimp scent, a strong rebon shrimp flavor, and a somewhat chewy texture.

Riska Van Gobel et al (2016) discovered various things in their research on the flavor, texture, color, and scent of rebon shrimp cookies. Treatment with rebon shrimp flour substitution, up to 10%, with a brown color, a highly fragrant scent specifically for rebon shrimp, a very savory flavor, a dry and compact texture was the treatment with the highest average preferred by panelists.(19)

Nuraini Khodijah et al (2020) study aligns with Riska's research, which examines the impact of different mixing methods on the physical, organoleptic, and protein content of rebon shrimp flour sticks in terms of physical qualities, organoleptic characteristics, and protein content was 30 grams. With the increased combining of rebon shrimp flour, the panelists' liking level lowers.(23)

This is in contrast to the findings of this wet noodles trial, which showed that the panellist's preference for wet noodles substituted with dried rebon shrimp flour climbed to 25 grams of substitution treatment before dropping to 27,5 grams of substitution treatment.

## Conclusion and Suggestion

### A. Conclusion

There was a significant difference in the substitution of dry rebon shrimp flour on the color, scent, flavor, and texture of wet noodles. The best treatment is a 25-gram substitution, which results in a slightly brownish yellow hue, a strong rebon shrimp scent, a strong rebon shrimp flavor, and a somewhat chewy texture of the noodles. As a result, it can fulfill the nutritional value of wet noodle protein as an alternative to nutrient dense emergency food by substituting 25 grams of dry rebon shrimp flour.

### B. Suggestion

1. To make wet noodles, use a 25 gram dry rebon shrimp flour substitute formula and 75 gram of wheat flour.
2. More research is needed to determine the safety of microbiological, chemical, and heavy metals, as well as the product's shelf life.

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## **RELATIONSHIP OF INDIVIDUAL CHARACTERISTICS AND BEHAVIOR WITH THE TUBERCULOSIS PREVALENCE IN KUPANG CITY**

**Wanti Wanti<sup>1\*</sup>; Ety Rahmawati<sup>1</sup>; Sisilia Leny Cahyani<sup>1</sup>; Debora G Suluh<sup>1</sup>; Enni Rosida Sinaga<sup>1</sup>; Agustina Agustina<sup>1</sup>; Siprianus Singga<sup>1</sup>**

<sup>1</sup> *Poltekkes Kemenkes Kupang ; NTT Province, Indonesia  
trivena78@yahoo.com*

### **ABSTRACT**

It is estimated that one-third of the world's population has been infected by TB germs, and Indonesia is in the top 3<sup>rd</sup> ranks with the most cases in the world. Many factors are associated with the incidence of TB so this study aims to determine the factors associated with the incidence of Tuberculosis. This analytic observational study used a case-control study design. The study was carried out in Kupang City in 2021. The case sample was 75 cases of TB patients undergoing treatment during the study, while the control sample was 75 non-TB patients around the control house. The dependent variable was the tuberculosis prevalence, while the independent variable was age, gender, knowledge, attitude, smoking habits, cigarettes per day. The data were collected by interview and then the data were analyzed by univariate and bivariate by chi square test. This study found variables related to the incidence of TB, namely knowledge (p 0.049 <0.05; OR 2.03; 95% CI: 1.056 – 3.909), attitude (p 0.001 <0.005; OR 3.50; 95% CI: 1.695–7.228), smoking behavior (p 0.000<0.005; OR 4,447; 95% CI: 2.174 – 9.094), and smoking 10 cigarettes per day (p 0.000<0.05; OR 7.731; 95% CI: 3.265-18.302) . While the variables that are not related to the incidence of TB are age (p 0.513>0.05, 95% CI: 0.403-1.454) and gender (p 0.250>0.05; C 95%: 0.338-1.239). The greatest risk of tuberculosis is smoking behavior >10 cigarettes per day, namely 7.731 and followed by smoking and attitude variables, while lack of knowledge has the lowest risk of suffering from tuberculosis, which is 2.032. It is necessary to intensify outreach to the community to increase knowledge and attitudes in preventing tuberculosis transmission and counseling about the impact of smoking on the risk of tuberculosis incidence so that it is expected to reduce the number of smokers and the number of TB cases in the community.

*Key Words: Tuberculosis; Knowledge; Attitude; Smoking*

### **Introduction**

Tuberculosis (TB) is caused by the bacterium *Mycobacterium tuberculosis*, and is still a global public health problem (Kemenkes RI, 2019). It is estimated that one-third of the world's population has been infected by TB germs, with cases and deaths due to TB being found in many developing countries, including Indonesia (Kemenkes RI, 2017).

TB patients are mostly found in the productive age, namely 15-50 years of age. This causes TB patients to become unproductive because they lose some of their working time 3-4 months a year and lose 20-30% of income each year, and lose 15 years for patients who die. Globally,

TB cases in Indonesia are ranked 3rd after India (27%), and China (9%). Ranked in the top 3 in the world because Indonesia accounts for 8% of all cases in the world or around 845,000 cases, followed by the Philippines (6%), Pakistan (5%), Nigeria (4%), Bangladesh (4%) and South Africa (3%). The high number of cases means hard work is needed to reduce cases and achieve TB elimination by 2030 and Indonesia to be free of TB in 2050 (Kemenkes RI, 2017, 2019).

The estimated absolute number of TB in NTT in 2019 is 7,137 cases with the Case Notification Rate still low at 131 cases per 100,000 population, and this CNR is still low compared to the national figure of 197 cases per 100,000 population (Kemenkes RI, 2020). Based on the NTT Provincial Health Office (2018), the highest notification rate in NTT in 2017 was in Kupang City with the CNR of all TB cases being 127.53 per 100,000 population (Dinkes Provinsi NTT, 2019, 2020).

Various steps have been taken by the government in efforts to prevent and control TB, but TB cases in Indonesia continue to increase, including in the Province of NTT and the City of Kupang. TB prevention will be more effective if the risk factors that play a role in the incidence of TB in an area are known. In general, the main causes of increasing TB cases are poverty, failure of TB programs, demographic changes and also the impact of the HIV pandemic. In addition to these factors, there are other factors such as public knowledge about TB and its prevention, home conditions and environmental factors and other factors. All of these factors are interrelated, causing the TB problem to continue to exist and the more complex prevention and intervention steps that must be taken. This study aims to determine the relationship between individual characteristics and behavior with the incidence of TB.

## Methods

This research is an analytic observational study with a case control study design, which is a study that compares groups of patients and non-patients to look for determinants of TB incidence in the past (at the time before being diagnosed with TB) or also called a retrospective study. The study was conducted in Kupang City, East Nusa Tenggara Province in 2021. The case sample was TB patients who were undergoing treatment at the time of the study and the sample size was based on Lwanga and Lemenshow, so the case sample size was 75 TB patients. Control samples were non-TB patients who lived near TB patients (neighbors) as many as 75 people. The inclusion criteria for the case sample were tuberculosis patients who were recorded in the health center register book in 2021 WHO were undergoing treatment at the time the research was carried out, could read and write and were willing to be used as samples for this study. The control inclusion criteria were: not being sick with TB or having never been diagnosed with TB, being able to read and writing and being a neighbor of the case group and willing to be a sample of the study.

The dependent variable is the incidence of tuberculosis, while the independent variables are individual characteristics which include age, gender, knowledge, attitudes, smoking habits, and the number of cigarettes smoked per day.

The research data were obtained by interviewing TB patients and the control group who did not suffer from TB. The analysis was carried out univariate and bivariate. Univariate analysis was conducted to see the frequency distribution of research variables, while bivariate analysis with Chi square test was conducted to see the relationship between variables.

## Result and Discussion

This study was conducted on 150 samples consisting of 75 cases (TB patients and 75 controls who were not TB patients who lived around the patient's house in Kupang City. The results of the bivariate analysis on the research variables studied can be seen in Table 1.

**Table 1. Bivariate Analysis of Dependent Variables and Independent Variables with Chi Square Test**

Variable		Kasus	Kontrol	Sig	OR (95% CI)
Age	≥30 years	36 (48.0%)	41 (54.8%)	0.513	0.765 (0.403 – 1.454)
	<30 years	39 (52.0%)	34 (45.3%)		
Sex	Female	38 (50.7%)	46 (61.3%)	0.250	0.647 (0.338 – 1.239)
	Male	37 (49.3%)	29 (38.7%)		
Knowledge	Low	48 (64.0%)	35 (46.7%)	0.049	2.032 (1.056 – 3.909)
	Enough/ Good	27 (36.0%)	40 (53.3%)		
Attitude	Low	35 (46.7%)	15 (20.0%)	0.001	3.50 (1.695 – 7.228)
	Enough/ Good	40 (53.3%)	60 (80.0%)		
Smoking	Yes	41 (54.7%)	16 (21.3%)	0.000	4.447 (2.174 – 9.094)
	No	34 (45.3%)	59 (78.7%)		
Cigarette per day	≥10 per day	36 (48.0%)	8 (10.7%)	0.000	7.731 (3.265 – 18.302)
	<10 per day	39 (52.0%)	67 (89.3%)		

Based on the chi square test, only a few variables were found related to the incidence of TB, namely knowledge, attitudes, smoking behavior, number of cigarettes smoked every day. While the variables of age, and sex are not statistically related to the incidence of tuberculosis

This study found that tuberculosis patients aged 30 years were 48% (36 people) or most were <31 years old, namely 52%) of the total 75 cases of tuberculosis. The p-value is  $0.513 >$ , which means that there is no relationship between age and the incidence of TB. The difference in cases based on gender in tuberculosis patients was only slightly, namely 49.3% male and 50.7% female. This gender difference was not statistically significant, ie p value  $0.250 >$ , which means that there is no relationship between gender and the incidence of TB.

Knowledge in this study found that more TB patients had less knowledge about tuberculosis (64%) than in the non-tuberculosis group, only 46.7% had less knowledge about tuberculosis. Statistically, it was found that there was a relationship between knowledge and the incidence of TB ( $p 0.049 <$ ). The risk for TB disease (OR) for those with less knowledge is 0.492 times compared to those with poor knowledge or the risk of TB incidence in those with low knowledge is 2.03 times higher than those with good/enough knowledge, as shown in Table 1.

Most TB patients in this study had a sufficient attitude (53.3%), and only 46.7% had a poor attitude towards preventing TB transmission. Based on the chi square test, there was a relationship between this attitude and the incidence of TB ( $p 0.001 <$ ), with the odds ratio for less attitude is 3.50. Some of TB patients were found to be smoking, namely 54.7%, while 45.3% of TB patients smoked when or who had never smoked. Based on the chi square test, it was found that there was a relationship between smoking behavior and the incidence of TB, namely those who smoked had a TB risk of 4.447 times compared to non-smokers ( $p 0.000 < \alpha$ ), as well as those who smoked 10 cigarettes per day had a risk of developing TB 7.731 times. compared to non-smokers or smokers <10 cigarettes per day ( $p 0.000 <$ ).

This study found that those aged  $\geq 30$  years did not differ much from those aged 30 years in both the case group and the control group, and statistically there was no relationship between age and the incidence of TB ( $p < 0.05$ ). In contrast to previous studies where age is associated with the incidence of TB (Pangaribuan, Kristina, Perwitasari, Tejayanti, & Lolong, 2020; Sari & Arisandi, 2018). Likewise, gender in the study was not found to be associated with the incidence of TB ( $P < 0.05$ ). Whereas in previous studies it was also stated that gender was not associated with the incidence of TB (Pangaribuan et al., 2020) and also not associated with the incidence of TB relapse (Jaya & Mediarti, 2017).

This study found that the incidence of TB was related to knowledge, where the risk for the occurrence of TB in the low knowledge group was 2.032 times greater than that of those with good or sufficient knowledge. This means that the better the knowledge, the lower the risk of suffering from TB. This is the same as what was found in previous studies, namely that poor knowledge of mothers causes the risk for children aged 0-14 years to suffer from TB as much as 8.25 times compared to mothers who have good knowledge about TB. (Hamidi, 2011). This shows that with good knowledge, it is hoped that the community will also have good behavior so that it can prevent the transmission of TB both to themselves and to others around them.

Attitudes were also found to be associated with the incidence of TB in this study in Kupang City, where the risk for suffering from TB was 3.50 times for those who had a bad attitude than those with a good attitude. Likewise, in previous studies, it was found that mothers who have negative attitudes in TB prevention increase the risk of children 0-14 years suffering from TB by 12.6 times compared to the risk of children from mothers who have positive attitudes in TB prevention (Hamidi, 2011). A good knowledge and attitude in preventing TB play a role in the risk of TB in someone because with a good knowledge, it is hoped will result in a good attitude, and then with a good attitude, it is hoped that good actions from the community will be formed in preventing TB transmission, so that it can suppress the increase in TB cases in the community.

As with knowledge and attitudes, the action in this study was found to be associated with the incidence of TB, the action among those who smoked had a risk of suffering from TB 4,447 times compared to those who did not smoke with a  $p$  value of 0.000. This study found 54.7% of TB patients were smokers, and this is almost the same as the prevalence of smokers in TB patients in Spain, which is 39.3% (Penas, Mir, Solano Reina, Riesco-Miranda, & Caylá, 2016). Furthermore, this study proved that those who smoked  $>10$  cigarettes per day had a 7.731 times higher risk of developing TB than those who smoked  $<10$  cigarettes per day or did not smoke at all.

This is in accordance with previous research where mothers with negative behavior in TB prevention will increase the risk of children aged 0-14 years suffering from TB by 6.07 times compared to the risk of children with mothers who take positive TB prevention measures. (Hamidi, 2011). More clearly it was found that people who smoke have a risk of suffering from TB is 4,333 compared to people who do not smoke. This shows that the risk of smoking is not protective or does not reduce the risk of suffering from TB but on the contrary, smoking will increase the risk of developing TB (Alnur & Pangestika, 2018). However, several studies have found that smoking is not associated with the incidence of TB nor with the incidence of relapse in TB (Mathofani & Febriyanti, 2020; Pangaribuan et al., 2020).

The effect of smoking on TB has been widely reported in many studies before, namely that countries with a large number of smokers will find higher TB patients, and failure to cure TB is also found in smokers, so smoking cessation is the most effective intervention in TB prevention and also in increasing cure rates (Hassmiller, 2006; Perriot, Underner, & Peiffer, 2018). For this reason, quitting smoking or staying away from cigarette smoke is highly recommended for the community to be free from TB disease, and this smoking cessation extension should continue to be encouraged on an ongoing basis in all walks of life.

## Conclusion and Suggestion

Variables related to the incidence of TB were knowledge, attitudes, smoking behavior, and the number of cigarettes smoked every day. Meanwhile, the variables of age and sex were not statistically related to the incidence of tuberculosis. The greatest risk for the occurrence of tuberculosis is smoking behavior >10 cigarettes per day which is 7,731 and followed by smoking behavior and attitude variables, while the knowledge variable has the lowest risk of suffering from tuberculosis, which is 2,032.

It is recommended to continue to intensify outreach to the community to increase knowledge and attitudes about tuberculosis, such as about modes of transmission, prevention and good treatment methods. It is necessary to educate about the impact of smoking on the risk of tuberculosis incidence so that it is expected to reduce the number of smokers in the community.

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**COMMUNITY PARTICIPATION IN THE  
IMPLEMENTATION OF POLICY TO PREVENT AND  
REDUCE THE POSITIVE RATE OF COVID 19 IN THE  
PERIOD NEW ADAPTATION (NEW NORMAL)  
IN THE CITY OF PADANG IN 2021**

**Asep Irfan<sup>1\*</sup>, Darwel<sup>2</sup>, Suksmerri<sup>3</sup>,**

<sup>1,2</sup> *POLTEKKES KEMENKES PADANG, Indonesia*

\*Coressponding Author Email:

*delima.irfan.dea@gmail.com*

**ABSTRACT**

The low level of community participation in preventing and decreasing the positive rate for COVID-19 since this disease only appeared in the city of Padang in early March 2020 until the new adaptation period (new normal) people's ignorant attitude, unwilling to maintain social distancing, physical distancing, lazy To do hand washing with soap or not wanting to wear a mask is an unsolved problem at this time in the city of Padang. This study uses a descriptive method which was conducted in March – November 2021 in the city of Padang. The sampling technique used purposive sampling technique so that the number of samples in this study was 60 respondents. The results showed that 55.8% of respondents avoided shaking hands, respondents' opinions about the effectiveness of running procedures to avoid crowds were 56.3% and respondents' opinions about the reasons people did not comply in carrying out health care programs were mostly the price of masks, face shields, hand sanitizers or PPE. Others tend to be expensive, which is 66.7%. While the responses of respondents to the community infected with Covid 19 were mostly close people, neighbors and their environment providing support, namely 86.7%. It is hoped that the government, both at the city and regional levels, can increase public participation in health protocols through education in community action movements to break the COVID-19 chain.

**Kata Kunci:** Community participation, Covid-19, Health Protocol.

**INTRODUCTION**

Disease is a pathological condition in the form of functional and/or morphological abnormalities of an organ and/or tissue of the body. (Achmadi). The environment is everything that is around it (living, inanimate, real, abstract) and the atmosphere that is formed due to the interaction between the elements in nature. (Sumirat'). Environmental-Based Disease is a pathological condition in the form of functional or morphological abnormalities of an organ caused by human interaction with everything around it that has the potential for disease. Disease is a pathological condition in the form of functional and/or morphological abnormalities of an organ and/or body jar (Achmadi). everything that is around it (living, inanimate, real, abstract) and the atmosphere that is formed because of the interaction between the elements in nature. (Sumirat'). Environmental-Based Disease is a pathological condition in the form of abnormal function or morphology of an organ of the body caused by human interaction with everything around it that has the potential for disease. Corona virus Diseases 19 (Covid-19) is an environment-based disease caused by Novel Coronavirus (2019-nCoV) which is a new type of virus, with symptoms of acute respiratory disorders such as fever, cough and shortness of breath to severe cases causing pneumonia,



respiratory syndrome acute, renal failure and even death.

The spread and addition of Covid-19 cases globally was quite fast, the initial handling of cases began with the announcement by the President of the Republic of Indonesia, Mr. Joko Widodo, in early March 2020, cases number 1 and number 2 in our country. Furthermore, the Padang City Government responded to this condition through massive socialization about COVID-19 to all levels of society through print and electronic media. Over time, Covid-19 colored life in Padang City, after the Mayor of Padang, Mr. Mahyeldi Ansyarullah, announced an extraordinary event ( The outbreak of covid-19 cases which was the first case, which was followed by the addition of fluctuating covid-19 cases until August 2020 in a span of 6 (six) months with a total of 920 confirmed cases in Padang City.

Based on this problem, the authors are interested in taking the title of the study: "Public Participation in Reducing the Positive Rate of Covid 19 in the City of Padang".

The purpose of this research is to realize research activities in the health sector that are capable of being competitive and innovative at the National and Regional levels. This research was carried out based on the research strategic plan of the Poltekkes Kemenkes Padang in 2020-2024, where the results of this research will be in line with the research policies of the Poltekkes Kemenkes Padang which are focused on community-based environmental Health Technology, with topics covering environmental-based diseases and Health Promotion and Community Empowerment.

## METHODS

This study uses a descriptive method, which is finding facts with interpretation by accurately describing the nature of several group or individual phenomena derived from the findings. The sampling technique in this study was purposive with sample criteria, namely the Padang City Community representing the three Andalas, Kuranji, and Surau Gadang sub-districts, active Covid 19 practitioners at the village level and active Covid 19 practitioners at the Padang City level. This research was conducted in March – November 2021 in the city of Padang so that a total sample of 60 respondents was obtained. Data analysis is presented in the form of univariate analysis and the data is processed computerized using SPSS 24.

## RESULT

Based on Community Behavior in Carrying Out Health Care Programs, Padang City Community Opinions about the effectiveness of Health Care Programs, Respondents' Opinions about the Reasons for Disobedient People in Carrying Out Health Care Programs and Respondents' Responses to Communities Infected with Covid 19, the following results were obtained:

**Table 1**

Variable	Score	%
<b>Community Behavior in Implementing Health Protocols</b>		
wearing Masks	256	85,3
using Hand Sanitizers	212	70,7
washing hands for 20 seconds with soap	200	66,7
avoid shaking hands	134	55,8
avoiding crowds	176	58,7
maintain a minimum distance of 1 m from other people when outside the house	211	70,3
<b>Public opinion of Padang City about the effectiveness of health protocols</b>		
wearing Masks	256	85,3
using Hand Sanitizers	232	77,3
washing hands for 20 seconds with soap	197	65,7
avoid shaking hands	185	61,7
avoiding crowds	169	56,3
maintain a minimum distance of 1 m from other people when outside the house	196	65,3
<b>respondents' opinions about the reasons people do not comply with health</b>		

<b>protocols</b>		
Prices of masks, face shields, hand sanitisers or other PPE tend to be expensive	40	66,7
The work is becoming It is difficult if you have to implement Health Protocols properly	28	46,7
Apparatus or leadership does not set a good example	12	20
Allow others	4	6,7
There are no sanctions if you do not follow good health protocols	24	40
Maintain a minimum distance of 1 m from other people when outside the household	4	6,7
<b>respondents' responses to Communities Infected with Covid 19</b>		
Close people, neighbors and their environment provide support	52	86,7
No response, (does nothing)	4	6,7
Late, (gives negative stigma)	4	6,7
Health Protocols are carried out strictly in the environment	20	33,3

Based on the table above, 55.8% Respondents Avoid Shaking Hands, Respondents' Opinions About The Effectiveness Of Running Health Protocols Avoiding Crowds As Much As 56.3% And Respondents' Opinions About The Reasons For People Who Disobeyed In Running Health Protocols Most Are The Prices Of Masks, Face Shields, Hand Sanitizers Or Other PPE Tends To Be Expensive, That's 66, 7%. While the responses of respondents to the community infected with Covid 19 were mostly close people, neighbors and their environment providing support, namely 86.7%.

## DISCUSSION

The results of this study show that 55.8% of respondents avoid shaking hands, respondents' opinions about the effectiveness of running health care programs to avoid crowds are 56.3% and respondents' opinions about the reasons why people don't comply in carrying out health care programs are the prices of masks, face shields, hand sanitizers Or other apds tend to be expensive, which is 66.7%. While the responses of respondents to the community infected with Covid 19 were mostly close people, neighbors and their environment providing support, namely 86.7%. This result is in line with the study conducted by Lim et al (2020) on community compliance in the application of precautionary standards which found that 53.5% of the total 332 respondents were obedient in the use of PPE. In addition, research conducted by Almutairi et al (2020) found that during the COVID-19 pandemic, 53.3% did not comply with physical distancing behavior.

According to WHO in Nasronudin (2007), universal precautions are guidelines established by the Centers for Disease Control and Prevention CDC Atlanta and the Occupational Safety and Health Administration (OSHA), to prevent the transmission of various diseases that are transmitted. Vaismoradi et al (2020) in their research also said that public compliance with the use of safety precautions is relevant to breaking the COVID-19 chain. Compliance with the use of personal protective equipment during the COVID-19 pandemic remains the main concern, the use of personal protective equipment in accordance with standards is one of the efforts to prevent virus transmission (Song et al, 2020). Compliance with health protocols is one part of individual safety (Panayi et al, 2020).

Community compliance in implementing universal precautions plays a role in reducing the incidence of COVID-19 infection (Song et al, 2019). Non-compliance in implementing health protocols, PPE must be identified and analyzed to provide targeted training to the community on the correct and indicated use of PPE (Panayi et al, 2020). Communities can protect themselves from contact with COVID-19 patients if they have knowledge of the process and proper barrier protection (Potter, 2010). If people have low compliance with the use of personal protective equipment, it can have a negative impact on themselves and others (Porto et al, 2016).

The importance of strict infection control measures for the community, not only to reduce

transmission but also to limit public anxiety, which will result in better compliance, but also reduce the risk of transmitting COVID-19 to their own families (Temsah et al, 2020). People who do not comply with the use of personal protective equipment have a 30% chance of developing an infection, which means at least one out of every three people who do not comply with PPE will be infected with COVID-19 (Asaad et al, 2019).

Community participation is the active involvement of the community in the process of making and implementing decisions (WHO, 2002). Viewed from the health context, participation is the participation and partnership of the community and facilitators (government, NGOs, development partners) in decision making, planning, implementation, monitoring and assessment of health activities and programs, as well as obtaining benefits from their participation in the context of building community independence (Permenkes No. 65/2013).

According to Prety J. (1995 in Agus, 2010), there are seven characteristics of the typology of participation, which are successively closer to the ideal form, namely: 1) Passive or manipulative participation, that is, people receive notifications of what is and has happened; 2) Informative participation, ie the community only answers questions for the project but is not given the opportunity to be involved; 3) Consultative participation, that is, the community participates in consultation while others are only listeners; 4) Participation incentives, namely the community provides sacrifices and services to obtain rewards; 5) Functional participation, ie the community forms groups as part of the project; 6) Interactive participation, where the community plays a role in the analysis process for planning activities and establishing institutions; 7) Independent (self mobilization), namely the community takes their own initiative freely to change the system that is upheld. And there are other forms of community participation, namely: 1) Co-option; 2) Co-operation; 3) Consultation; 4) Collaboration; 5) Co-learning; 6) Collective actions.

The continuous increase in confirmed cases has made people aware of how to prevent COVID-19. This public awareness will make the transmission of this disease decrease and it is hoped that there will be no more new cases. Prevention of COVID-19 can be done independently by the community in their respective homes and is expected to be done with their own awareness. The development of social media and education in the community can be a positive medium for the community to prevent COVID-19 (Lenny and Erika, 2020).

In maintaining a person's health, there are two main factors that affect health, namely behavioral factors and non-behavioral factors. According to B Bloom, there are three domains of behavior, namely knowledge, attitude, and practice (Notoatmodjo, 2014 in Jesica and Rizma, 2020). Meanwhile, according to L. Green, health behavior is influenced and determined by three factors, namely predisposing factors, enabling factors, and reinforcing factors (Notoatmodjo, 2014 in Jesica and Rizka, 2014). 2020). When viewed from predisposing factors, the community has sociodemographic factors such as differences in age, gender, education, occupation, educational/occupational background and area of origin. The description of these sociodemographic characteristics can affect people's behavior and the outcomes of public health (Widayati, 2012 in Jesica and Rizma, 2020).

Knowledge is the ability to receive, retain, and use information, which is influenced by experience and skills. Most of the knowledge a person has comes from education, both formal and informal, personal experience and other people, the environment, and the mass media (Siltrakool, 2012 in Jesica and Rizma, 2020).

Bloom's taxonomy theory which has been revised especially in the cognitive domain by Anderson and Krathwohl divides knowledge into six levels, namely remembering, understanding, applying, analyzing, evaluating, and creating. (create). This taxonomic concept describes a higher pattern of thinking at a higher level of knowledge. At the third level in the form of applying, cognitive processes use a procedure to solve problems.

According to Notoatmodjo (2014 in Jesica and Rizma, 2020), knowledge is influenced by one's experience and the environment which can then be expressed and believed to give rise to motivation.

In theory, a person's level of education will affect his level of knowledge. If the level of education and knowledge is good, the behavior will also be good (Lenny and Erika, 2020). However, it is also possible to find people with high education but the behavior of the level of prevention of COVID-19 is still lacking and conversely, education is low but the level of education is good. In addition to education, there are other factors that can influence a person in preventing disease, such as gender. Based on research (Central Bureau of Statistics, 2020 in Lenny and Erika, 2020) it is explained that women tend to be better at implementing COVID-19 prevention than men. In addition, work also affects, for example housewives with low levels of education but high prevention because they aim to protect their families.

Efforts to prevent COVID-19 can be seen from a person's attitude towards the infection. The first attitude assessment is to ask directly about the attitude that papa should have in responding to news about covid-19. The next assessment of the attitude component is to ask whether with the Covid-19 case, the respondent has increased his efforts in maintaining personal health (Jesica and Rizma, 2020).

According to Noatmodjo, knowledge is a cognitive domain that is very influential in shaping one's actions. Acceptance of new behavior will be more lasting if it is based on knowledge, while the behavior will not last long without being based on knowledge (Silalahi, 2013 in Jesica and Rizma, 2020). A new behavior is formed, especially in adults, starting in the cognitive domain in the sense that the subject knows in advance about the stimulus in the form of material or external objects, giving rise to new knowledge and will be formed in attitudes and actions. Patients' knowledge about preventing COVID-19 by complying with the use of masks has an important role in anticipating repeated incidents. Patients must recognize, study, and understand all aspects of the COVID-19 disease including signs and symptoms, causes, triggers, and management. Knowledge has a close relationship with the decisions that will be taken, because with knowledge a person has a basis for making choices (Prihantana, et al, 2016 in Devi and Nabila, 2020).

According to the Head of the Tambun Health Center in Bekasi Regency, Arie M. Noer, the participation of the Grand Wisata residents can be a role model for the community in breaking the chain of the spread of the COVID-19 virus. In Grand Wisata, a Covid-19 Task Force was formed to handle positive cases of COVID-19 in the Grand Wisata environment. This group took the initiative to find and record residents who had contact with patients and ensured that ODPs did not leave their homes at all. During monitoring the task force team ensures food supplies for people under monitoring (ODP) so that OPD feel protected and comfortable because their food supply is always available and makes other residents feel safe. Not only ensuring that residents suspected of being exposed to COVID-19 self-isolate, residents also took the initiative to make masks. In addition, they also carry out environmental disinfection independently twice a day (Sri, 2020).

The Mayor of Padang, Hendri Septa, said that to overcome and end the spread of COVID-19, cooperation and support from various parties were needed, including the involvement of ustadz, ulama, and religious leaders. Currently the City of Padang is at Level 2 status, it requires the achievement of COVID-19 vaccination above 70 percent. If it is out of PPKM Level 2, it will provide flexibility in activities (Rahma, 2021).

The Mayor of Padang also said that monitoring was carried out on the adequacy of the Bed Occupancy Rate (BOR), a significant decrease in active cases, and the achievement of vaccinations above 50 percent of the total population targeted for vaccination. The role of the Covid-19 Task Force for Urban Villages throughout the city of Padang which consists of the Lurah along with RW/RT, Bhabinkamtibmas, Babinsa, LPM and all community components

so that during PPKM Level 4 they can carry out isolation and checks for people who enter or come to their respective neighborhoods with mandatory show some requirements. The Wako also continued, during the checks in several urban villages, he had asked the Kelurahan Covid-19 Task Force to carry out their duties according to the fixed procedures (protap) determined according to the Mayor's SE. Likewise at the border post, BPBD personnel are still asked to supervise people entering and leaving the city of Padang (Noli, 2021).

## CONCLUSION AND SUGGESTION

Based on the results of the study, it can be concluded that there is still a lack of community participation in the implementation or implementation of the COVID-19 health protocol in the new normal period of the city of Padang. It is hoped that the government, both at the city and regional levels, can increase public participation in health protocols through education in community action movements to break the COVID-19 chain.

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