

PROCEEDING BOOK

THE 1st INTERNATIONAL CONFERENCE
ON INTERPROFESSIONAL
HEALTH COLLABORATION

“Combating The Growing Epidemic of
Triple Burden Diseases through
Interprofessional Health Collaboration in
Developing Countries”

GRAGE HOTEL BENGKULU, INDONESIA
October 30-31th
2018



KEMENTERIAN
KESEHATAN
REPUBLIK
INDONESIA



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Proceeding Book

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Address from the Governor of Bengkulu Province

Dear honorary guests and participants,

First, I Recommend Welcome To Our Guests From State Friends Of Thailand, Malaysia, Philippines, And India And Speakers From Indonesia As The Host. Welcome To *Bumi Rafflesia*. And Happy To Enjoy The Beauty Of Bengkulu City Which Is A Historical City For The Indonesian Nation.

To Poltekkes, Bengkulu Ministry Of Health, Which Has Implemented International Seminars Today, This Polytech Is A Higher Education, Which Is Superior In Educating Health Personnel, Bengkulu And Indonesia Property In General And Always Visiting The Tri Dharma Of Higher Education.

I Realize That An Important Thing In Life Is Health, There Is No Meaning We Live If We Are Not Healthy, Then From The Role Of Health Personnel Is Very Important To Improve Optimal Health.

Ladies And Gentlemen,

The Success Of Health Development In Indonesia Must Implement The Entire And Integrated Health Development Program According To The Health Problems Faced By The Community.

At The Time Of Existing Diseases From Infection Disease To Degenerative Diseases That Need Handling Readiness Carefully Through The Approach To The Potential And Empowerment Of The Community. With The Multi Discipline Approach.

Increasing Health Services Can Improve The Appetite Of Community As Well As Decrease The Number Of Illness And Mortality In Any Region, And To Enhance The Available Health Service.

That Is All And Thank You

Governor Of Bengkulu



Dr Drh Rohidin Mersyah, MMA

Address from the Director of Health Polytechnic of Health Ministry Bengkulu

Dear honorary guests and participants,

Welcome to the International Conference which is held annually in our institution Bengkulu Health Polytechnic. This is our first event of International Conference. We hope this event can be our place to share knowledge from many field studies related to health science.

It is a great pleasure to invite you in The 1st International Conference on Interprofessional Health Collaboration. The International Conference on Health Sciences Named "Combating The Growing Epidemic of Triple Burden Diseases through Interprofessional Health Collaboration in Developing Countries". We have missions to improve health collaboration in other health education, research and community service. This conference is one of the way to achieve our vision and mission Bengkulu Health Polytechnic.

We have a great expectation that this conference can be our good environment to develop knowledge, to share experience, to have interaction between us and of course to give contribution for our health world. We do hope the success of the conference and we hope you all enjoy it.

Sincerely,



Darwis, S.Kp., M.Kes
Director Bengkulu Health Polytechnic

THE EFFECT OF PLAYING PUZZLE AND LISTENING TO MUSIC AGAINST ANXIETY IN CHILDREN AGE PRESCHOOL IN EDELWEIS ROOM RSUD DR. M. YUNUS BENGKULU

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Abstract — Hospitalization is one of the stressors for children that causes discomfort and anxiety because of nursing actions that impact varies depending on the development of age, an experience of pain, *support system*, and coping skills in dealing with stress. Various activities can be used as alternatives to reduce children's anxiety such as playing *puzzles* and listening to music. This study aims to determine the therapeutic effect of playing *puzzles* and listening to music on the level of anxiety in children.

The design used is *quasi-experiment with one group pretest-posttest with the control group*. the subject group was observed before the intervention, then observed again after the intervention. Samples were taken using *Accidental Sampling* with 34 people in one group and the entire study sample was 68 people. The research instrument was a *Hamilton Anxiety Rating Scale (HARS) questionnaire*.

The analysis used a *T-paired test* to compare the anxiety variables in the group, while the *independent T-test* to compare the anxiety variables in the two groups . The results showed that there was a significant decrease in anxiety levels after being given therapy to play *puzzles* and listen to music ($p = 0.0001$). So it can be concluded that there is an effect of play therapy on anxiety in children before and after and after therapy playing *puzzles* and listening to music. When undergoing hospitalization a therapeutic play activity allows the

child to express feelings including anxiety, fear and a feeling of losing control.

Keywords *Playing Puzzle, Listening to Music, Anxiety,*

I. INTRODUCTION

Hospitalization is one of the stressors for children that causes discomfort or anxiety, the child will experience anxiety because of the actions of nursing and the disease [1]. In preschool children this anxiety arises due to restrictions on activities that consider that treatment actions and procedures can threaten their body integrity [2].

Based on the data *Centers for Disease Control and Prevalence (CDC)* (2017) states that children who experience anxiety at age 3 -17 by 3%, depression 2.1% and autism spectrum 1.1% [3]. Data published by *Child Mind Institute (CHI)* 80% of children experience anxiety disorders [4]. Based on the 2015 National Health Survey (Susenas) children who have been hospitalized according to the age group 0-4 years are 5.11%, ages 5-9 years 2, 08%, 10-14 years 1.71%, ages 15-19 years 10-49% [5]. The impact of hospitalization on children varies depending on the development of age, the experience of pain and hospitalization, *support system*, and coping skills in dealing with stress. Children will experience disorders, such as somatic, emotional and disorders *psychomotor* [6].

Purwandi said that to overcome the worsening level of anxiety in children,

nurses in providing interventions must pay attention to the needs of children according to their growth and development. Various activities that can be used as alternatives to reduce children's anxiety such as playing *puzzle* and listening to music [7]. The benefits of playing *puzzles* include helping to solve problems, improve children's cognitive, train children's emotions and help coordinate between the left eye and right eye [8].

Listening to music is expected to stimulate and attract sufferers to follow the rhythm flow which then creates a relaxed and happy atmosphere that in the end there is a positive change [9]. According to the results of preliminary studies conducted by researchers on October 10, 2017, in the Edelweiss Room of Dr. M. Yunus Bengkulu, the number of pediatric patients from January to October 2017 was 1390 people.

When observations in the room the number of children treated was 15 people, 11 of them showed anxiety reactions [10]. Based on the background above makes researchers interested in conducting research on the Effect of playing Therapy *Puzzle* and Music

III. RESULT

Listening on Anxiety Levels in ChildrenPrasekolah in Edelweiss Room Dr. M. Yunus Bengkulu.

II. RESEARCH METHOD

Type of research used was *quasi-experiment* using the design of *one group pretest-posttest with a control group*. This research was conducted in the Edelweiss room of Dr. M. Yunus Bengkulu from January to March 2018. The population is preschool children who are treated in the Edelweiss room of Dr. M. Yunus Bengkulu. Samples were taken using *Accidental Sampling*.

The instrument is a *Hamilton Anxiety Rating Scale (HARS)* questionnaire that contains questions with zero to four intervals with 14 items of anxiety symptoms that describe the anxiety experienced by children. To test the value before and after playing *Puzzle* and listening to music in each group using the *T-paired test*, while to compare the anxiety variables in the two intervention groups and the control used *T-test independent*.

Table 1
Characteristics of Respondents Based on Age, Gender, Experience of Care and Length of Care in the Edelweiss Room of Dr. M. Yunus Bengkulu

Characteristics	Intervention (n=34)	Control (n=34)	P Value
Age			
Mean	4,00	3,79	0,331
Median	4,00	4,00	
SD	0,888	0,845	
Min-Maks	3-5	3-5	
CI for Mean 95%	3,69-4,31	3,50-4,09	
Gender			
Boys	18 (52,9%)	25(73,5%)	0,131
Girls	16 (47,1%)	9 (26,5%)	
Experience Healthy			
Ever	15 (44,1%)	18(52,9%)	0,474
Never	19 (55,9%)	13(47,1%)	

Length of stay			
Mean	2,38	2,74	
Median	2,00	3,00	
SD	0,888	0,751	0,081
Min-Maks	1-4	2-4	
CI for Mean 95%	2,07-2,69	2,47-3,00	

Based on table 1 the average age of the respondents in the intervention group was 4.00 with the lowest age is 3 years and the highest age is 5 years. While the average age in the control group is 3.79 years with the lowest age is 3 years and the highest is 5 years. Characteristics of respondents based on sex in the intervention group were the same as the control group, dominated by boys as many as 18 people (52.9%) girls 16 people (47.1%) while in the control group 25 people (73.5%) girls 9 people (26.5%). The category of experience treated beforehand for the intervention group was more than a part of those who had never been treated, namely .05 (44.1%)

of 34 respondents, whereas for the control group more than some who had experienced a history of treatment, namely (52.9%) of 34 respondents. The length of stay in children based on the above table in the intervention group was 2.38 days with the lowest length of stay was 1 day and the maximum length of stay was 4 days. While the average length of stay in the control group was 2.74 days with the lowest length of stay is 2 days and the highest is 4 days. Homogeneity Test Results indicate age, sex, length of experience treated and similar between the control and intervention with p- value <0

Table 2

Average Differences in the Anxiety Value of Children in Intervention Groups and Control Groups Before and After Therapy for Playing *Puzzle and Listening to Music* in the Edelweiss Room Dr. M. Yunus Bengkulu

Anxiety	Intervention Group				Control Group			
	(n=34)				(n=34)			
	Mean	Δ mean	SD	P value	Mean	Δ mean	SD	P value
Before	34,7059		5,2427		36,6176		4,2783	
		-13,2059		0,000		-7,8824		0,000
After	21,5000		5,4899		28,7353		3,3961	

Based on table 2, the results of the analysis for the intervention group before playing *puzzle and listening to music* was 34,7059, after being given therapy to play *puzzles and listen to music* 21,5000. There is a difference in the difference of -13,2059. Statistical test results showed $p = 0,000 < 0,05$ so it can be concluded that there was an average difference in anxiety in children before and after being given therapy to play *puzzles and*

listen to music. While the average anxiety in the control group before being given therapy *medical play* 36,6176 and after being given therapy *medical play* 28,7353 with a difference of -7,8824 differences. Statistical test results show $p\text{-value} = 0,000 < 0,05$ so it can be concluded that there is an average difference in anxiety in children before and after being given play therapy *medical play*.

Table 3

Differences in the average value of Anxiety Children in the Intervention Group And the Control Group After Doing Therapy Playing *Puzzle and Listening to Music Edelweiss*

Group (n=68)	Anxiety				
	Mean	SD	SE	95 % CI	P value
Intervention	21,5000	5,489	0,941	19,58-23,41	0,000
Control	28,7353	3,396	0,582	27,55-29,92	0,000

In table 5.5 the results of the analysis of the value of $p = 0.000 < 0.05$, H_0 was rejected so it can be concluded that there is a therapeutic effect of playing *puzzles* and listening to music on preschoolers' anxiety.

IV. DISCUSSION

1. Characteristics of research respondents in the Edelweiss Room of Dr. RSUD M Yunus Bengkulu

The results of this study indicate that respondents were mostly 4 years old in the intervention group and 3.79 years in the control group. In line with the research of Novera et al (2017) that the age of children who were hospitalized with age 3 years (48%) and age 4 years (17.3%). The results of the analysis in this study most of the respondents were male, with the percentage in the intervention group 18 (52.9%) and in the control group 25 (73.5%).

This study was supported by the study of Hale [11]. that children who hospitalized more than half of the male sex (67%). The results of this study also showed that the experience had been treated before in the intervention group 15 (44.1%) and in the control group 21 (18.52%). The experience of children who have never been hospitalized makes children unable to express themselves with their environment so that children will tend to experience anxiety (Rosa 1996).

The results of the analysis in this study found that the average length of stay in the intervention group for 2 days and the most control group was

treated 3 days. Based on the results of measurements of anxiety obtained results that children who were treated on the first or second day tend to have higher anxiety scores than children who had been treated for three days.

2. *The difference in the average anxiety score in preschool children between before and after being given therapy to play in the intervention group (Puzzle and listening to music) and the medical playgroup.* The results of the analysis of the average anxiety value of the respondents in the intervention group before the therapeutic action is playing *puzzle* and listening to music is 34.70, and given therapy to play *puzzles* and listen to music is 21.50 with a difference of -13.20.

The average value of anxiety in the control group before being given therapy to play *medical play* was 36.61, after being given medical play therapy was 28.73, with a difference of -7.882. obtained *p-value* < 0.05 . From the results of this analysis, it can be concluded that there are significant differences in anxiety in the intervention group (*puzzle and listening to music*) and the control group (*medical play*) between before and after given play therapy.

3. *Effect of Therapy on Playing Puzzles and Listening to Music on Anxiety Children undergoing treatment.*

From the results of research that has been done to find out the difference in the average knowledge about anxiety between the intervention group (*puzzle and*

listening to music) and the control group (*medical play*) after being given play therapy in the Edelweiss Room of Dr. M. Yunus Bengkulu, and obtained a p -value $\ll 0.05$, meaning that there were significant differences between the intervention group (*puzzle* and listening to music) and the control group (*medical play*) after being given play therapy in the *Edelweiss Room* of Dr. M. Yunus Bengkulu.

IV. CONCLUSION

Distribution of respondents based on the average age of 4 years, the average sex of children treated male, while the experience of long-term care more than part has never been treated (61.8%) and length of stay in children an average of 3 days p value > 0.05 Average level of anxiety in children before being given therapy to play *puzzles* and listening to music 32.61 and 37.76 in the control group ($p = 0,000$).

The average level of anxiety in children after being given therapy playing *puzzle* and listening to music 19.76 and 28.50 with the control group ($p = 0,000$). There is an effect of playing therapy on anxiety in children before and after and after therapy is playing *puzzle* and listening to music in the intervention group.

ACKNOWLEDGMENT

It is expected that room nurses schedule a play program to reduce anxiety in children. For Educational Institutions are expected to be included as learning material and teach it to students in play therapy courses, especially playing *puzzles* and applying them to community service activities to reduce anxiety in children undergoing hospitalization. Other researchers can review other playing methods to be used (pictorial plaster, playing audiovisual and others).

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THE EFFECTIVENESS OF SWEETBAE IN ORDER TO INFLUENCE THE QUANTITY OF BABY SLEEP

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Abstract— The quantity of sleep is the duration of the baby able to fall asleep, which restores the body processes that occur when the baby wakes up. One of the recommended media that can increase the quantity of baby sleep is Sweetbae because it made from microfiber materials that absorb water easily and dry quickly on the surface.

This type of research was quasi-experimental pre-post two groups study with intervention group are baby that using Sweetbae while comparison group is using the conventional sleeping bag with a quantitative approach. Subjects on this research are 20 respondents were divided into two groups. There was a significant difference between the average quantity of 2 until 4 months baby sleep in the intervention group is ($p=0.042$) when using Sweetbae and ($p=0.234$) when using the conventional sleeping bag. The variable of the sleeping environment is (0.11) and breastfeeding sufficiency is (0.104). The comparison group that uses Sweetbae and sleeping bag obtained ($p=0.011$) means that there is a significant difference between the mean quantity of baby sleep in the intervention and the comparison group. So, in conclusion Sweetbae and the sleeping environment are influence the sleep

quantity neither the breastfeeding sufficiency nor.

Keywords— Sweetbae, Sleeping bag, Baby sleep quantity, Microfiber cloth

I. INTRODUCTION

Babies are children with an age range of 0-12 months. Infancy is the first month of critical life because the baby will experience adaptation to the environment, changes in blood circulation, and organs begin to function, and at the age of 29 days to 12 months, the baby will experience very fast growth [1]. At this time also has become a habit that every newborn baby is dissected up to several months of age.

Some of these years there have been problems with the use of baby swaddles, babies who are given a too tight swaddle and for a long time will inhibit primitive reflex movements in infants, especially righting reflexes and ATNR (Asymmetrical tonic neck reflex) which can affect the ability to roll over babies into age 3 month [2].

Modern technology now introduces one of the baby bed alternatives, namely sleeping bag [3]. The sleeping bag is a product that can cover the entire body of the baby so that the baby's warmth is more awake, simpler, easier to use, and can be

used instead of ergonomically designed beds, so it can be used by babies.

But in this study, there are several factors that influence the increase in the quantity of baby sleep hence the results of research differ significantly. These factors include internal factors and external factors. External factors include environmental factors. A crowded and not conducive environment will affect the baby's sleep quantity. In this study environmental factors are not strictly controlled, which also has an influence on the quantity of sleep. While internal factors include the baby's health condition. The habit of drinking milk before bed will also affect the quantity of baby sleep.

The quantity of baby sleep affects not only physical development but also its emotional development. Babies who sleep enough do not wake up fitter and are not easily fussy the next day [4]. One of the recommended media can increase the quantity of baby sleep is *Sweetbae* because it is made from materials that absorb water easily and dry quickly on the surface so it does not disturb the baby and can increase the length and depth of baby sleep [5].

Sweetbae is a modified product from a baby sleeping bag that is designed into a sleeping bag. This product uses materials that are environmentally friendly, highly absorbent, easy to use, and affordable prices. This product is a versatile product not only used as a bed but also as a blanket and baby bedding and makes it easy to carry the baby on the way because the size matches baby's body is similar to a cocoon shape.

Therefore researchers want to try whether using *Sweetbae* modified powder can be used as an alternative to increasing the quantity of baby sleep in Bengkulu city.

II. METHODS

Experimental quasi-research was used in this study. This type of research was pre-post experimental two groups study with the intervention group and the comparison group with a quantitative

approach. The intervention group is the baby who uses *Sweetbae*, while the comparison group is the baby who uses conventional sleeping bags. The independent variable of this study is *Sweetbae*, while the dependent variable is the quantity of baby sleep. Then the external variables are sleeping environment and breastfeeding sufficiency.

The population in this study were all baby aged 2-4 months in Bengkulu city. While the determination of the sample in this study was taken using a minimum sample formula with purposive sampling with inclusion criteria including exclusive breastfeeding babies, normal baby weight, babies not suffering from complications, and mothers willing to be respondents. Then the exclusion criteria are the baby with the unnormal condition. The number of samples of the intervention group was 10 babies by comparison (1: 1) so that the number of samples was 20 babies.

Data collection techniques used questionnaire sheets, *Sweetbae*, and sleeping bag. To collect the data we carried out 2 times and calculate the different time of baby sleep using a stopwatch when using *Sweetbae* and sleeping bag to find the difference of sleep duration between it. The questionnaire sheets we give in the beginning to get general data. Then, the data that has been obtained is processed and analyzed using Univariate Analysis, Bivariate Analysis, and Multivariate Analysis with statistical Paired T-test.

III. RESULT

TABLE I. THE QUANTITY OF BABY SLEEP BEFORE AND AFTER THE MEASUREMENT OF *SWEETBAE* INTERVENTION 1 AND 2 IN THE COMPARATIVE GROUP IN BENGKULU CITY IN 2017.

Variable	Mean ± SD	N
The quantity of baby's sleep before being given <i>Sweetbae</i>	2660,7± 1891,2	10
The quantity of baby's sleep after being given <i>Sweetbae</i>	4311,0± 2193,5	10
The quantity of baby's sleep before the comparison group	2297,4± 648,4	10
The quantity of baby sleep after the comparison group	1707,8± 1074,5	10

Table I showed that the average quantity of 20 babies aged 2-4 months in the intervention group using *Sweetbae* was 4311.0 with a standard deviation of 2193.5 whereas in the comparison group was 1707.8 with standard deviation 1074.

TABLE II. THE RESULT OF THE PAIRED SAMPLES T-TEST OF SLEEP QUANTITY DIFFERENCE BEFORE AND AFTER THE INTERVENTION OF USING *SWEETBAE* IN BABY AGED 2-4 MONTHS IN BENGKULU CITY 201

<i>Sweetbae</i> intervention	Baby sleep quantity		
	Mean ± SD	N	P value
Pre	2,66± 1891,2	10	0,042
Post	4,31± 2193,5	10	0,042

Table II showed that the average quantity of 10 babies sleep 2-4 months old before given intervention was 2.66 and after given intervention was 4.31. Hence, the average difference is 1.65. Statistical test results obtained $p = 0.042$ smaller than the value of $\alpha = 0.05$ means that there is a significant difference between the quantity of baby's sleep before and after the intervention.

TABLE III. THE RESULT OF THE PAIRED SAMPLES T-TEST OF SLEEP QUANTITY DIFFERENCE BEFORE AND AFTER THE INTERVENTION USING THE CONVENTIONAL SLEEPING BAG IN BABY AGED 2-4 MONTHS IN BENGKULU CITY 2017.

Sleeping bag intervention	Baby sleep quantity		
	Mean ±SD	N	P value
Before	2,29± 648,44	10	0,234
After	1,70± 1074,5	10	0,234

Table III showed that from 10 samples, the average quantity of 2-4 months old baby sleep before the intervention was 2.29 and after was 1.70. Hence, the average difference of it was 0.59.

Statistical test results obtained p -value = 0.234 greater than the value of $\alpha = 0.05$ means that there is no significant difference between the quantity baby sleep of first and second measurements using the conventional sleeping bag.

Results of Paired Samples T-test in the difference of baby sleep quantity in the

intervention group and the comparison group in 2-4 months old baby in Bengkulu City.

TABLE IV. RESULTS OF PAIRED SAMPLES T-TEST IN THE DIFFERENCE OF BABY SLEEP QUANTITY IN THE INTERVENTION GROUP AND THE COMPARISON GROUP IN 2-4 MONTHS OLD BABY IN BENGKULU CITY.

Variable	Baby sleep quantity		
	Mean ±SD	N	P value
Intervention group	4,31± 2193,5	10	0,011
Comparison group	1,70± 1074,5	10	0,011

Table IV showed that from 20 samples the average quantity of 2-4 months old baby sleep in the intervention group was 4.31 and the average quantity of sleep in the comparison group was 1.70 with an average difference of 2.61. The statistical test results obtained $p = 0.011$ smaller than the p -value < 0.05 means that there is a significant difference between the mean quantity of baby sleep in the intervention group and the comparison group.

TABLE V. RESULTS OF FINAL MODEL OF COVARIANCE ANALYSIS TEST BETWEEN SUBJECTS EFFECTS OF SLEEPING ENVIRONMENT AND BREASTFEEDING SUFFICIENCY

Source	Type III Sum Of Squares	Df	Mean Square	F	Sig.
<i>Sweetbae</i> intervention	225,408	1	225,408	16,886	.006
Sleeping environment	177,242	1	177,242	13,278	.011
Adequacy of ASI	48,777	1	48,777	3,654	.104

From the table above is known sig value. or the probability for the *Sweetbae* intervention variable (0.006) is smaller than the significance level (0.05), it can be concluded that there is a statistically significant difference in the mean quantity of sleep in the intervention group and comparison by controlling the variables of breastfeeding adequacy, sleep environment and quantity of sleep.

There is the sig value. or the probability for the variable sleeping

environment is 0.011 smaller than the level of significance (0.05) it can be concluded that there is a statistically significant effect or relationship between sleeping environment on the quantity of baby sleep.

Then, it is the sig value. or the probability for the variable breastfeeding adequacy is 0.104 greater than the level of significance (0.05) it can be concluded that there is no statistically significant effect or relationship between breastfeeding adequacy on the quantity of baby sleep.

IV. DISCUSSION

Based on the results of the study of 20 infants aged 2-4 months who used sleeping bags, there were 7 (70%) babies whose sleep duration decreased on the second day and there were 3 (30%) babies whose sleep duration increased. There were 2 (20%) babies aged 2-4 months who were given *Sweetbae*, whose sleep duration was reduced and 8 (80%) babies increased. From these data, there was a significant difference in the length of baby sleep when using *Sweetbae* and ordinary sleeping bags. It can also be seen from the results of the analysis of the different test of the average sleep duration of the intervention baby and the sleep duration of the control baby obtained the average length of sleep before and after (first day and second day) is 2.66 and after being given intervention the second day there was an increase in sleep with a mean of 4.31 and average difference of 1.05. Statistical test results obtained p-value = 0.042 smaller than the value of $\alpha = 0/05$ means that there is a significant difference between the length of sleep using *Sweetbae* and ordinary sleeping bags. Then the results of different tests performed on the control group obtained mean pain in the intervention group 4.31 and mean pain in the control group 1.70 with an average difference of 2.61. Statistical test results obtained p-value = 0.011 smaller than the value of $\alpha = 0.05$ means that there was a significant

difference between mean pain in the intervention group and the control group.

The results of this study are in accordance with the statement of Mulyono (2003) [6] which states that Sleeping bag is a product that is able to cover the entire body of the baby so that the baby's warmth is more awake, simple, easier to use, and can be used instead of an ergonomically designed swaddle that can be used by babies. Using this sleeping bag can provide comfort to the baby so that the quantity of baby's sleep is maintained. Styles of sleeping bags include mummy, barrel, semi-rectangular, and rectangular. Mummy styles have a hood, but the other styles often do not. The children's market is dominated by lightly insulated rectangular sleeping bags which are often decorated to make them attractive to children [7]. However, sleeping bags can not necessarily increase the quantity of sleep for babies because often babies still use diapers when using sleeping bags.

Insufficient sleep in children is associated with adverse health effects. We examined the associations of early life risk factors with infant sleep duration [8].

Researchers at Carnegie Mellon University and the University of Pennsylvania [9] found that the quantity and quantity of sleep actually affect how people can become ill. The characteristics of the baby getting enough sleep, that is, he will be able to fall asleep easily at night, fit when he wakes up, is not fussy, and does not require a nap that exceeds the needs in accordance with its development. Inadequate sleep and poor quantity of sleep can result in physiological and psychological balance disorders. Physiological effects include a decrease in daily activities, tiredness, weakness, poor neuromuscular coordination, the slow healing process, and a decreased immune system. While the psychological impact includes emotions more unstable, anxious, not concentrated, cognitive abilities and combines lower experience. However, excess sleep time (especially quiet sleep)

causes excessive energy storage. Children are less active playing, so lack of interaction causes emotional and cognitive development less optimal [10].

The results of a survey of three mothers in the city of Bengkulu who had babies aged 2-4 months said they did not know how the quantity of sleep that was said to be good and what factors could influence the development of their baby, then they also said that their babies tend to be fussy when they breastfeeding which the mother feels is enough, changing every time a baby's diaper is wet and a comfortable sleeping room, these mothers have also used conventional sleeping bags. Therefore, researchers want to try whether using *Sweetbae* modified powder can be used as an alternative to increasing the quantity of baby sleep.

Sweetbae is the modification of conventional sleeping bag which is consist of microfiber cloth and waterproof cloth. Microfibre cloths are intended for use in general purpose cleaning either with or without water. The use of disinfectants is not recommended as these may degrade the microfibres [11]. It is potential to reduce water and disinfectant use. Storage of dirty cloths is likely to lead to microbial growth and attachment in the cleaning cloths [12]. Because of that we need to soak it with detergent, wash, and dry it on indirect sunlight to destroy the bacteria in it.

The use of swaddle can also cause blood circulation to be disrupted because the heart's work in pumping blood becomes heavier, so the baby often feels pain around the lungs or airway. Due to the emphasis on the body, swaddle can also inhibit motor development because the baby's hands and feet do not get the chance to move freely. Based on the research of Solikah (2017) [13], there is an influence of using swaddle on motoric development of 3 months old baby. The longer baby used it so the motoric development is more suspect [13]. Modern technology now

introduces one of the alternative baby cots, namely sleeping bags [3].

According to the data from the questionnaire that we got when this study took place, many mothers complained that their children disliked the building and often woke up due to urination. They feel helped and happy when they find out about *Sweetbae* because this product is multifunctional as blankets and diapers because there is already a layer of microfiber cloth that can lose tide and is also coated with a fleece fabric so that it does not create a rash on the child's skin. This fleece fabric has a very high absorption and dry power but is still soft and suitable for baby's skin [5].

The results of the analysis of the correlation between covariance and the dependent variable at the significance level of 0.975 showed a significant correlation in the parity variable ($p < 0.05$). Furthermore, after the interaction test (paired test) showed that there was a significant difference between the control group and the intervention group. into the ANCOVA model, the significant value is known, or the probability for the intervention variable (0.006) is smaller than the significance level (0.05), so it can be concluded that there is a statistically significant difference in the mean duration of sleep in the intervention group by controlling the adequacy of ASI, the strength of sleep, and sleeping environment.

There is the significant value or the probability for the variable sleeping environment is 0.011 smaller than the level of significance (0.05) it can be concluded that there is a statistically significant effect or relationship between sleeping environment on the quantity of baby sleep.

Then, it is the significant value or the probability for the variable breastfeeding adequacy is 0.104 greater than the level of significance (0.05) it can be concluded that there is no statistically significant effect or relationship between breastfeeding adequacy on the quantity of baby sleep.

V. CONCLUSION

There is an influence of *Sweetbae* interventions on baby sleep before and after intervention in baby 2-4 months old. There are differences in the effect of the *Sweetbae* and conventional sleeping bag intervention on the baby in increasing the quantity of baby sleep before and after the intervention. There are also the influence of sleeping environment on baby sleep and breastfeeding sufficiency variable not influence the quantity of baby sleep neither using *Sweetbae* and conventional sleeping bag nor.

Based on the results of the study, discussion and conclusions, it is recommended to the mothers, midwifery, and another health workers in Puskesmas, clinic, or hospital to provide using *Sweetbae* when caring their baby to increase baby sleep quantity.

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THE INFLUENCE OF COUNSELING GUIDANCE ON MOTHER COPING WITH LOW BIRTH WEIGHT INFANT IN THE INCUBATOR PERINATOLOGY ROOM OF RSUD DR . M YUNUS BENGKULU 2018

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Abstract: Low birth weight infant (LBW) are very vulnerable infant to the emergence of a disease. Handling of LBW infant cases should be done in special and intensive care rooms. Individual counseling guidance on mother's coping is very important to be given to mothers with LBW infant. To know the influence of counseling guidance to coping mother with LBW infant. The research design is pre-experiment (one group pre test and post test design). The sample technique used is Consecutive sampling. Analytical technique using Wilcoxon test with p value <0,05. Mean of coping mother before and after given counseling guidance is 38,8889 and 48,7654, there is influence counseling guidance to coping mother with baby LBW with p value = 0,000 <0,05. Effective of counseling guidance makes coping mothers with LBW babies into adaptive coping.

Keywords: counseling, coping, LBW

I. INTRODUCTION

Low birth weight baby (LBW) is a baby with weight less than 2500 grams regardless of gestational age [1]. *The World Health Organization* estimates that around 25 million babies experience LBW every year and almost 5% occur in developed countries, while 95% occur in developing countries [2]. In Indonesia the

prevalence of LBW is estimated to reach 9-11% [1]. The neonatal mortality rate in Indonesia is 20 per 1000 live births, in 1 year around 89,000 1 month old babies die which means that every 6 minutes there is 1 (one) neonate dies [3].

The neonatal mortality rate in the city of Bengkulu is lower than the neonatal mortality rate in Indonesia in 2016 which is 4.56 per 1000 live births. One of the causes is LBW [4]. Preliminary studies have been carried out at Dr. M. Yunus Bengkulu in 2014 recorded 190 LBW infants treated, in 2015 recorded 265 LBW infants who were treated, and in 2016 recorded 169 LBW infants who were treated, with an average length of LBW care in the Perinatology room for more than one month depends quickly on the slow development of the baby and the average LBW baby is treated every month in the Perinatology Room of Dr. M Yunus Bengkulu recorded ± 14 LBW babies. This shows that there is still a high incidence of LBW infants [5].

Handling of LBW baby cases must be done in a special care room and receive intensive care. Intensive care for neonates is often done in an incubator. LBW baby care in the incubator has a significant impact on the mother and this can cause long-term consequences for the family. Great effort is needed to help overcome the feelings of sadness and loss

experienced by parents, respond to their questions optimally and facilitate their ability to adapt [6].

Mothers with LBW babies in the hospital will more often see the condition of the baby in the incubator. This condition is a frightening and sad period for mothers. The mother can only see the baby from outside the incubator and try to adjust because the baby is not at home [7].

Various forms of parental and infant contact such as visiting a baby's ward, holding, parental conversation, and skin contact with the baby's skin, have better benefits for babies and parents during hospitalization. Frequent visits and proximity to babies are associated with better neurobehavioral development of infants [8]. This makes mothers motivated to do something to reduce the stress they experience. The things that are done are part of the coping mechanism [9].

Important for nurses to understand the strategies used by nurses to optimize the closeness of the mother and baby by providing clear information to the mother about the condition of her baby and also to minimize the separation between mother and baby [10].

Health counseling is one that plays a role in cognitive processes. Individual counseling about maternal coping is very important to be given to mothers with LBW babies in order to understand the condition of the baby during treatment in the incubator. This method is simple, practical, effective, and economical to do [11].

From the results of interviews with mothers who have LBW babies in the Perinatology Room of Dr. M Yunus Bengkulu, out of 10 respondents 80% said that the mother was still feeling stressed and anxious about the condition of her baby who looked fragile and the other 20% said they had been less anxious because of

the baby's already improving condition. The way that you do to reduce stress and anxiety is to meet directly with the baby and get the support from the family, especially the husband [5].

II. METHODS

Method used in this study is *pre-experiment* using research design *one group pre test and post test design*. and with a prospective approach where the researcher gave intervention to the subject of the study, then the researcher assessed the effect of the intervention on maternal coping. Samples were mothers with LBW infants who were treated in the Perinatology room incubator, amounting to 18 people using *Consecutive sampling technique*. Data analysis used is univariate analysis and is presented in table form and descriptive analysis. Bivariate analysis using the Wilcoxon test α 5% to determine the effect of counseling guidance.

III. RESULTS

a. Univariate Analysis

The results showed that the average maternal coping after being given counseling was 50,000 and a standard deviation of 3,04622. From the results of the interval estimation it can be concluded that 95% is believed to be the average maternal coping before being given counseling guidance is between 47,5309-50,000 in the range of maladaptive and adaptive coping.

b. Bivariate analysis

Analysis *bivariate* was conducted to determine the effect of counseling on coping mothers with LBW babies. Prior to the bivariate analysis, the normality of the data was tested by using the *Shapiro-Wilk test* at α 5%.test results *Shapiro-Wilk* showed that one of the data (after counseling) had a value of $p = 0,000 < \alpha$ 5%, meaning that the data was not normally distributed, so to find out the increase of maternal coping before and

after counseling was carried out by *Wilcoxon signed ranks test* at α 5% (*one tail*).

TABLE 1 DISTRIBUTION OF RESPONDENTS BASED ON MOTHER COPING BEFORE INTERVENTION PROVIDED COUNSELING GUIDANCE

No.	Mother Coping	Pre	%
1.	Adaptif	1	5,6%
2.	Maladaptif	17	94,4%
	Total	18	100%

The results of the analysis showed that most respondents (94.4%) maladaptive coping.

TABLE 2 DISTRIBUTION OF RESPONDENTS BASED ON KOPING MOTHERS AFTER GIVEN INTERVENTIONS COUNSELING GUIDANCE

No.	Mother Coping	Pre	%
1.	Adaptif	13	72,2%
2.	Maladaptif	5	27,8%
	Total	18	100%

The results of the analysis showed that most respondents (72.2%) adaptive coping.

TABLE 3 DISTRIBUTION OF AVERAGE KOPING CAPITAL BEFORE AND AFTER EXECUTED COUNSELING

Mother Coping	N	Mean	Median	SD	Min-Maks	95%CI for Mean
Before Intervention	18	38,8889	38,8889	6,02585	27,7855-55,56	36,4198-41,3580
After Intervention	18	48,7654	50,0000	3,04622	44,4455-55,56	47,5309-50,0000

The results of the analysis showed that the average maternal coping before being given counseling was 38,8889 and standard deviation 6,02585. From the results of the interval estimation it can be concluded that 95% are believed to be the average coping mothers before being given counseling is between 36.4198-41.3580 in the range of maladaptive coping.

TABLE 4 EFFECT OF COUNSELING GUIDANCE ON MATERNAL AND INFANT COUNSELING FOR LBW IN NURSING IN THE PERINATOLOGY ROOM INCUBATOR DR. M YUNUS BENGKULU

Mother Coping	N	Mean Rank	Sum of Rank	Z	Pvalue
Before-After Intervention	18	9,82	167,00	-3,597	0,000

The analysis shows that the value of $P = 0.000 < \alpha 5\%$ (*onetail*), it can be concluded that there is the effect of counseling on mother's coping with LBW babies treated in an incubator.

IV. DISCUSSION

a. Maternal Koping Before and After Intervention Provision of Counseling Guidance

Mothers included in the young adult age range, where at this age the condition of his personality was immature and still in unstable conditions in overcoming or solving problems that faced, as well as its ability in coping mechanisms is not yet appropriate. The receiving phase is longer when compared to old age, so that at this age the mother is susceptible to maladaptive coping. Mothers who have reached young adulthood are expected to be able to perform adaptive coping mechanisms when facing problems or difficult situations such as giving birth to babies with low birth weight [12].

Coping is a process where individuals make an effort to regulate the situation which is perceived as a gap between effort and ability that is considered as the cause of the emergence of stressful situations [13].

The mother's attitude after counseling (95%) is good, the mother's attitude in breastfeeding can be influenced by good maternal knowledge, parenting experience, interaction with the environment that will react forms a certain attitude pattern towards various objects faced [14].

Adaptive coping mechanisms are mechanisms that support the function of integration, growth, learning and achieving goals. The categories are talking to others, solving problems effectively, relaxation techniques, balanced exercises and constructive activities [15].

After being given health counseling about PMK posttest scores all respondents experienced an increase from the pretest value. The results showed that there was a difference in the average value of maternal motivation between before and after being given health counseling about PMK in the perinatology room of Soreang District Hospital [11].

Coping efforts are very varied and cannot always lead to solutions to a problem that creates stressful situations. Individuals perform coping processes against stress through transaction processes with environmental, behavioral and cognitive [13].

- b. The Influence of Counseling Guidance on Coping with Mother and Baby LBW who were treated at the Perinatology Room Incubator of Dr. M Yunus Bengkulu Based on the results of the study showed that after being given health counseling about FMD, most respondents as many as 20 people (62.5%) had high motivation to do FMD at LBW, this study also shows that there is a difference in the average motivation of mothers to do PMK at LBW between before and after being given health counseling about PMK in the Perinatology Room of Soreang District Hospital [11].

The title influence of counseling on changes in behavior of mothers who have low birth weight babies in giving premature breastfeeding with a sample of 20 people. The results showed that there were differences in

results before and after counseling for premature breastfeeding in infants, there was an influence of counseling on the behavior of mothers who had LBW babies in preterm breastfeeding. It can be concluded that the knowledge, attitudes and actions of mothers after counseling affect changes in maternal role behavior in giving premature breastfeeding. After receiving maternal counseling, she will optimize the care of LBW infants in the provision of Premature ASI [14].

Naturally, whether consciously or unconsciously, individuals actually have used coping strategies in dealing with stress. Coping strategies are ways to change the environment or situation or solve problems that are being felt or faced. Coping is defined as an attempt at constant cognitive change and behavior to solve problems [16]. The coping mechanism that is carried out by the respondent is not only on one mechanism but in reality the respondent uses several coping mechanisms as well as to overcome the stress and the problems they face.

V. CONCLUSIONS

Based on the results of the study and discussion of counseling guidance on maternal coping with LBW infants who were treated in the Perinatologi room incubator, Dr. M Yunus Bengkulu, the following conclusions can be drawn: average maternal coping before being given counseling guidance 38,8889 and average maternal coping after being given counseling guidance 48,7654. There was an influence of counseling guidance on maternal coping with LBW infants who were treated in the Dr. Perinatology room incubator. M Yunus Bengkulu ($p= 0,000 < \alpha 5\%$ (*one tail*)).

It is expected that nurses can approach through counseling to mothers so that mothers do not experience maladaptive coping. M. Yunus City Hospital of Bengkulu is expected to provide counseling services for mothers, providing special counseling rooms and being able to provide counseling to mothers in depth. Mothers with low-birth-weight babies keep on digging up information by taking counseling guidance in hospitals and from other parties who provide it. Other researchers are expected to be able to examine other factors (education) that can affect the improvement of coping.

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THE RISK OF LOW BACK PAIN AMONG WOMEN WORKING AS GREEN MUSSEL SHELL PEELER IN KAMAL MUARA AREA, NORTH JAKARTA

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Abstract__One of the health problems experienced by workers is a complaint of low back pain. Low Back Pain (LBP) or lower back pain is one of the most common musculoskeletal disorders that causes a decrease in work productivity and disability. This study aims to obtain an overview of risk factors associated with the incidence of low back pain in women working as green mussel peelers in the urban area of Kamal Muara Penjaringan, North Jakarta. The research design used descriptive analytic research with cross-sectional studies. The number of samples were 80 people with data collection techniques used simple random sampling. Data analysis used Chi-Square test. The results of the study showed that several factors associated with LBP events such as age had OR = 4.168, p= 0.041; work period has OR = 5.432, p= 0.004; working time per day has OR= 4.075, p = 0.044; position at work has OR= 6.003, p = 0.014 for the incidence of lower back pain. Conclusion: there is a significant relationship between the incidence of low back pain (LBP) with variables of age, years of work, length of work per day and position or body posture at work

Keywords__Lower Back Pain, Risk Factors, Green mussel shell peeler workers

I. INTRODUCTION

Working is one of human activities performed in order to fulfill their life needs. While working, there are risks that possibly happen and disturb the workers as so called as Disease due to work. Disease and accidents caused by occupational can result in disability or even death. According to Kurniawidjaja (2010) Occupational health is absolutely must be carried out in the world of work and in the world of business by all people in the workplace such as workers and employers, executives, supervisors, and management, as well as those who work for themselves (self employed).

Low Back Pain (LBP) or lower back pain is one of the most common musculoskeletal disorders that causes a decrease in work productivity and disability. LBP has a big impact on individuals, families, communities and businesses throughout the world (Brooks and Buchbinder, 2010). Furthermore, it was explained that lower back pain or LBP can occur in a variety of work situations, but the risk is greater when sitting long in a static position because it will cause continuous muscle contraction and narrowing of blood vessels. In narrowing of blood vessels, blood flow is inhibited and ischemia occurs, tissue lacks oxygen and nutrients, while long muscle contractions will cause lactic acid to build up; both of these will cause pain. Most occurrences of lower back pain do not

result in disability but cause disruption of work activities.

In Indonesia, low back pain (LBP) usually happen to people in the age group of 40 years. Generally, low back pain (LBP) is the most common complaint (49%). In developed countries the prevalence of people with low back pain (LBP) is around 70-80%. About 80-90% of low back pain (LBP) patients stated that they did not make any effort to treat the disease so it can be concluded that low back pain (LBP) despite having a high prevalence but this disease can heal on its own (Sadeli dan Tjahjono dalam Trimunggara 2010).

According to research conducted by Samara et al (2005) work-sitting position can put pressure on the lower back which is quite heavy and cause lower back pain in workers. Similarly, sitting position that is too long can cause excessive burden on the lumbar spine causing pain in lower back. People who work in a sitting position for half a day or more, have a 1.6 greater relative risk for lower back pain. The prevalence of LBP due to sitting position is 39.7% where 12.6% often causes complaints, 1.2% sometimes causes complaints and 26.9% rarely causes complaints.

The complaints of low back pain in workers also occurs in green shellfish workers. These workers work with a long duration sitting behaviour. Based on preliminary research data through interviews with several green shellfish workers, it was known that the average duration of work per day is around 4-5 hours continuously sitting without rest or pause. Workers always work in squat positions or sit on small wooden chairs which they usually call as '*jongkok*'. The materials that they work on are usually placed in front of the body or placed on the ground or the floor then the worker's body posture adjusts to the material being worked on. These kind of working conditions force workers to always be in an unnatural body posture position. Sitting

too long with the back bent forward too long. Working as a green mussel peeler is a common job done by women, especially fisherwomen in the North Jakarta coastal area precisely in Kamal Muara area.

Referring to the above problems along with the phenomenon of the occurrence of low back pain complaints experienced by green shellfish workers in the area of Kamal Muara will have an impact on their productivity and health significantly. This study aims to describe the risk factors associated with the incidence of low back pain in women who working as green mussel shells peelers.

II. RESEARCH METHOD

The research was descriptive analytic with a cross sectional design. The research began with identifying the occurrence of complaints of lower back pain (LBP) in women who work as green mussel peelers at Kamal Muara Penjarangan District area. Sampling in this study used simple random sampling method with a total sample of 80 people. The research was carried out at Kamal Muara Penjarangan, North Jakarta from May to August 2017. The Data were collected by interviewing the lower back pain history of the green mussel peeler workers, symmetrical examination of the spine, and also questionnaires about LBP filled out by the subjects. Data analysis used the chi-square test to determine the risk level of LBP occurrences.

III. RESULT OF STUDY

Table 1. Respondents characteristics

VARIABLE	CATEGORY	Respondents	
		Frequency	Percentage (%)
Age	≤ 43 years	43	53.8
	≥ 44 years	37	46.2
Education	Unattended	11	13.8
	Elementary	46	57.5
	Junior High	14	17.5
	Senior High	9	11.2
Work Period	≤ 7 years	39	48.8
	≥ 7 years	41	51.2
Work Duration (Per day)	≤ 5 hours	34	52.5
	≥ 5 hours	46	47.5
Smoking	Smoker	3	3.8

Habits	Non Smoker	77	96.2
History of low back pain	Yes	6	7.5
	No	74	92.5
Work position	Low risk	39	48.8
	High risk	41	52.2
LBP Complaints	Without complaints	32	40
	With complaints	48	60

The table above shows that the majority of respondents were less than 43 years old, had elementary school education, with more than 7 years of work, more than 5 hours of duration / duration of work, no smoking habit, no history spinal cord injury and position at work are at high risk for LBP pain and have complaints of low back pain (LBP).

Table 2

Distribution The Relation of Risk Factor affecting The Occurances of Low back Pain among women green mussel peeler workers

VARIABLE	CHI-SQUARE TEST			
	Without LBP	With LBP	OR	P-value
Age			4.168	0.041
- ≤ 43 yo	25	18		
- ≥ 44 yo	13	24		
Education			5.011	0.171
- Low	23	34		
- Middle	15	8		
Work Period			8.432	0.004
- ≤ 7 years	22	17		
- ≥ 7 years	10	31		
Work Duration (per day)			4.075	0.044
- ≤ 5 hours	18	16		
- ≥ 5 hours	14	32		
Smoking habit			0.453	0.501
-Smoker	2	1		
-Non-smoker	36	41		
History of LBP			0.516	0.431
-Yes	2	4		
-No	38	38		
Work position			6.003	0.014
- Low risk	21	18		
- High risk	11	30		

Table 2 shows that variables of age, years of work, work duration per day and position at work have a significant relationship to the incidence of low back pain (LBP). Age variables have OR = 4.168 at the significance level p-value = 0.041, so it can be concluded that respondents who are less than 43 years old have a four times greater chance of experiencing lower back pain (LBP) than

respondents who are over 43 years of age. In the analysis it is known that the working period variable has OR = 8.432 at the level of significance p-value = 0.004, this shows that respondents worked for more than 7 years have 8 times greater chance of experiencing lower back pain (LBP) than respondents worked less than 7 years. Furthermore, the variable work duration per day has OR = 4.075 at the level of significance p-value = 0.044, it can be concluded that respondents who work for more than 5 hours per day have a four times greater chance of experiencing lower back pain (LBP) than respondents who work less than 5 hours a day. As for position variable at work has an OR = 6.003 at the significance level p-value = 0.014 so it can be concluded that respondents who work with high-risk work positions have a six-fold greater chance of experiencing lower back pain (LBP) than respondents who work with minimum risk positions.

IV. DISCUSSION

The results showed that of 80 respondents there were 43 respondents (53.8%) who were less than as 43 years. While 37 respondents (46.2%) were over 44 years old. A person's age means a decrease in physical capacity and functional ability. One symptom of the aging process is bone degeneration, which can increase the risk of lower back pain. It happens when a person is 40 years and over, so his/her work ability also decreases (Budiono, 2003). The older a person starts working, the more susceptible to health problems in the body's supporting tissues (Anies, 2005). In this study, respondents aged ≤ 43 years had a high risk and had a 4 times greater chance of experiencing lower back pain than respondents who were ≥ 44 years old. This is not in line with the above statement (Budiono, 2003 and Anis, 2005) which stated that the increasing of a person's age will be more susceptible to health problems in the body's supporting tissues and can increase the risk of lower back pain.

Referring to the relationship of age factors with the incidence of low back pain in the results of this study, it is possible because women who work as green mussel workers aged ≥ 44 years do the work as a side activity rather than work. Based on the information obtained by the researchers at the time of the interview, the female green mussel workers

aged ≥ 44 years stated that they preferred to work peeling green mussels because it was a leisure time where they could chat shared information compared to being at home. Social interactions carried out with laughter could actually relieve the stress they had and gave a positive aspect that helped them to divert their back pain at work. Feelings of satisfaction and pleasure were felt as a major factor in doing the work of peeling green mussels.

Furthermore, several other respondents aged ≥ 44 years and who have worked more than 10 or even 20 years said that they were used with the low back pain (LBP) that it was no longer felt and had become part of themselves. They were already familiar and had it as their part of work. This is in line with Bull (2007) who stated that the level of pain is influenced by the pain perception of each respondent. When a person feel the pain frequently, he or she will get used to it, familiar with it. One day they feel the pain to be lighter than usual, and later on was actually not a complaint to him/her. In contrast, if someone has never received a stimulus for pain, one day he/she feels pain though it was a mild one, then it will be hard for him. Pain is also strongly influenced by one's attitude or sitting position.

The work period is the accumulation of a person's work activities carried out over a long period of time. If the activity is carried out continuously in a period of years, it can certainly cause disruption to the body (Tobing, 1996). A total of 41 respondents or 51.2% of women who work as green mussel peelers whose working period is more than 7 years have an eight times greater chance of experiencing lower back pain (LBP). Shellfish workers tend to sit in a bent position while working. How to work for a long time with the wrong attitude can cause chronic low back pain (Tobing, 1996).

Kantana (2010) stated that the longer the working time or the longer a person is exposed to these risk factors, the greater the risk of experiencing LBP. Umami's study (2013) showed that the workers who experienced the most LBP complaints were workers who had a working period of >10 years compared to those with a working period of less than 5 years or 5-10 years.

Furthermore, based on a research conducted by Boshuizen, it was reported that respondents with a working period of more

than five years had a higher risk of being exposed to lower back pain compared to respondents with a service life of less than five years. This is because long spinal loading causes the disc cavity to constrict permanently and also results in spinal degeneration which will cause chronic lower back pain (Bridger, 1995). However recent research suggests that working years of more than or equal to two years are considered to have been able to contribute to the emergence of musculoskeletal disorders. Researches by Bergquist, Ullman and Larson found that 62% of acute low back pain cases occurred in workers with a one-year work period and increased by 18% over a period of more than two years (Anonymous, 2006)

Working with a wrong sitting position attitude for a long period of time, may put a higher risk of exposure to lower back pain. Based on the duration of work, the results of the study showed that respondents who worked ≥ 5 hours per day were at risk of experiencing an LBP that was 46 respondents (32.4%). The duration of working time is related to the physical state of the worker's body. Heavy physical work will affect the work of muscles, cardiovascular, respiratory system, and others. If the work takes place continuously for a long time without rest, the body's ability to decrease and can cause pain in the limbs (Suma'mur, 1989). The results of this study are in line with the theory of Suma'mur (1996) which stated that the length of time a worker does his work a day should be between 6-8 hours per day. Decreasing efficiency in work, causing fatigue, illness and accidents can occur due to the working hours exceeding the limit.

The attitude of the work position of the women peeler workers is to sit statically. The results showed that female shellfish peelers had a six times greater risk of experiencing lower back pain (LBP). Wrong sitting position due to the unergonomic body position and a chair that is not adjusted with body anthropometry, or because of an error position, can increase pressure on the lower back and is a major cause of back problems (Soedarjatmi, 2003). This is in accordance with the research conducted by Samara (2005) that workers with a static sitting length of 91-300 minutes proved to be a risk factor for the occurrence of LBP. After sitting for 15-20 minutes, the back muscles usually begin to get tired and begin to feel lower back pain. Research on school

students in Scandinavia found 41.6% of people suffering from lower back pain while sitting in class, consisting of 30% who sat for one hour and 70% who sat more than one hour.

Furthermore, several studies also showed a relation between the length of sitting with the LBP. The instantaneous prevalence of LBP was 12.6% in people who often work sitting for more than 4 hours, 1.2% sometimes sitting, and 25.9% rarely sitting in less than 2 hours. People who work in a sitting position for half a day or more have a relative risk of 1.6 for lower back pain. The risk is greater for older workers, drivers, and the biggest were for truck drivers. The existing research showed that LBP did not increase during sitting one hour per day. But the LBP for women is related to sitting for more than 4 hours ($p < 0.05$). This is because the longer a person sits, the ligament and muscle tension especially the posterior longitudinal ligament increases, especially by sitting bending forward.

Low back pain in green mussel workers is caused by a risky sitting position, sitting long in monotone with the wrong position can cause the back muscles to become tense and can damage the surrounding soft tissues. If this continues, it will cause pressure on the spinal cord bearing.

V. SUMMARY

There was a significant relationship between the incidence of low back pain (LBP) with variables of age, years of work, work duration per day and position while working on The green mussels workers in the working area of Puskesmas Kelurahan Kamal Muara Penjaringan, North Jakarta

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THE EFFECT OF PROGRESSIVE MUSCLE EXERCISE ON THE REDUCTION OF STRESS LEVELS STROKE PATIENTS IN SARAF POLY RSUD DR M. YUNUS BENGKULU

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Abstract - Stroke is a brain function disorder that arises suddenly, occurs to anyone and at any time. The prevalence of stroke cases in Indonesia based on the diagnosis of health personnel is 7.0 per mill and 12.1 per mill (KEMENKES, 2014). Stroke sufferers often experience stress in their disease. In Indonesia, in 2008 there were around 10% of the total population of Indonesia experiencing mental disorders or stress in the patient's illness. The purpose of this study was conducted to find out whether disease prevention techniques.

This type of research was pre-experimental using the design of one pretest-posttest group. Samples were stroke patients who were being treated and suffering from stress with ages 15-50 years who needed 34 people using accidental sampling technique. Data analysis used test *Willcoxon a 5% (one tail)*. Measurement of stress levels using the DASS 21 instrument consisting of 8 questions. The results showed there was an effect of progressive muscle training in reducing stress levels with ($p = 0,000$). Progressive muscle training is better at reducing the scale of stress in stroke. Progressive muscle training can be done by nurses and stroke patients as a therapy to reduce stress levels.

Keywords: *Progressive Muscle Exercise, Stroke, Stres*

I. INDRODUCTION

Stroke is a brain function disorder that occurs suddenly, occurs to anyone and at any time. This disease causes disability in the form of paralysis of limbs, speech disorders, the process of thinking as a result of impaired brain function [1]. Globally, 15 million people have a stroke every year, one-third dies and the rest experience permanent disability [2].

WHO (2010) [3] defines the stroke as a clinical manifestation of impaired brain function, both focal and global (comprehensive), which lasts fast, lasts more than 24 hours or causes death, without causes other than vascular disorders. Based on the results of Riskesdas in 2013, the prevalence of stroke in Indonesia increased with age. Based on data from the top 10 most common diseases in Indonesia in 2013, the prevalence of stroke cases in Indonesia is based on the diagnosis of health personnel by 7.0 per mill and 12.1 per mill [4]

Stroke prevalence in Bengkulu province in 2015 was found to be 6.5 per 1000 population, and those that had been diagnosed by health workers were 5.5 per 1000 population. Stress will cause a stroke to occur if it persists for a long time and is not immediately addressed properly. The high incidence of stress in Indonesia is also the reason why stress must be prioritized for handling because in 2008 there were around 10% of the total population of Indonesia experiencing mental disorders or stress. Someone who

has a stroke will experience an increase in anxiety, stress, and depression.

Stress is the body's reaction/response to psychosocial stressors (mental stress/life burden). Today's stress is used interchangeably to explain various stimuli with an excessive intensity that are not preferred in the form of physiological, behavioral, and subjective responses to stress; the context that bridges the meeting between individuals with stressful stimuli; all as a system [5].

Based on the data obtained from the medical record section of Dr.M. YUNUS Hospital, the number of stroke cases in all age groups, in 2013 the number of visits to the Poly Nerve was 43 people, in 2014 there were 33 people and in 2015 there were 73 people, and during the visit there were 467 visits to the physiotherapy room for post-stroke patients. The phenomenon associated with stress in stroke can be seen from the results of the initial studies that researchers conducted through interviews with 10 patients.

After conducting interviews and retrieval of data from the results of the initial study showed that of 10 people with stroke, there were 8 stroke patients who experienced stress such as not being able to relax, often feeling sad, often feeling that work would be hampered. The purpose of this study was to determine the effect of progressive muscle training in reducing stress levels in stroke patients in M. YUNUS Bengkulu Hospital.

II. RESEARCH METHOD

Type of research used was pre-experimental using one group pretest-posttest design, and with a prospective approach where researchers gave intervention to the subjects of the study, the researchers assessed the effects of these interventions on stress levels of stroke patients. Samples were stroke patients who were outpatient and experienced disease stress totaling 34 people using accidental sampling technique. Data analysis used in

univariate analysis and is presented in table form and descriptive analysis. The bivariate analysis used the Wilcoxon test $5\% \alpha$ to determine the effect of progressive muscle training.

III. RESULT

Tabel 1

Decreasing stress levels before being given intervention to the respondent of stroke patients in the Nerve Polyclinic of M. Yunus Bengkulu Hospital

No.	Stress level	Pre	%
1	Normal	3	8,8%
2	Mild	14	41,2%
3	Moderate	17	50,0%

(50.0%) experienced moderate stress before being given progressive muscle training while the results of respondents who experienced stress in the normal category.

Table 2

Differences in scores on the reduction in stress levels after intervention in stroke patients in Poly Saraf RSUD M.YUNUS Bengkulu

No.	Stress level	Post	%
1	Normal	28	14,7%
2	Mild	5	0%
3	Moderate	5	85,3%

respondents (85.3%) experienced stress in the normal category after being given progressive muscle training. The average distribution of stress levels in stroke patients after progressive muscle training in Rs. M. Yunus Bengkulu

Table 3
Distribution of mean stress levels before and after progressive muscle training in stroke patients

Stree	N	Mean	Me dian	SD	Min Maks	95% CI
Before Intervent ion	34	18.21	18.50	1.997	13-21	17.51- 18.90
After Intervention	34	12.85	13.00	2.017	8-17	12.15- 13.56

The results of the analysis showed that the average stress level before being given progressive muscle training was 18.21 and a standard deviation was 1,997. From the results of the interval estimation, it can be concluded that 95% believed the average stress level of stroke patients before being given progressive muscle training was between 17.51 - 18.90. The analysis results showed that the average stress level after being given progressive muscle training was 12.85 and a standard deviation of 2.017. From the results of the interval estimation, it can be concluded that 95% is believed to be the average stress level of stroke patients after being given a preprogressive muscle training is between 12.15 - 13.56. Test results Kolmogorov-Smirnov showed that one of the data (after progressive muscle training) had $p = 0,000 < \alpha 5\%$, meaning that the data was not normally distributed, so to find out the stress reduction before and after the progressive muscle training was carried out by using test Wilcoxon signed rank test at $\alpha 5\%$ (one tail).

Table IV
The Effect of Progressive Muscle Exercise on Decreasing Stress Levels in Respondents in Rs. M.Yunus Bengkulu

Stress Intensi ty	N	Mean Rank	Sum of Rank	Z	P value
Before- After Interventio n	34	17,00	561,00	- 5,036	0,000

Statistical test results show that the average intensity of stress levels in post-stroke patients after progressive muscle training is lower compared to the average intensity of stress levels in stroke patients before progressive muscle exercise was carried out, it can be concluded that there was an effect of progressive muscle training on reducing stress levels in stroke patients ($p = 0,000 < \alpha 5\%$ one tail)

1. *Stress level before exercise intervention Progressive Muscle*

Research by Rasha Mohamed Essa (2017) shows that the average Hysterectomy patient who experiences stress before being given progressive muscle training is in the moderate category 15,20 [6]. In this relaxation exercise, individual attention is directed to differentiating feelings experienced when muscle groups are stretched and compared when the muscles are tense. By knowing the location and feeling the tense muscles, we can feel the loss of tension as one of the anxiety responses more clearly [7]

2. *Stress Level After Intervention Progressive Muscle Exercise in Stroke Patients.*

Research by Rasha Mohamed Essa (2017) showed that the average decrease in stress levels in hysterectomy patients after being given progressive muscle training in the normal stress category (8.20). Progressive muscle training for 15-20 minutes with several movements according to SOP.

Movements from progressive muscle exercises are carried out in a quiet room, release footwear, and are advised not to strain the muscles excessively [8]. Progressive muscle training can make the body and mind feel calm and relaxed [9].

3. *The Effect of Progressive Muscle Exercises on Decreasing Stress Levels at M. Yunus Hospital*

The results are in line with the opinion of Rasha Mohamed Essa who showed the influence of progressive muscle training on stress reduction in hysterectomy patients ($P = 0,000$), progressive muscle training can reduce the patient's stress level who experience stress in their disease. Decreasing stress levels in stroke patients can be affected by progressive muscle training that in the presence of muscle training blood flow in the body will flow smoothly so that the muscles relax and bring oxygen in the body is sufficient and can reduce the activity of stress hormones, improve concentration and mood, reduce fatigue, reduce anger and frustration, increase confidence to overcome the problem [8].

III. CONCLUSION

Based on the results of the study and discussion of the effect of progressive muscle exercise on reducing stress levels in stroke patients in the Rs M. Yunus Bengkulu Poly Neurology, it can be concluded that the average stress level before being given progressive muscle training 18.21 and after doing muscle training progressive is 12.85. And there is the effect of progressive muscle training on the reduction of stress levels in stroke patients ($p= 0,000$).

The results of this study are expected to provide information to nurses and stroke patients in handling stroke stress. In addition, this study can also provide input to related institutions of M. YUNUS

Bengkulu Hospital in providing information to stroke patients. Further researchers are expected to develop similar research in dealing with stress problems in stroke patients using other relaxation exercises.

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THE ANTIMICROBIAL ACTIVITY LEAF EXTRACT FROM SERIES (MUNTINGIA CALABURA L) ON THE GROWTH STAPHYLOCOCCUS AUREUS

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Abstract: Series leaf plant is a tropical fruit that is easily found on the roadside. Plants Series has long been used by the people of Bengkulu as a traditional medicinal plant. Series leaf contains flavonoids, tannins, triterpenoids, saponins and polyphenols which are useful for inhibiting the activity of the growth of Staphylococcus aureus bacteria [1]. The study aims to determine the activity of leaf series (Muntingia calabura L) against Staphylococcus aureus. This research was conducted with laboratory experimental method and the extraction method used is the method of maceration. The population in this study is a series of leaves (Muntingia calabura L). In research dilakukan with extract concentrations of 15%, 30%, 45% and 60% and a positive control (antibiotic Tetracycline) and a negative control (sterile distilled water). The conclusion of the study the antimicrobial activity of leaf extracts series (Muntingia calabura L) against Staphylococcus aureus that is the greatest inhibition contained at a concentration of 60% obtained an average zone of inhibition of 21.25 mm and the smallest at a concentration of 15% obtained inhibitory zone 15.25 mm.

Keywords: Leaf Extract Series (Muntingia calabura L), Staphylococcus aureus, maceration

I. Introduction

Infectious diseases still occupy the top cause of illness and death in developing countries, including Indonesia. Infections caused by *Staphylococcus aureus* [2]. Diseases caused by *Staphylococcus aureus*, among others, staphylococcal scalded skin syndrome, which occurs in 98% of children aged less than six years [3].

Staphylococcus aureus a spherical gram-positive bacteria (cocci) usually arranged in the form of irregular clusters like grapes. *Staphylococcus aureus* can be found as normal flora on the surface of human skin. *Staphylococcus* causes wound infections usually a focal suppuration (abscess) [3]

Herbs are a prime choice used in the treatment of some parts of the world. Diseases are often treated with herbal plants one only caused by the bacterium *Staphylococcus aureus*. One of the herbs that can be used to inhibit the growth of *Staphylococcus aureus* which leaves Series [4] Series leaf contains flavonoids, tannins, triterpenoids, saponins and polyphenols showed antioxidative and antimicrobial activity [1].

From the research results Ocimum (2012) can be seen that the leaf extract Series (*Muntingia calabura L*) can inhibit the growth of *Staphylococcus aureus* and the results of inhibition zone obtained with strong category at a concentration of 15%, 45%, and 30%

and very strong concentration of 60%, as well as the strong positive control Tetracycline based classification method. The survey results revealed greater the concentration of leaf extract Series (*Muntingia calabura* L), the greater the diameter of inhibition zone formed on the bacterium *Staphylococcus aureus* [5].

In the study conducted by Virsa Handayani Faculty of Pharmacy, University Muslim Indonesia that is testing the antibacterial activity of ethanol extract of leaves of cherry (*Muntingia calabura* L.) Against the acne-causing bacteria on the research results obtained the highest concentration of 9 ppm of *Staphylococcus epidermidis* has a large resistor diameter is 14.00 [6].

Based on the description of Leaves Series (*Muntingia calabura* L) and the results of previous studies, researchers interested in conducting research with the title, Leaf Extract Antimicrobial Activity Series (*Muntingia calabura* L.) Against the Inhibitory Power *Staphylococcus aureus*.

II. Materials And Methods

This type of research is experimental laboratory [7]. Samples of research that leaves Series and pure cultures of bacteria *Staphylococcus aureus*. The method used to mengesktrak series leaves the method of maceration and test the effectiveness of using the disc diffusion method to view the inhibition zone is formed. This research laboratory dilakukan Poltekkes MoH Bengkulu.

III. Results

Table 1. The results leaf extract Series *Muntingia calabura* L) against *Staphylococcus aureus* inhibition zone.

Inhibition zone diameter (mm)	Concentration				Control +	Control
	60%	45%	30%	15%		
1	20	16	15	14.5	15	-
2	17.5	16.5	16	15	15	-
3	29.5	19	18	17	15	-
4	18	15.5	15	14.5	15	-
Average (mm)	21:2	16.7	16	15:2	15	-

Table 1 konsentari 60% obtained an average zone of inhibition of 21.25 mm, the concentration of 45% obtained an average zone of inhibition of 16.75 mm, concentration of 30% obtained an average zone of inhibition of 16 mm, concentration 15% obtained an average zone of inhibition of 15.25 mm and the positive control obtained an average of 15 mm and the negative control was not formed inhibitory zone.

table 2 Category Zone Haambat

Leaf Extract Concentration Series	Inhibition zone average	Categories inhibition zone
60%	21.25	Very strong
45%	16.75	Strong
30%	16	Strong
15%	15.25	Strong

Table 2 concentration series leaf extract at a concentration of 60% is very strong and the concentration of 45%, 30%, 15% stronger.

IV. Discussion

Results of inhibition zone formed on the leaf extract Series (*Muntingia calabura* L), namely the establishment of clear zone on a *Staphylococcus aureus* bacterial growth medium In the treatment leaf extract concentration Series (*Muntingia calabura* L) 60% zone on each repetition is 20 mm, 17.5 mm, 29.5 mm, 18 mm, an average of 21.25 mm with a very strong category. In the treatment of leaf extract concentration Series (*Muntingia calabura* L) 15% inhibition zone on each repetition that is 14.5 mm, 15 mm, 17 mm, 14.5 mm, average in every repetition is 15.25 mm with a strong category.

In the treatment of leaf extract concentration Series (*Muntingia calabura* L) 30% and 45% have a zone of inhibition in inhibiting the growth of *Staphylococcus*

aureus strong dikategorikan konstrasi equal to 15%.

This study uses a negative control (-) ie Aquadest and positive control (+) tetrasklin 500 mg used as a comparison. The average inhibition zone formed is 15 mm with strong category with each repetition of 15 mm, which was used as a comparison inhibition zone formed on Muller media Hiton order.

From the research results it can be seen that the leaf extract Series (Muntingia calabura L)) can inhibit the growth of baketri Staphylococcus aureus and the results of inhibition zone obtained with strong category at a concentration of 15%, 45%, and 30% and very strong at 60% concentration, as well as the strong positive control Tetracycline based classification method [6]. The survey results revealed greater the concentration of leaf extract Series (Muntingia calabura L), the greater the diameter of inhibition zone formed on the bacterium Staphylococcus aureus.

The ability of leaf extracts series (Muntingia calabura L) as antibacterial also supported by research Virsa Handayani (2016) which states that the leaf extract Series (Muntingia calabura L) has the ability to inhibit bacteria Staphylococcus epidermidis using the diffusion method by using the media Muller Hilton, using extracts ethanol leaves Series (Muntingia calabura L) and use the four treatment concentration is 1 ppm, 3 ppm, 5 ppm, 9 ppm with the sequential results were 0 mm, 10.30 mm, 11.27 mm, 14.00 mm [6].

In studies Happy Aprilia Mahardika, Sarwiyono, Puguh Surjowardojo (2014) using the diffusion method pitting to test the ability of antibacterial drawing this extract of leaves of cherry (Muntingia calabura L) in inhibiting bacterial growth Straphylococcus Aures by using media Nutrient agar, using extract Ethanol Leaves Series (Muntingia calabura L) and use the four treatment concentration of

10%, 20%, 30%, 40% with the sequential results are 6.34 mm, 6.73 mm, 7.41 mm, 7.63 mm [8].

In Khasanah Imro'atul research, Sarwiyono, Puguh Surjowardojo (2014). Cherry leaf extract (Muntingia calabura L) at a concentration of 10%, 20%, 30%, 40% by the agar diffusion method and using the media MRSA. The results showed that the cherry leaf extract has antibacterial activity with the highest inhibition at concentrations of ethanol extract of cherry leaves 40% that is equal to 7.01 and is able to inhibit the bacteria Streptococcus agalactia [9].

Ability leaf series (Muntingia calabura L) in inhibiting bacterial pertumbuhan due to the flavonoid content in leaves Series (Muntingia calabura L). Flavonoids provide antibacterial activity by inhibiting the metabolism of energy, energy metabolism inhibition mechanism conducted by flavonoids such as antibiotics that inhibit respiration of oxygen and can cause bacterial death. Flavonoids are compounds that are disinfectants that work denature the protein can cause the cell's metabolic activities stopped. In addition to flavonoids, tannins can inhibit the activity of the enzyme protease, inhibits the enzyme in the bacterial cell sheath transpot, destruction or inactivation of the function of the genetic material, in addition to the tannins are also capable of wrinkling the bacterial cell wall that can disrupt cell permeability [9].

V. Conclusions

Based on this research the antimicrobial activity of extracts of Duan series (Muntingia calabura L) against Staphylococcus aureus can be concluded extract Duan series (Muntingia calabura L) with a very strong 60% concentration inhibits the growth of Staphylococcus aureus bacteria that is with an average of 21.25 mm, a very strong 45% concentration inhibits the growth of

Staphylococcus aureus bacteria that is with an average of 16.75 mm, a very strong 30% concentration inhibits the growth of Staphylococcus aureus bacteria that is with an average of 16 mm, a very strong 15% concentration inhibits the growth of Staphylococcus aureus bacteria that is with an average of 15.25 mm.

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THE RELATIONSHIP BETWEEN PREGNANT WOMEN'S HEMOGLOBIN LEVELS AND THE NEWBORN PHYSICAL MATURITY

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ABSTRACT

Anemia is one of the indirect causes of maternal mortality. During pregnancy, women require additional iron to increase red blood cells in her body, forming fetal red blood cells, fetal growth, and placenta. Iron requirements in each trimester are different, in the second and third trimesters pregnant women need large amounts of iron. Pregnant women with anemia are at risk of having low birth weight babies. This study aims to determine the relationship between hemoglobin levels of pregnant women with the physical maturity of infants as measured by baby's weight and APGAR signs of baby. The results of the study are useful to determine nursing care especially related to pregnant women's nutrition need to prevent anemia. This study applied an analytic design using cross-sectional approach. The population was mothers who gave birth in the PHC of Garuda, Bandung City. The number of samples was 68 respondents. Samples were taken using purposive sampling technique. Data collection used questionnaires, medic records and direct measurements of babies' body weight and APGAR score. Data were analysed using univariate, and bivariate analysis (Correlation Test). Another analysis was the multivariate analysis that conducted to determine the relationship between maternal characteristics (age, parity, gestational age and complications) and the physical

maturity of the baby (baby's weight and Apgar score). The results showed that there was no correlation between mothers' hemoglobin and the baby's weight (p -value = 0.296). P value > α (0.1). There was a relationship between ages and parity with the baby's body weight. In addition, there was no correlation between maternal hemoglobin and infant's Apgar score (p -value = 0.112) p -value < α (0.1). There is a relationship between complications of pregnant women with babies' APGAR score.

Keywords: *Anemia in pregnancy, Hemoglobin, Low birth weight, Apgar score*

BACKGROUND

According to the World Health Organization (WHO) [1] the prevalence of anemia in the world approximately 40-88%. The data from the household health survey (SKRT) in 2012 stated that the prevalence of anemia in pregnant women was 50.5%. Anemia is one of the indirect causes of maternal mortality. The Maternal Mortality Rate (MMR) in Indonesia is the highest in the ASEAN region. Iron deficiency anemia is anemia that occurs due to iron deficiency in the blood. Lack of iron in the blood would interfere with the formation of red blood cells. The need for Iron in pregnant women is higher than non-pregnant women. The Iron is useful to

increase women's red blood cells, form fetal red blood cells, fetal growth and placental. Iron requirements in each trimester are different. Especially in the second and third trimesters of pregnancy. Increasing iron requirements will result in decreasing ferritin levels. In the first trimester of pregnancy, ferritin levels approximately 100 ug / l, and then in the second trimester would be decreased by 50%, so the level is approximately 20 ug / l [2].

The blood volume has increased in pregnancy, the first trimester increases by 20%, the second semester 40 %, and in the third semester almost 50% [3]. Excessive blood loss with hemoglobin iron loss and depletion of iron stores in a pregnancy would be a cause of iron deficiency anemia in pregnancy. This condition would increase the risk of maternal mortality during childbirth, low birth weight babies, high risk of infection for fetus and mother, miscarriage, and increasing the risk of premature birth. Iron intake has given by pregnant women to the fetus through the placenta use for fetus growth and development. These growths include the development of the brain, and the liver until the baby is 6 months old. In addition, iron also helps accelerate the healing process of wounds, especially wounds that arise during labor

The placenta has a function to transfer oxygen from the mother the blood circulation of the fetus and to support fetal metabolism. In pregnancy, the use of oxygen increases significantly to meet the needs of the mother and the fetus. The low level of hemoglobin affected the amount of oxygen in the blood circulation, as a result, oxygen for the mother and fetus are insufficient [4]. Fetal hypoxia causes neonatal asphyxia due to gas exchange disruption and O₂ transport from mother to the fetus so there is an O₂ supply issue. The amount of oxygen is an important factor in the development of placental vascular vessels [5]. A healthy pregnancy increases the bolus mass [6]. The low

hemoglobin level would affect the insufficient amount of oxygen in the blood, and a high risk of premature birth or low birth weight [7]. Anemia that occurs in pregnant women causes hypoxia, women risk of the spontaneous early birth [8] and the previous study found that [9] the labor was one week earlier than the estimation, and the baby had low birth weight. A term infant with the birth weight of 4000 grams had iron approximately 320 mg.

Mothers' hemoglobin levels that contain lots of iron will be widely used for the fetus, it is transferred via the placenta [10]. The fetus will adapt to mother conditions, including the mother's nutrition status. If the mother's nutritional intake of does not meet the needs for themselves and the fetus, it would be high risk for fetal growth and development in the uterus. The condition of a newborn baby can be assessed using the APGAR score, this is a simple way to determine the baby's condition quickly after birth. The fetal growth and development in the uterus would have an impact on the baby's conditions after birth. It is reflected the score of APGAR sign immediately after birth.

During pregnancy, there is a dilution process of maternal blood due to increasing the plasma volume, one effect of this physiological process is decreasing the hemoglobin level. The previous study showed that there was a relationship between maternal anemia and APGAR Score of babies born with a value of $p < 0.05$ [11]. Hemoglobin is related to maternal nutritional intake during pregnancy. Malnutrition during pregnancy will reduce blood volume, as a result reducing mother's blood flow to the uterus and placenta. Transfer of nutrients via the placenta is reduced, and then the fetal growth is disrupted and affected to the condition of the baby immediately after birth, which is reflected in the score APGAR sign.

Anemia is one of the pregnant women's health problems. This study aimed to investigate the relationship between hemoglobin levels of pregnant women and babies' physical conditions (weight and Apgar score). The results of this study would be useful in determining nursing care to improve the nutrition status of pregnant women and prevent infant complications such as low birth weight.

METHODS

This research used an analytic design with the cross-sectional approach. The study population was all mothers who gave birth at the PHC of Garuda, in Bandung City in 2017. Samples were all mothers who gave birth from July to September 2017, the number of samples was 68. Respondents were chosen using purposive sampling technique. The inclusion criteria included pregnancy with a single fetal, pregnant woman who had a pregnancy check-up at the Garuda Health Center regularly, and willing to be a respondent.

RESULTS

Table 1. The Characteristics Of Respondents

Age	Frequency	Percentage (%)
< 20	6	8.8
20-35	50	73.5
>35	12	17.6
Total	68	100.0
Parity		
At risk	27	39.7
No risk	41	60.3
Total	68	100.0
Pregnancy		
<37 week	4	5.9
37-42 week	64	94.1
Total	68	100.0
Complication		
At Complication	13	19.1
No Complication	55	80.9
Total	68	100.0

Table 5.1 present that there were 6 respondents (8.8%) who were at risk ie

<20 years and 12 respondents (17.6%) ie> 35 years. The pregnant women with risk conditions were 27 respondents (39.7%) and those who are not at risk were 41 respondents (60.3%). The respondent's gestational age <37 weeks was 4 respondents (5.9%). Respondents with complications were 13 people (19.1%) while no- complications were 55 people (80.9%)

Table 2. The pregnant women's hemoglobin levels

Hemoglobin Level	Frequency	Percentage %
< 11 mg/dl (anemia)	19	27.9
≥11 mg/dl (normal)	49	72.1
Total	68	100.0

The table describes that 19 of women (27.9%) had hemoglobin level <11 mg/ dl, while that hemoglobin> 11 mg/dl was 49 women (72.1%).

Table 3. The babies' weight

Infant body weight	Frequency	Percentage %
< 2500 (LWB)	3	4.4
≥ 2500 (No LWB)	65	95.6
Total	68	100.0

According to table.3, it can be concluded that the baby's weight <2500 grams is 3 people (4.4%), while the ≥ 2500 grams is 65 people (95.6%)

Table 4. Distribution of babies' APGAR score

Apgar Score	Frequency	Percentage %
0-3 Severe Asfixsia	1	1.5
4-6 moderate Asfixsia	9	13.2
7-10 no Asfixsia	58	85.3
Total	68	100.0

Table 4 presents that there was a baby with severe asphyxia (1.5%), and 9 of them (13.2%) had moderate asphyxia

Table 5. The correlation between mother's contextual factors (Age, Parity, Gestational age, Pregnancy Complications, and the hemoglobin level) and babies' weight

No	Variable	P Value
1	Age	0.014
2	Parity	0.001
3	Gestational Age	0.132
4	Complication	0.403
5	Hemoglobin	0.296

The results of bivariate analysis found that p-value for age variables ($p = 0.014$), parity ($p = 0.001$), gestational age (0.132), complications (0.403) and Hb ($p = 0.296$). It can be concluded that the variables of age, parity, gestational age, have a p-value < 0.25 , those three variables continued into the multivariate modeling stage. Valid variables in multivariate models are variables that have p-value < 0.05

Table 6. The correlation between mother's age, parity and babies' weight

Variable	R	R ²	Model	P Value
Age Parity	0.393	0.155	Baby weight = $2909.5 + 1.27 \text{ Usia} + 107.2 \text{ Parity}$	0,04

Table 6 describe that the correlation among age, maternal parity with a baby's weight was a moderate relationship ($r = 0.393$). The coefficient value with the determination 0.155 means that the regression model described 15.5% of the baby's weight variation or it also means that the model was good to explain the variable of the baby's weight. The results of statistical tests showed that there was a relationship between maternal age and babies' weight ($p = 0.04$). $p \text{ value} > \alpha (0.1)$

Table 7. The correlation between maternal hemoglobin levels and babies' weight

Variable	R	R ²	Line Equation	P Value
Hemoglobin	0.128	0.017	-	0,296

The relationship between mothers' hemoglobin levels and babies' weight indicated a weak relationship ($r = 0.128$). The results of the statistical analysis showed that there was no significant correlation between maternal hemoglobin levels and babies weight ($p = 0.296$), $p \text{ value} > \alpha (0.1)$.

Table 8. The correlation between mother's contextual factors (Age, Parity, Gestational age, Pregnancy Complications, and the hemoglobin level) and APGAR score

No	Variable	P Value
1	Age	0.315
2	Parity	0.950
3	Gestational ages	0.223
4	Complication	0.000
5	Hemoglobin	0.112

The results of bivariate analysis found that p-value for the age variable was $p = 0.315$, parity ($p = 0.950$), gestational age (0.223), complications (0.000), and Hb levels ($p = 0.112$). From this findings it can be concluded that the variables of gestational age, complications, and hemoglobin have a p-value < 0.25 , those three variables continued into the multivariate modeling stage. Valid variables in the multivariate model are variables that have p-value < 0.05 .

Table 9. The correlation between pregnant women's complications and APGAR score

Variable	R	R ²	Model	P Value
Complication	0.463	0.215	Apgar score=6.6+1.6 (complications)	0,000

Table 9 describe that the correlation between mothers' complications and APGAR score was a moderate relationship ($r = 0.463$). The coefficient value with the determination 0.215 means that the regression model described 21% of the APGAR score variation or it also means that the model was good to explain the variable of APGAR score. The results of statistical tests showed that there was a relationship between maternal complications and APGAR score ($p = 0,000$). p -value $< \alpha$ (0.1)

Table 10. The correlation between maternal hemoglobin levels and APGAR score

Variable	R	R ²	Model	P Value
Hemoglobin	0.194	0.038	-	0.112

The relationship between mothers' hemoglobin levels and APGAR score indicated a weak relationship ($r = 0.194$). The results of the statistical analysis showed that there was no a significant correlation between maternal hemoglobin levels and APGAR score ($p = 0.112$). p -value $< \alpha$ (0.1)

DISCUSSION

The correlation between mother's contextual factors (Age, Parity, Age of Pregnancy and Pregnancy Complications) and babies' weight

The results showed that there was a relationship between age and parity with

the weight of a newborn baby. The statistical analysis showed that there is a significant relationship between maternal age and babies' body weight ($p = 0.04$). p value $> \alpha$ (0.1). The results of this study are in line with findings of studies in Surakarta and Sumenep showed that there is a relationship between the incidence of low birth weight and maternal age during pregnancy. Maternal factors are the cause of low birth weight babies. Mothers with risk factors such as age less than 20 years or more than 35 years are at risk category and would be caused problems in pregnancy, labor, post-partum period, and maybe would be impacted to babies' body weight such as low birth weight. Low birth weight is associated with perinatal and neonatal deaths. Low birth weight is an indicator of maternal and infant health. In Semarang District, 37% of low birth weight factor is parity and age

The correlation between pregnant women's hemoglobin levels and babies' weight.

According to the correlation analysis, there was no correlation between Hemoglobin of the mother and the baby's weight ($p = 0.296$) P value $> \alpha$ (0.1). In the first trimester of pregnancy, women' blood volume increase approximately 20%, second semester 40%, and finally, the third semester there was an increase in blood volume up to 50% [3]. The rapid increase of pregnant women's blood volume in the second or third trimester would be affected the hemoglobin concentration, as a result, they had iron deficiency anemia. Pregnancy complications which are factors that cause of babies' low birth weight including bleeding and infection. In addition, indirect factors are the age of women aged < 20 years and > 35 years, gestational age less than 37 weeks, and the distance of labor that is too close from one baby to another. The results showed that respondents with complications were 13 women (19.1%) while 55 people (80.9%) of them there were no complications.

The status of nutrition in pregnant women may be influenced by indirect factors such as maternal knowledge about a good nutrition during pregnancy. Knowledge of anemia which includes prevention and treatment of anemia is very important for pregnant women. If a pregnant woman does not have health knowledge about prevention and treatment of anemia, so they cannot do prevention and treatment of anemia during pregnancy, actually, those activities can be done by women before or during pregnancy. The most effective and efficient way to prevent the possibility of low birth weight is a health education about anemia for pregnant women in their ANC classes. In the class, pregnant women can share their experience or information related to various information in pregnancy, labor, and post-partum period including anemia prevention. The information includes pregnancy nutritional needs, and check of hemoglobin levels regularly, from the beginning of pregnancy and monitor them every trimester.

Anemia in pregnant women can cause adverse effects on the mother or the baby. Pregnant women who experience maternal anemia can lead to fetal death, abortion, congenital defects, LBW, anemia in babies, this also causes maternal morbidity and mortality, and perinatal mortality. Anemia in pregnancy is a major health problem associated with the incidence of LBW [13]. The World Health Organization (WHO) stated that two-thirds of pregnant women in Indonesia suffered from anemia. According to this WHO data, 20% of them ended in LBW condition. Percentages of risk factors for the incidence of LBW include anemia in pregnancy (67%), prim gravid (31.96%), and no antenatal care (29.80%). Many programs were developed to prevent the occurrence of anemia in pregnancy such as improving pregnant women's nutritional intake, the providing iron tablets, and giving iron vitamin before planning a pregnancy. However, these programs have

not achieved the target, as a result, there are pregnant women with anemia. The cause of anemia usually occurs due to a lot of blood loss, damage to red blood cells due to threatening several diseases such as malaria, and mal-nutrient. Failure of maternal weight gain in trimester I and II would be increased the low birth weight babies (LBW).

The correlation between mother's contextual factors (Age, Parity, Age of Pregnancy and Pregnancy Complications) and babies' APGAR score

The study found there was no relationship between age, parity, gestational age with Apgar Score. However, there was a relationship between pregnancy complications and the Apgar Score of newborns. Maternal conditions such as bleeding, infection, hypertension had impacted the infant's health such as asphyxia. The results showed there were 13 respondents (19.1%) with complications, and there were pregnant women with no complications 55 respondents (80.9%)

The correlation between pregnant women's hemoglobin levels and babies' APGAR score

According to the correlation analysis, there was no correlation between maternal hemoglobin and infant APGAR score ($p = 0.112$). p -value $< \alpha$ (0.1). Pregnant women and the fetus need more oxygen along with the infant development and growth. When the amount of oxygen is limited due to the low hemoglobin level, the demand is increased in both mother and fetus [4]. Fetal hypoxia causes neonatal asphyxia due to gas exchange issues as well as O₂ transport from mother to fetus so that there are problems in O₂ supplies. When the nutritional intake of pregnant women did not meet the needs of the fetus, it would reduce the cells development of the fetus in the uterus. The

growth and development of the fetal would be affected by the condition of the baby immediately after birth which is reflected in the value of Apgar. During pregnancy, there is the dilution of maternal blood due to increased plasma volume. This causes in decreasing hemoglobin in pregnant women. The results of this study were not in line with Ahmad's research (2015), his study showed that there was a relationship between anemia in pregnancy and the Apgar Score of babies [11]. The results showed that there was no correlation between maternal hemoglobin and infant Apgar Score ($p = 0.112$). $p\text{-value} < \alpha (0.1)$. Factors that would be affected to APGAR score including maternal complications both during pregnancy and childbirth. Maternal conditions such as bleeding, infection, hypertension would be caused by the experience of asphyxia at birth in babies. The results showed that there was a relationship between the complications of pregnant women with Apgar Score infants with $p\text{-value} = 0.000$

CONCLUSION

According to the study findings, it can be concluded that:

- a. There were 6 respondents (8.8%) who were in category high risk based on their age which are < 20 years, and 12 (17.6%) of them were > 35 years old.
- b. There were 27 respondents (39.7%) who were classified as at-risk conditions and 41 respondents (60.3%) who were classified as not at risk conditions
- c. Respondents with the gestational age < 37 weeks were 4 respondents (5.9%) and the gestational age 37-42 weeks were 64 respondents (94.1%).
- d. Respondents with complications were 13 women (19.1%) and 55 of women (80.9%) were no complications
- e. Hemoglobin levels < 11 mg / dl were 19 women (27.9%), and those > 11 mg / dl were 49 women (72.1%)

- f. Babies' weight < 2500 grams was 3 babies (4.4%), and ≥ 2500 grams was 65 babies (95.6%)
- g. Apgar score with classified as severe asphyxia was 1 baby (1.5%) and the moderate asphyxia was 9 babies (13.2%).
- h. There was a relationship between age and parity with a babies' weight and there was no relationship between gestational age and complications with babies' weight
- i. There was no relationship between hemoglobin levels and babies' weight with $p\text{-value} = 0.296 > \alpha (0.1)$
- j. There was no correlation between age, parity, gestational age, and APGAR score, and there was a relationship between pregnancy complications and Apgar score
- k. There was no correlation between Hemoglobin Level and Apgar score with $p\text{-value} = 0.112 p < \alpha (0.1)$

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**FACTORS RELATING TO HIPEURISMIA IN ELDERLY IN
INTEGRATED DEVELOPMENT POST (POSBINDU)
WORKING AREA OF NUSA INDAH PUBLIC HEALTH
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Abstract— Hiperurisemia happen as you get older. Both men are believed to be more at risk of exposed hiperurisemia compared to women. Hiperurisemia can be caused by high consumption of food sources of protein, especially animal protein-rich substance purin. Enough fluid consumption can lower uric acid levels in blood as a medium of uric acid disposal through the urine. The purpose of this research is to know the causes of the factors related to the incidence of hiperurisemia in the elderly in posbindu work-area Clinic Nusa Indah. This research includes the study of analytical observational case control design matching against 54 respondents of 27 cases and 27 control by means of purposive sampling. The analysis used is Univariate and bivariat with chi-square test. The results showed no relationship between age with hiperurisemia (p-value = 1.0), sex with hiperurisemia (p-value = 1.0), obesity with hiperurisemia (p-value = 0.275), consumption of fluids with hiperurisemia (p-value = 0,102), there relationship between consumption of purin with hiperurisemia (p-value = 0.0005; Or 18.1), consumption of protein with hiperurisemia (p-value = 0.001; Or 20.8). Purin and protein consumption is associated with the incidence of hiperurisemia in the post of coaching (posbindu) integrated work-area Clinic Nusa Indah year 2018. Expected elderly sufferers of

hiperurisemia can reduce the consumption of the food source of protein especially seafood and purin, offal, canned sardines etc.

Keywords— Hiperurisemia, Purin, Consumption, Elderly.

I. INTRODUCTION

Many degenerative diseases suffered by the elderly because the biological degeneration and is an advanced stage of a process of life is characterized by a decrease in the body's ability to adapt to environmental stress. A decrease in the ability of the various organs, body systems and functions, it is a natural physiological or as a result of the reduced number of cells and the body (Wardani, 2015). Degenerative disease that is widely found in the elderly is increased levels of uric acid (hiperurisemia) that led to inflammation of the joints¹.

Increased uric acid in the body (hiperurisemia) can be caused by high consumption of food sources of protein, especially animal protein-rich substance purin¹. Hiperurisemia is a situation where an increase in a person's blood levels of uric acid above normal, i.e. more than 7.0 mg/dL in men and less than 6.0 mg/dL in women. The value of uric acid is normal female 2.4-6.0 mg/dL in men and 3.0-7.0 mg/dL².

Dehydration because fluid intake are less to be one of the risk factors related hiperurisemia decreased excretion of uric acid via the kidneys (Mahan LK, 2008). Dehydration occurs when fluid intake is a person not in accordance with their needs. Risk factors for increased production of uric acid and other can be changed is the consumption of foods high in total fat, high fructose, high purin, obesity, drugs and some diseases of the kidney disorder (Ilyas No, 2014).

Based on data obtained from the City Health Office Profile Bengkulu arthritis is a disease of the number four most suffered by the people of Bengkulu after allergic skin disease. The prevalence of arthritis sufferers in Bengkulu in 2016 is as much 9,031 people. From 20 clinics that exist in the city of Bengkulu, the eastern periphery of the 1925 public health people, fish market, the 1125 Sukamerindu 782 inhabitants and clinics have a number of Beautiful Nusa Tenggara most sufferers fourth gout atritis IE as much as 596 inhabitants, where female sufferers numbered 403 people and male sufferers 193 people⁴.

The purpose of this research is to know the factors – cause factor related to Genesis hipeurisemia on the elderly in the post of coaching (Posbindu) Integrated work-area Clinic Nusa Indah year 2018.

II. METHODS

The research was carried out in the Posbindu region of beautiful Nusa Indah city of Bengkulu health centers in March-April 2018. The design of this research is a case-control matching on 54 respondents from 27 samples of cases 27 sample control. Samples taken in purposive sampling of case inclusion criteria: willing respondents, respondents in the Posbindu region of clinics of the city of Bengkulu, Beautiful Nusa Tenggara experience uric acid levels increase > 6 mg/dl in women; > 7.2 mg/dl in men, 50-64 years of age and ≥ 65 years. Sample inclusion criteria of

control: willing respondents, respondents in the Posbindu region of clinics Nusa Indah City of Bengkulu, the respondents age ≥ 65 years and 50-64 years, not hiperurisemia.

Stik methods used to measure the levels of uric acid in blood of respondents said to be hiperurisemia if the levels of blood uric acid > 6 mg/dl in women; > 7.2 mg/dl in men, interview methods to get data identity and inform consent, Anthropometry measurement methods to determine the nutritional status of obesity risk if IMT ≥ 25 kg/m² is not at risk if < 25 kg/m². Method questionnaire FFQ and photo-SQ foodstuffs to measure consumption of purin is at risk if > 500 mg/day are not at risk if < 500 mg/day, consumption of protein is at risk if > 57 g/day in women 50-64 years, 56g $>$ /day in women 65 years and $> > 65$ g/day on male 50-64 > 62 years, g/day in men 65 years $>$ not at risk if the protein consumption ≤ 57 g/day in women 50-64 years, ≤ 56 g/day in women 65 years and $> \leq 65$ g/day in men 50-64 years, ≤ 62 g/day in men 65 years $>$, consumption fluids are at risk if < 2000 ml/day at the age of 50-64 years, < 1500 ml/day at age > 65 years old and are not at risk if ≥ 2000 ml/day at the age of 50-64 years, ≥ 1500 ml/day at age > 65 years.

Data analysis using the chi square test to assess the relationships among major factors – cause factor with hiperurisemia. Analysis of the keeratan relationship by looking at the odds ratio (OR) and Confidence Interfal (CI) 95%. Big nothingness OR indicate the magnitude of the risks and keeratan the relationship between two variables that were tested.

Univariate Analysis

Research conducted at 12 Posbindu working area Clinic Nusa Indah with sampling Purposive sampling technique a number of 54 people with 27 divisions of sample cases and 27 samples of

control. Based on the results of the univariate analysis it can be seen an overview of the frequency distribution of age, sex, obesity, food consumption source

purin, proteins with Gen. hiperurisemia, on the elderly in posbindu Nusa Indah on table 1.as follows.

Table 1. Results of Analysis univariate

Variable	Categori	Frequency	
		Number (n)	%
Age	Elderly erly	46	85,2
	Elderly end	8	14,8
Gender	Male	26	48,1
	Female	28	51,9
Obesity	Risk	29	53,7
	Not at risk	25	46,3
Purin consumption	Risk	18	33,3
	Not at risk	36	66,7
Protein consumption	Risk	41	75,9
	Not at risk	13	24,1
Liquid consumption	Risk	27	50
	Not at risk	27	50
Hyperurisemia	Hyperurisemia	27	50
	Not Hyperurisemia	27	50

Table 1 shows that 85.2% of respondents entered the age category of the early elderly (50-64 years) and 14.8% entered the category of late elderly (> 65 years). While 51.9% of respondents were female and 48.1% were male. According to the

division of nutritional status of obese respondents at risk, namely ($BMI \geq 25$ kg / m²) as much as 53.7% and respondents are not at risk ($BMI \geq 25$ kg / m²) as much as 46.3%.

Bivariate Analysis

Table 2. Results of Analysis of Age Relationship with Hyperuricemia

Categories	Hyperuricemia				Total		p value
	Hyperurisemia		Non Hyperurisemia		n	%	
	n	%	n	%			
Elderly erly	23	50,0	23	50,0	46	100	1,0
Elderly end	4	50,0	4	50,0	8	100	
Total	27	50,0	27	50,0	54	100	

Table 2 shows that the early elderly age (50-64 years) in Posbindu Puskesmas Nusa Indah was measured by 50% in the case group, 50% in the control group. This shows that the number of hyperuricemia sufferers does not increase with age. Statistical test results showed no

significant relationship between age with the incidence of hyperuricemia in the elderly in the Integrated Development Post (POSBINDU) working area of Nusa Indah Public Health Center, indicated by p-value = 1.0 > 0.05.

Table 3. Results of Analysis of Gender Relationship with Hyperuricemia

Gender Categories	Hyperuricemia				Total		p value
	Hyperuricemia		Non Hyperuricemia		n	%	
	n	%	n	%			
Male	13	50,0	13	50,0	26	100	1,0
Female	14	50,0	14	50,0	28	100	
Total	27	50,0	27	50,0	54	100	

Table 3 shows that because of using matching case control methods, respondents in the case group (hyperuricemia) and in the control group (not hyperuricemia) were equal. Elderly women (50.0%) are the same as male respondents (50.0%). This shows that gender does not affect hyperuricemia.

Statistical test results showed no significant relationship between sex with the incidence of hyperuricemia in the elderly in the Integrated Development Post (POSBINDU) working area of Nusa Indah Public Health Center indicated by p-value = 1.0 > 0.05.

Table 4. Analysis Results of Obesity Relationship with Hyperuricemia Events

Obesity Categories	Hyperuricemia				Total		p value
	Hyperuricemia		Non Hyperuricemia		n	%	
	n	%	n	%			
Risk	17	58,6	12	41,4	29	100	0,275
Not Risk	10	37,0	15	55,6	27	100	
Total	27	50,0	27	50,0	54	100	

Table 4 shows that the respondents at risk (BMI ≥25.0) were 58.6% in the case group and 41.4% in the control group. Statistical test results showed that there was no significant relationship between

obesity and the incidence of hyperuricemia in the elderly at the integrated coaching post (posbindu) the working area of Nusa Indah Public Health Center was indicated by p-value = 0.275 > 0.05.

Table 5. Relationship Analysis Results of Purine Consumption with Hyperuricemia

Protein	Events Hyperuricemia				Total		OR 95% CI	p value
	Hyperuricemia		Non Hyperuricemia		n	%		
	n	%	n	%				
Risk	26	63,4	15	36,6	41	100	20,800	0,001
Not Risk	1	7,7	12	92,3	13	100	(2,455-	
Total	27	50,0	27	50,0	54	100	176,203)	

Table 5 shows that respondents with purine consumption category were at risk of 88.9% in the case group, 11.1% in the control group. Statistical test results showed that there was a significant relationship between purine consumption and the incidence of hyperuricemia in the elderly at the integrated coaching post (posbindu) in the Nusa Indah Health Center working area indicated by p-value =

0.0005 < 0.05. Protein consumption is a risk factor for the incidence of hyperuricemia with OR = 18.1 indicating that the elderly with purine consumption category are at risk (> 500 mg / day) at risk of developing hyperuricemia as much as 18.1 times compared to the elderly with purine consumption category not at risk (≤500 mg / day).

Table 6. Results of the Relationship Analysis of Protein Consumption with Hyperuricemia Incidence

Protein Categories	Hyperuricemia				Total		OR 95% CI	p value
	Hyperuricemia		Non Hyperuricemia					
	n	%	n	%	n	%		
Risk	26	63,4	15	36,6	41	100	20,800 (2,455-176,203)	0,001
Not Risk	1	7,7	12	92,3	13	100		
Total	27	50,5	27	50,054	54	100		

Table 6 shows that protein consumption of respondents at risk was 63.4% in the case group, and 36.6% in the control group. The results of statistical tests showed a significant relationship between protein consumption and the incidence of hyperuricemia in the elderly at the integrated coaching post (posbindu) working area of Nusa Indah Public Health Center indicated by p-value = 0.001 < 0.05. Protein consumption is a risk factor for the incidence of hyperuricemia with OR =

20.8 indicating that the elderly with consumption of risky protein (> 57 g / day in women 50-64 years, > 56 g / day in women > 65 years and > 65 g/day in men - 50-64 years old, > 62 g / day in men > 65 years) at risk of developing hyperuricemia as much as 20.8 times compared to elderly with the category of protein consumption not at risk (≤57 g / day in women 50-64 years, ≤56 g / day in women > 65 years and ≤65 g / day in 50-64 years old men, ≤62 g / day in men > 65 years).

Table 7. Results of Analysis of Liquid Consumption Relations with Hyperuricemia Events

Liquid	Hyperuricemia				Total		p value
	Hyperuricemia		Non Hyperuricemia				
	n	%	n	%	n	%	
Risk	17	63,0	10	37,0	27	100	0,102
Not Risk	10	37,0	17	63,0	27	100	
Total	960	50,0	27	50,0	27	100	

Table 7 shows that the fluid consumption of respondents was at 65 years) was 63% in the case group, and 37% in the control group. Statistical test results showed no significant relationship between fluid consumption with the incidence of hyperuricemia in the elderly in the integrated coaching post (posbindu) working area of Nusa Indah Public Health Center indicated by p-value = 0.102 > 0.05.

(posbindu) of the Puskesmas Nusa Indah working area in 2018.

This research is in line with the research conducted by Meiyetriani et al (2008) regarding the factors that influence the incidence of gout in Pancoran Mas Village Depok, West Java. The results showed that age variables did not significantly influence uric acid levels indicated by p-value = 0.117 (Meiyetriani, et al 2008). The same study was conducted by Saryono et al (2009) that there was no significant relationship between ages <50 years with respondents ≥50 years with the incidence of gout with p-value = 0.729 (Saryono et al, 2009). It is known that the uricase enzyme which oxidizes uric acid to become an anionin which is easily discarded will decrease along with the

III. DISCUSSION

1. Age Relationship with Hyperuricemia

The results showed no significant relationship between age and the incidence of hyperuricemia in the elderly at the integrated development post

increasing age of a person, if the formation of this enzyme is disrupted then the blood uric acid level rises (Saryono *et al*, 2009).

Examinations conducted on 50,000 men and 30,000 nonhyperuricemia Japanese women who received annual examinations at health agencies between 1989-1998 found that within a period of time gout had increased in all groups, but in younger men had uric acid levels higher than older men. The study proves that it is not always older people tend to have higher levels of uric acid (Sustrani dkk, 1998 dalam Saryono *et al*, 2009).

In this case the insignificance of the study may be more influenced by other factors besides age and metabolism that are not examined by researchers, such as stress, family history, hypertension, glucose intake, vitamin C intake and others. Then because of the sampling the researchers had matched the age between the case group (hyperuricemia) and the control group (not hyperuricemia)

2. Gender with Hyperuricemia

The results of the analysis showed that there was no significant relationship between gender and the incidence of hyperuricemia in the elderly at the integrated development post (posbindu) of the Puskesmas Nusa Indah working area in 2018. In line with this research, a study conducted by Abiyoga (2017) also states that there is no relationship between the type and incidence of gout in the elderly in the 2014 Situraja Community Health Center working area. Theory according to Fiskha (2010) which states that Hyperuricemia is more experienced by men compared to women because men have higher uric acid levels than women, related to the hormone estrogen. The role of this estrogen hormone helps remove uric acid through urine. Men do not have a high estrogen hormone, so uric acid is difficult to be excreted through urine, and can cause a higher risk of uric acid levels in men ⁷.

In women uric acid levels increase after menopause because estrogen helps increase excretion of uric acid through the kidneys. After menopause uric acid levels increase as in men (Lina, 2014). Age > 50 years usually begins to experience an increase in uric acid levels that occur due to decreased kidney function in the process of excretion of metabolic waste in the body which is characterized by high levels of urea and creatinine. In this study there was no kidney disorder in the respondents so it also affected the uric acid levels of the respondents.

Sampling using a case design (hyperuricemia) and control (not hyperuricemia) with matching the respondents in the case group (hyperuricemia) and in the control group (not hyperuricemia) equal number.

3. Relationship between Obesity and Hyperuricemia

The results of the analysis showed no significant relationship between obesity and hyperuricemia. Some of the respondents were at risk, including the case group, and most of the respondents included the control group. This shows that the number of respondents both with hyperuricemia and not hyperuricemia is almost the same between those who are at risk and not at risk for the incidence of hyperuricemia. Sacher (2004) suggested that uric acid is the final metabolism of purines. Purine turnover in the body occurs continuously along with the synthesis and decomposition of RNA and DNA, so that even if there is no purine intake, substantial amounts of uric acid are still formed (Sacher, 2004 dalam Lina, 2014).

This research is in line with the research conducted by Lina (2014) which suggested that there was no relationship between obesity and the incidence of hyperuricemia in lecturers and education ⁸ at Siliwangi University. This research is also in line with the research conducted

by Abiyoga (2017) which also states that there is no correlation between obesity and gout in the elderly in the work area of Situraja Health Center 2014.

Risk respondents (obesity) with hyperuricemia are also influenced by other factors such as high BMI but low muscle mass has a significant effect on increasing levels of uric acid. High carbohydrate intake can increase glycemia or triglyceride and this may be related to increased uric acid (Erick, 2013 in Lina, 2014).

4. Relationship of Purine Consumption with Hyperuricemia Events

The results of the analysis showed a significant relationship between consumption of purine and hyperuricemia. Elderly with purine consumption category at risk (> 500 mg / day) at risk of experiencing hyperuricemia as much as 18.1 times compared to elderly with purine consumption category not at risk (≤ 500 mg / day). In the case group had a habit of consuming purine > 500 mg / day which increased the risk for hyperuricemia. According to Krisnatuti, foods high in purine content can increase blood urate levels between 0.5 - 0.75 g / ml of purine consumed⁹.

Consumption of purine in normal food for a day is recommended <500 mg / day. Foods that contain high purine levels are internal organs of animals, including kidneys, liver, poultry skin, sardines, etc.

¹⁰. In men who eat meat either beef or goat can increase the risk of uric acid 21%. But high purine foods from plant sources such as legumes do not increase risk factors¹¹.

The results of this study are in line with the theory that consuming foods high in purines can increase uric acid levels. Foods that contain purine will be

converted to gout¹². In line with the results of research conducted by Diantari and Aryu (2013) shows that there is a significant relationship between the

consumption of food sources of purine with uric acid levels of women aged 50-60 tahundi Gajah Mungkur District, Semarang. Respondents who consume foods high in purines have a risk of

3,122 times than those who rarely consume food purine sources. Foods high in purine sources will be converted into gout.

5. Relation of Protein Consumption to Hyperuricemia

Statistical test results showed a significant relationship between protein consumption and the incidence of hyperuricemia. Elderly people with protein consumption at a risk of 20.8 times more at risk of developing hyperuricemia compared to elderly with a category of protein consumption is not at risk. Food sources of protein consumed by respondents during interviews were tuna, snapper, tilapia, goldfish, chicken meat (100 grams / day), beef, eggs, milk (1-2 cups / day), cheese

, tofu (300 grams / day), tempeh (75 grams / day) and green bean porridge. Intake of animal protein, especially meat and seafood, has a greater role in increasing the risk of hyperuricemia. Food sources of animal protein have high purine content that can increase uric acid levels in urine by 0.5-7.5 g / ml¹³.

Increased uric acid production can also be caused by the intake of foods rich in protein and purines or excessive nucleic acids such as innards, seafood, thick broth, etc. and the results of the breakdown of cells damaged by certain drugs¹⁴. The study was conducted in the city of Batu, Malang in 2011 which showed the influence of high intake of animal protein at risk of gout. The results showed that the higher protein intake, especially animal protein, the higher blood uric acid levels¹⁵

6. Liquid Consumption Relationship with Hyperuricemia Events

The results showed no relationship between fluid consumption and the incidence of hyperuricemia. The results of this study are in line with the research obtained by researchers conducted by Diantari & Aryu (2013) regarding the effect of purine and fluid intake on uric acid levels of women aged 50-60 years in Gajah Mungkur Subdistrict, Semarang stating that there was no correlation between fluid consumption and uric acid levels obtained $p\text{-value} = 0.884$.

This study did not measure processing for food, and was prepared, only nailed to portion sizes. There are limitations on fluid intake including intake extracted from the sample only from the liquid taken (water, coffee, tea, milk, juice, syrup, soft drinks and others). While liquids from food and food ingredients such as vegetables and fruits are not taken.

IV. CONCLUSION

Based on the research conducted on the factors related to the incidence of hyperuricemia in the elderly at the integrated coaching post (posbindu) in the Nusa Indah Puskesmas working area in 2018, it can be concluded that: The prevalence of hyperuricemia based on measurements in Posbindu Puskesmas Nusa Indah's working area shows that almost all respondents entered the age category of the early elderly. The prevalence of some of the respondents is female. Some of the respondents with nutritional status of obesity are at risk ($BMI \geq 25 \text{ kg} / \text{m}^2$). Food consumption category of purine sources is almost part of respondents with purine consumption at risk. While the consumption of food ingredients protein sources some of the respondents with protein consumption are at risk, and half of respondents with consumption of fluids are at risk. There was a significant correlation between purine consumption and protein

consumption with the incidence of hyperuricemia in the elderly, and there was no significant relationship between age, sex, obesity and fluid consumption with the incidence of hyperuricemia in the elderly at the integrated development post (posbindu) of the Puskesmas Nusa Indah working area in 2018 .

It is recommended to the Puskesmas to be able to create a program that can foster the elderly so that they can maintain conditions and avoid hyperuricemia. Elderly patients with hyperuricemia (gouty) can reduce the consumption of food sources of purine and protein, especially seafood, offal, meat, chicken skin, salted fish, canned sardines, spinach, kale, tofu, tempeh, and broth, to reduce uric acid levels.

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THE DIFFERENCES BETWEEN INTAKE OF ENERGY AND PROTEIN TOWARD THE PATIENT OF CHRONIC KIDNEY DISEASE WHO UNDERGO THE HEMODIALYSIS AFTER PROVIDED BY DIET EDUCATION IN HEMODIALISARDUD ROOM OF DR. M YUNUS HOSPITAL BENGKULU

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Abstract — Renal failure requiring intake the energy and protein that were great. The inadequate intake would worsen kidney function and would result in nausea, vomiting and increased levels of blood urea that ended in death. The design used was quasi experiment. The research subjects the patient with CKD who undergo hemodialysis therapy in hemodialysis room in Dr. M. Yunus hospital Bengkulu, the period from September to February 2018. The total sample was 38 collected using simple random sampling method. Data intake of energy and protein obtained by 24-hour recall method of Nutrition survey. dietary education was done 3 times in 2 weeks. The analysis used an independent t test, the mean energy intake of 1631 kcal intervention group 1272kcal control group with p-value 0.022 and the mean protein intake of 57 grams of the intervention in the control group 41 grams with p- value 0.001. There were differences between the mean intake of energy and protein after a given educational diet. Educational diet could increase the average intake of energy and protein

Keywords —Education, Diet, Energy, Protein, Chronic Kidney Disease

I. INTRODUCTION

End-stage chronic renal failure is recognized as a global public health problem. Chronic kidney disease (CKD) is

often described as a "silent killer" in medicine because this pathology is rarely symptomatic until the glomerular filtration rate is greatly reduced (Hans, 2016).

Kidney failure can affect the entire body, if left untreated it can be life-threatening (Wang, 2017)

Native Americans are about 1.8 times more likely to be diagnosed with kidney failure. The National Center for Chronic Disease Prevention and Health Promotion (2014) reported the prevalence of patients with chronic renal failure in the United States in 2011 amounting to around 20 million people and almost half needed hemodialysis services (Hidayati, 2017). There are 16 million adults in the United States suffered from CKD at risk of facing cardiovascular disease and death. (Krishnamurthy, 2012)

WHO (World Health Organization) interprets that indonesia will increase the of kidney failure between 1995-2025 by 41.4%. Indonesia is one of the countries with high rates of chronic kidney. Data from ASKES in 2010 recorded about 17,507 patients. in 2011, there were about 23,261 and the latest data in 2013 were 24,141 patients (Namawi & Wulandari, 2017). Based on data from the Basic Health Research (Riskesdas) in 2013 the prevalence of chronic renal failure in Indonesia was around 0.2%.

Patients who undergo hemodialysis therapy do not pay much attention to the diet food every day. Insufficient of energy and too high protein can be worse to

kidney function (Chen, 2017). Patients undergoing hemodialysis need a lot of energy during dialysis and protein intake plays an important role in the nutritional control of patients with chronic renal failure. Excess and accumulation of protein catabolism can cause symptoms of uremic syndrome.

Patients with kidney failure through hemodialysis experience a lack of energy and protein around 18-75%. Short-term consequences for the patient will have not long- term life/death (Jadeja, 2012). The results of Interviews from 10 people on patients with chronic renal failure in the hemodialysis room of RSUD M. Yunus Bengkulu found that 90% of patients did not understand how to set a good diet, they ate without regulating and paying attention to the diet. Problems found in RSUD M Yunus, patients with chronic renal failure with hemodialysis do not have a structured dietary guide.

II. RESEARCH METHOD

This research is a quasi-experimental study (quasi experiment) with a pretest-posttest with control group design to see the average energy and protein intake in patients with chronic renal failure

III. RESULT

undergoing hemodialysis in the hemodialysis room of RSUD M. Yunus Bengkulu. The number of samples is 38 people with simple random sampling technique.

The inclusion criteria used were age ≤ 65 years, had undergone HD > 1 month, education level was at least junior high school, cooperative, conscious and communicating verbally; and able to read and write. Exclusion criteria were hemodialysis patients suffering from HIV / AIDS comorbidities, hypotension, vomiting, diarrhea and anorexia.

Energy and protein intake were obtained by the method of eating consumption using a 24-hour recall questionnaire conducted 3 times for ± 2 weeks to determine the amount of energy and protein intake of patients using the Nutrition Survey Application. The data is then tested in univariate and bivariate ways. Data on energy and protein intake were tested for skewness normality divided by error standards. Bivariate analysis using paired t test or alternative test, namely Wilcoxon test. As well as using the independent t- test or alternative test, the Mann Whitney test.

Table 1
Characteristics of Respondents Based on Age, Gender, Long Term Hemodialysis Long Suffered from CKD, Education and Body Mass Index in Hemodialisardud room of Dr. M. Yunus Bengkulu

Characteristics	Intervention (n=34)	Control (n=34)	P Value
Age			
Mean	48,84th	48,37	
Median	50	52	
SD	7,660	10,150	
Min-Maks	32-61	29-62	0,874
CI for Mean 95%	45,21- 52,31	43,58 – 52,89	
Gender			
Boys	6 (31,6%)	6(31,6%)	1,000
Girls	13 (68,4%)	13 (68,4%)	

Long term Hemodialysis			
Mean	54,05 bln	36 bln	0,133
Median	55 bln	36 bln	
SD	34,126 bln	24,226	
Min-Maks	6-120 bln	4-96 bln	
CI for Mean 95%	37,06 – 70,50	24,32 – 47,68	
Long Suffered from CKD			
Mean	46, 16 bln	32,42 bln	0,069
Median	36 bln	24,00 bln	
SD	31, 410	22,833	
Min-Maks	3- 108 bln	4-72 bln	
CI for Mean 95%	31-61 bln	4-72 bln	
Education			0,925
Junior High School	6 (31,6%)	7 (36,8%)	
Senior High School	6 (31,6%)	6 (31,6%)	
College	7 (36,8%)	6 (31,6%)	
Body Mass Index			
Thin			
Normal	13 (68%)	13 (68%)	1,000
Fat	6 (31,6%)	6 (31,6%)	

Table 1 has been tested for homogeneity with the results of all homogeneous data. The mean age of suffering from chronic renal failure was 48.84 years in the intervention group and in the control group aged 48 years. The sex in the intervention group and the control group occurred in males with 68.4%. Patients with chronic renal failure who underwent hemodialysis were averaging 54 months in the intervention group and in the mean control group patients who had long

been on hemodialysis for 36 months. The mean of patients with chronic renal failure suffered 46 months of kidney failure in the intervention group and in the highest control group at 32 months. The highest education in the intervention group was 36.8% while in the highest control group was 36.8%. The highest body mass index in the group intervention is ideal body weight (normal) 63.2% while body mass index in the control group is ideal body weight (normal) 68.4%

Table 2
The Difference in Average Energy Intake in Hemodialisar Room
Dr.M Hospital Yunus Bengkulu in 2017/2018

Anxiety	Intervention Group			Control Group		
	(n=19)			(n=19)		
	Mean	SD	P value	Mean	SD	P value
Before	1159	254		1331	485	
			0,000			0,421
After	1631	246		1271	596	

Table 2 shows the average energy in the intervention group before being given education was 1159.26 kcal while in the

average energy control group before being given education was 1330.77 kcal. the average protein in the intervention group

after being given education was 62.18 grams. Whereas in the control group the average protein before being given education was 50.31 grams. There is a

difference in the average education of diet before and after energy intake in the intervention group ($p = 0.001$)

Table 3
The Difference in Average Protein Intake in Hemodialisardud Room of Dr.M Yunus Hospital Bengkulu in 2017/2018

Anxiety	Intervention Group			Control Group		
	(n=19)			(n=19)		
	Mean	SD	P value	Mean	SD	P value
Before	46	13		47	19	
			0.028			0.159
After	57	8.25		41	13.85	

Table 3 shows the average protein in the intervention group before being given education was 46 grams while in the control group the average protein before being given education was 47 grams. The mean protein in the intervention group after being given education was 62.18

grams. Whereas in the control group the average protein before being given education was 50.31 grams. There are differences in the average education of diet before and after protein intake in the intervention group ($p = 0.028$).

Table 4
The Differences Education Dietary of Energy Intake after between The Intervention Group and The Control Group in the Hemodialisardud Room of Dr.M. Yunus Bengkulu in 2018

Group (n=38)	Energy				
	Mean	SD	Mean Dieffrence	95 % CI	P value
Intervention	1631	246	359	61-658	0,022
Control	28,7353	3,396		56-663	

In table 4 the results of the analysis of the value of $p = 0.022 < 0.05$, H_0 was rejected so it can be concluded that there is a there

is a difference in average energy after being given diet

Table 5
The Differences Education Dietary of Protein Intake after between The Intervention Group and The Control Group in Hemodialisardud Room of Dr. M. Yunus Bengkulu in 2018

Group (n=38)	Energy				
	Mean	SD	Mean Dieffrence	95 % CI	P value
Intervention	57	8,4	16	8,4 -23	0.000
Control	41	13		8,4-23	

In table 5 the results of the analysis of the value of $p = 0.000 < 0.05$, H_0 was rejected so it can be concluded that there is a difference in average energy after being given diet

IV. DISCUSSION

1. *Characteristics of research respondents in Hemodialysis room of Dr. RSUD M Yunus Bengkulu*

The results showed that the average age under hemodialysis in the intervention group was 49 years while in the control group for 48 years. The results of Mahrul Azam's research on Factors associated with chronic kidney disease among patients with hypertension in Indonesia statistical tests showed a significant relationship between age (categories 45-55 years and 55-64 years) with the incidence of kidney failure. Bachelor or diploma is the last level of education that was occupied by most of the subjects in the intervention group as many as 7 people (36.8%) while in the control group 7 people (36.8%) had the most junior high school education. This is in line with the results of Mahrul Azam's research on Factors associated with chronic kidney disease among patients with hypertension in Indonesia shows no significant relationship between the level of education and the incidence of chronic kidney disease.

The average length underwent hemodialysis at 46 months in the intervention group while in the control group for 32 months. According to Mayuda's research, 2017 states there is no long-standing relationship with hemodialysis with a quality of life in patients with chronic renal failure undergoing hemodialysis. This is in line with Gutman's research in mayunda that the quality of life of patients with chronic renal failure is not affected by the duration of

hemodialysis due to the adaptation of patients to hemodialysis therapy that is carried out both psychologically and physically. The average length of suffering from kidney failure 54 months in the intervention group while in the 36-month control group according to the average survey of patients with renal failure when diagnosed with chronic renal failure immediately carried out hemodialysis. The majority of BMI subjects in the normal range were 12 (63%) in the intervention group while in the control group 13 (68.4%).

2. *The difference in average energy intake in hemodialysis room Dr. M. Yunus Hospital Tahun 2017/2018*

The results of this study showed that on average patients undergoing hemodialysis in the hemodialysis room of RSUD M. Yunus experienced a lack of energy before diet education was conducted. Patient knowledge increases and energy intake increases and can be controlled properly (p -value 0.001). in the journal, Jadeja 2012 shows that Studies on dialysis patients, we found only one study assessing the efficacy of nutritional education compared with oral supplementation. In that series, malnutrition was diagnosed by albumin values < 3.5 g/dL and found that the number of malnourished patients fell significantly from 57.4% to 31.3%

3. *The difference in average protein intake in hemodialysis room of Dr. M. Yunus Hospital tahun 2017/2018*

There are differences in the average education of diet before and after protein intake in the intervention group ($p = 0.028$). According to Ahmad Syauqy, 2014 Food intake of patient with chronic kidney disease (CKD) tend to be low. One factor that food intake of energy, protein, phosphorus, and potassium with regular hemodialysis in RSUD Tugurejo Semarang. The result shows nutritional

knowledge have correlation with protein intake

4. *Effect of diet education on energy and protein intake after diet education in hemodialisardud room of Dr. M. Yunus Hospital tahun 2017/2018*

After concluding the effect of diet education on energy and protein intake after intergroup. That has difference in the average energy and protein intake after inter intervention group in patients with chronic renal failure undergoing hemodialysis in the hemodialysis room. The results of a study on Improve Phosphate Dietitian- Led Education Program Control in a Single-Center Hemodialysis Population, 2009 concluded that the education provided was very effective in increasing knowledge in patients undergoing hemodialysis. besides the results of another study on Assessment and Effects of Therapeutic Patient Education for patients in hemodialysis: A systematic review showed that education in dialysis programs became more and more efficient with a prevalence of assessment based on physiological results

IV. CONCLUSION

Educational diet could increase the average intake of energy and protein in hemodialisardud room of RSUD Dr. M. Yunus Hospital Bengkulu 2017/2018

ACKNOWLEDGMENT

This diet education shows excellent results in knowledge about energy and protein intake in patients undergoing hemodialysis. patients can make a diary about the diet chronic renal failure undergoing hemodialysis, they can improve dietary practices with nutritionists and nurses make structured guidelines and also explain the adverse effects if there is a deficiency / excess diet in patients with chronic renal failure

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EXPERIENCE AND PSYCHOLOGICAL ANALYSIS IN FEMALE PATIENTS WITH CHRONIC KIDNEY FAILURE WHO UNDERWENT HEMODIALYSIS IN DR. M. YUNUS HOSPITAL OF BENGKULU

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Abstract— Chronic renal failure is an irreversible decrease in irreversible kidney function. The population of renal failure in Indonesia is increasing from year to year. The most common condition of psychological disorders in patients with renal failure who undergo hemodialysis is depression or stress and the condition is more prevalent in female patients. This study aims to determine the psychological condition of female patients with chronic renal failure who underwent hemodialysis in Dr. M. Yunus Hospital of Bengkulu in 2017. The research design used is a qualitative with descriptive approach. The method of selecting informants in this study using the technique of "purposive sampling" as many as 5 people. Data collection using in-depth interview techniques. The results showed that in the knowledge aspect, the whole informant had good knowledge of renal failure and hemodialysis which included the definition, the symptoms, the cause, the process and the importance of hemodialysis. In the handling aspect, the whole informant knows the process of hemodialysis. psychological respondents are quite well characterized by the

minimum level of stress and depression in nature because the respondents have the support of family and husband is good. In conducting hemodialysis in chronic renal failure patients, hospitals should employ effective coping mechanisms to minimize the psychological impact, especially stress on patients with chronic renal failure.

Keywords— Chronic kidney failure, female patients, hemodialysis.

I. INTRODUCTION

Changing patterns unnoticed to contribute to epidemiology, with more cases of non-communicable diseases. According to WHO (World Health Organization), in 2005 the current and chaos in the world caused by non-communicable diseases amounted to 47% morbidity and 54% of deaths, and is expected by 2020, this freedom will change to 60% and proportion to 73% non-infectious frameworks are also increasing. One of the non-communicable diseases that are also impaired is Chronic Kidney Failure (GGK) (Bustan, 2015)

Chronic renal failure is a decrease in irreversible progressive kidney function when the kidneys are unable to maintain the metabolic, fluid, and electrolyte balance that causes uremia and azotemia (Bayhakki, 2012). The United States Renal Data System (USRDS) notes that the number of patients treated for end stage renal disease (ERDS) or chronic global renal failure is estimated to be 3.010,000 in 2012 with a growth rate of 7% (ESRD, 2012).

The population of renal failure of Indonesia is increasing from year after year. Based on data released by PT. Askes, in 2009 the number of patients with chronic renal failure as much as 70,000 people ago in 2010 the number of patients with chronic renal failure decreased to 17,507 people and increased again in 2011 around 5,000 people to 22,507 people. In 2011 to 2012 there was an increase in 24,141 people (Nawawi, 2013).

The prevalence of hemodialysis in the United States continues to increase, which is about 320,000 people later in 2010 rose to 650,000 people. In Indonesia, the number of patients is estimated to be 60,000 people with an increase in 4400 new patients each year. In 2000, the number of hemodialysis patients in Indonesia was about 3000 people and in 2007 rose to 10,000 people (Kresnawan, 2007).

Treatment procedures are widely used in patients with renal failure ie hemodialysis. Hemodialysis is a therapy used to replace damaged kidney function, this therapy aims to take nitrogen substances that are toxic to the blood and excessive water. The dosage of hemodialysis given is generally 2 times a week with each hemodialysis for 5 hours or 3 times a week with each hemodialysis for 4 hours (Iskandar, 2011).

Many problems arise as a result of chronic renal failure of hemodialysis therapy, including physical, psychological, social and family relationships. All of this will affect the quality of life of the patient

(Hatthalit, 2012). The most common condition of psychiatric disorders found in patients with renal failure is depression or stress and the condition is more prevalent in female patients. The prevalence of severe depression in the general population is about 1.1 - 15% in males and 1.8 to 23% in females. However, in hemodialysis patients, the prevalence is about 20-30%, even up to 47% (Andri, 2015).

The psychological condition of renal failure patients according to Tezel (2011), patients undergoing hemodialysis tend to have problems controlling their daily and social activities, such as loss of freedom, early retirement, financial problems, family life disorders, self-image changes, and self-esteem low. This psychological condition is also reinforced by Gerogianni's research (2014), which states that the psychological effects of hemodialysis are depression, disease rejection, anxiety, low self-esteem, social isolation, negative perceptions of the body image, fear of disability and death, loss work, financial difficulties.

In patients with renal failure women undergoing hemodialysis therapy experience depression, low self-esteem, feel weak which results in decreased sexual activity. Decreased hormone progesterone, nerves, energy levels due to hemodialysis therapy resulted in female sexuality passion decreased. In married female patients, decreased sexuality passion makes married female patients often refuse to be invited by their husbands. The rejection made the female patient's guilt against her husband for not being able to perform her duty properly and creating a new depression feeling of being "abandoned" by her husband remarriage (Siti, 2016).

Another problem that arises from female patients undergoing hemodialysis therapy is its role as a mother to her children. Reduced energy, a weak state makes the patient less than the maximum in taking care of his children and not infrequently the patient entrusted one of

his children to the neighbor when the patient was undergoing hospitalization or therapy in hospital (KCPDI, 2015).

Bengkulu has 4 hospitals that operate namely Rafflesia Hospital, DKT, Municipal Hospital and Regional General Hospital (RSUD). M.Yunus Bengkulu. RSUD Dr. M.Yunus Bengkulu is designated as the largest hospital and the highest referral hospital in Bengkulu province. This is based on the Director of RSUD Dr. M.Yunus Bengkulu Number 821/11306 / SK / UM.4 dated January 2, 2004 regarding job description of structural and functional/ installation officials in RSUD Dr. M.Yunus Bengkulu (Profile of RSUD Dr. M.Yunus Bengkulu, 2010).

Medical reports records data RSUD Dr. M.Yunus is known that the number of patients with kidney failure that experience therapy each year has increased. By 2014 the number of chronic renal failure patients undergoing hemodialysis is 260 people and 22% (90 people) are female, by 2015 930 people and 11.7% (109 people) are female, 2016 is 1102 and 31,1% of them (343) were female, and the number of CPR patients in 2017 from January to August was 1,498 people and 42.3% (644 people) were women (M.Yunus Medical Record, 2017).

Based on preliminary study on 22-23 September 2017 at hemodialysis Room Dr. M. Yunus Bengkulu, from the results of interviews on female patients with chronic renal failure found 12 female patients who were undergoing hemodialysis therapy found 5 female patients should undergo hemodialysis > 3 times / week of therapy said severe stress because they feel tired physically and mentally and stress thinking about the financial condition for medical expenses and other life, other than that the patient felt the relationship with her husband away due to fatigue due to illness suffered and low feeling of self-esteem.

While 7 other patients routinely run hemodialysis with the frequency of 2 times / week said having trouble sleeping

because always thinking about the disease, the body feels weaker, and feel bored because of routine continuously run hemodialysis therapy, feeling useless because it cannot work anymore, the diet is done causing lifestyle patterns to change, the patient feels no longer able to enjoy his life.

The existence of psychological problems experienced by the patient indicates that the situation of chronic renal failure that requires the patient depends on hemodialysis therapy, is a stressful condition and cause symptoms of stress. Based on the phenomenon, the researcher is interested to conduct research about the experience and psychological analysis in female patients with chronic renal failure who underwent hemodialysis in RSUD Dr. M. Yunus Bengkulu.

The general purpose of this study were to determine the experience and psychological condition of female patients with chronic renal failure who underwent hemodialysis in RSUD Dr. M. Yunus Bengkulu.

II. METHODS

RESEARCH DESIGN AND SETTING

This research uses qualitative research method of descriptive approach. The qualitative research method is a research approach that reveals a particular social situation by correctly describing reality, data formed by words based on relevant data collection and analysis techniques obtained from natural situations (Satori, 2013). Descriptive approach is a method of research conducted with the main purpose to create a picture or description of a situation objectively (Notoatmojo, 2012). In this study, researchers wanted to see the psychological response to patients with renal failure that experience hemodialysis that has been conducted in Dr. M.Yunus Hospital of Bengkulu.

DATA COLLECTION PROCEDURE

In this study, researchers only use primary data. Primary data is data obtained directly from respondents by conducting interviews for informants about the psychological patients due to hemodialysis. The method that researchers use of collecting data onto this study is in-depth interview technique is the technique of data collection by asking some psychological questions directly in patients with chronic renal failure that underwent hemodialysis in Dr. M.Yunus Hospital of Bengkulu who used as informant research.

III. RESULTS

PERCEPTION OF INFORMANTS ABOUT CHRONIC KIDNEY FAILURE *Understanding Chronic Kidney Failure*

The results showed that the five informants in this study were female patients with chronic renal failure that underwent hemodialysis therapy in Dr. M.Yunus Hospital of Bengkulu understands about his illness. This can be seen from the following in-depth interview quotes:

Mrs. R *"Hmmm .. in my opinion, the chronic kidney failure is a damaged kidney and must be washed"*

Mrs. M *"I don't know ... that I know kidney failure is a deadly disease sis.*

Why can I kill you? "Yes, because the kidney is damaged, no longer functioning"

Mrs. H *"To my knowledge, kidney failure was damaged kidney does not work anymore"*

Mrs. S *"Kidney failure is yes his kidneys is damaged"*

Mrs.J *"Kidney failure is a ruined kidney"*

Etiology of Chronic Kidney Failure

Based on the results of the interview is known that chronic kidney failure disease

experienced by informants caused by diabetes mellitus and uncontrolled hypertension, diabetes and taking medicine. This can be seen from the following interview quotes.

Mrs. R *"Mother tu people cannot bear the pain, so if a little pain directly taking medicine, headache, pain during menstruation must be the mother immediately took the medicine. Like painkillers, usually mothers drinking bodrex, antalgin. So according to mother of mother's kidney failure caused by drug? Yes. but mothers also have high blood because, mother tide implants plague. The word doctor can cause kidney failure "*

Mrs. M *"Yes because diabetes sis, diabetes I've had diabetes for a long time"*

Mrs. H *"Drugs, I was wrong with the same doctor diagnosis. Initially I was diagnosed with gallstones, I read abaca on the internet there is an apple diet of gallstones, so I try. I had an apple diet similar to olive oil mixed with English salt. But it's true I check again the stone has shrunk, I continue the apple dieted it. At that time, I read in English salt should not be used by patients with kidney failure. Yes, doctor did not say I got kidney, yes, I think it's safe. Until my pain got worse, but the gallstones were already shrinking. If the doctor said, I maag chronic same tipes. Until I saturated my treatment but no change. Finally, my husband and I decided to go to Jakarta. Well Jakarta doctors immediately know if I have kidney failure and should be in the dialysis. The doctor said in Jakarta the cause of my kidneys failure because my kidneys have been poisoned medicine "*

Mrs. S *"Because high blood mother, has long"*

Mrs. J *"The doctor said because of the same high blood diabetes that is.."*

Disease History Before Chronic Kidney Failure

History of the disease is some of the diseases that have suffered before experiencing chronic renal failure. From the results of the interview note that patients with chronic renal failure that undergo hemodialysis have a history of previous diseases such as hypertension, diabetes, diabetes. This can be seen from the following interview quotes.

Mrs. R *"Yes mother hit by high blood because mother implanted tide"*

Mrs. M *"I've longed got the diabetes is sis"*

Mrs. H *"Yes that was the first time I got gallstones ... the same as high blood"*

Mrs. S *"Yeah, mother got high blood sis"*

Mrs. J *"It's complicated there heart, diabetes is high blood"*

Chronic Kidney Failure Symptoms

Based on the research results obtained information that the symptoms experienced by patients mostly are dizziness, nausea, the body feels weak and lethargic but there is also a back-stomach pain to the back. This can be seen from the following interview quotes.

Mrs. R *"Pain, dry skin, spasms, skinny bones, just like the malnutrition".*

Mrs. M *"Back pain, swelling, often lower back abdominal pain".*

Mrs. H *"Pain, weakness, black Chapter, HB often drops to 5.4"*

Mrs. S *"Sore pain, nausea sometimes until vomiting, mother's body tu weak.*

Mrs. J *"Likes lumbago, limp, swollen as crowded"*

Knowledge about Stages of Chronic Kidney Failure

Before entering the stage of chronic renal failure, there are several stages passed by the patient, but sometimes they do not realize. Patients suddenly directly convicted of chronic renal failure. Based on the results of the interview is known most of the respondents do not know stadium-stadium kidney failure. This can be seen from the following interview quotes.

Mrs. R *"Well ... I don't know mothers how stadium kidneys failure"*

Mrs. M *"Did not know me, I know I got chronic kidney failure pas checked in the hospital and continue direct dialysis"*

Mrs. H *"I don't know. because from the beginning doctor was wrong diagnosis"*

Mrs. S *"Doesn't know me."*

Mrs. J *"Well I do not know about that"*

How to Overcome Chronic Kidney Failure

Management of chronic renal failure consists of diet management, drugs, CAPD and hemodialysis. Based on the results of the interviews known that the overall informant answered that in overcoming chronic kidney failure is by way of dialysis (hemodialysis) and limit excessive drinking. This can be seen from the following interview quotes.

Mrs. R *"Yes dialysis is the medicine again and can not drink much"*

Mrs. M *"Yes dialled the blood, drink cannot be much and no a lot of mind"*

Mrs. H *"Wash blood.... drink is limited"*

Mrs. S *"Wash blood as drink is limited"*

Mrs. J *"Wash blood cannot drink much"*

HEMODIALYSIS

Understanding Hemodialysis

In this study, researchers also conducted interviews for informants about hemodialysis. It aims to find out how much knowledge of informants to hemodialysis which ultimately have implications on the psychological informants that female patients with chronic renal failure who underwent hemodialysis.

Hemodialysis is one technique of treatment of chronic renal failure by throwing away the rest of the metabolism that can be toxic to the body and get rid of excess fluid. Based on the results of the research note that the informant interpreted hemodialysis is a blood dial that serves to remove or remove toxins in the body. This can be seen from the following interview quotes.

Mrs. R *"Yes ... wash the blood to get rid of toxins in the body"*

Mrs. M *"Hemodialysis in my opinion ... Yes. Rinse the blood to remove the same poison in my body fluids sis."*

Mrs. H *"Wash the blood to replace my already damaged kidney function, to dispose of fluids in the body."*

Mrs. S *"Wash blood yes to dispose of the same toxic liquids in the body"*

Mrs. J *"Wash that blood yes to throw the same liquid poison-poison in my body."*

Reason of Informant Should Be Hemodialysis

Based on the results of the study also known that, hemodialysis treatment means very important for patients with chronic renal failure. This can be seen from the following interview.

Mrs. R *"If not done dialysis, later the poison added a lot of fluid accumulate"*

Mrs. M *"Yes if I do not wash the blood, my body will explode because it has swollen all"*

Mrs. H *"Yes it should be, otherwise my body is swollen especially my legs. But I am still grateful uma my legs are swollen, sometimes people tu stacked in the stomach fluid heart lung until all submerged. "*

Mrs. S *"Yes to remove the fluid in the body of the mother let it not swell"*.

Mrs.J *"Yes had to wash the blood, if not later added more poison. I cannot breath anymore because of the tightness".*

Working Principles of Hemodialysis

The working principle of hemodialysis is to remove most of the excess body fluids in the blood by the process of dialysis. Based on interviews it is known that most informants do not know how hemodialysis works. This can be seen from the quotation of this interview.

Mrs. R *"Does not know mom .."*

Mrs. M *"Does not know sis .."*

Mrs. H *"I don't know about the working principle of hemodialysis .."*

Mrs. S *"Wow I don't know "*

Mrs. J *"I don't know .."*

Knowledge of Informants Against Hemodialysis Process

In this study it is known that in undergoing hemodialysis process, the patient knows how the process of hemodialysis. This can be seen from the following interview quotes.

Mrs. R *"Come...weigh wet weight doing blood pressure...then wait about fifteen minutes. After the sterile machine, then stabbed in the connect ... already waiting until 4.5 to 5*

hours, already to weighed dry weight and in the tension again"

Mrs. M *"Come tension first, then weigh weight, stabbed a needle ... wait until 5 hours ... when it is finished weighed again and at the tension again"*

Mrs. H *"Come, weigh the weight before blood pressure... then the needle is pierced and connected to the hemodialysis machine. for five hours, when it is finished weight is weighed again and in tension again"*

Mrs. S *"I came to the hospital then my weight and my tension measured keep the dial for 5 hours .. after that my weight and my tension are weighed again."*

Mrs.J *"I came to the hospital then weigh the weight and my tension measured then just wash the blood for 5 hours, after that weighed and my tension weight again."*

Hemodialysis Frequency

Based on the results of the interview is known that patients with kidney failure I made the informant undergoing hemodialysis therapy as much as twice a week with the schedule Monday afternoon and Thursday morning. This can be seen from the following interview quotes.

Mrs. R *"twice a week ... Monday afternoon and Thursday morning"*

Mrs. M *" twice a week sis ... Monday noon and Thursday morning"*

Mrs. H *" twice a week, Monday afternoon the same morning"*

Mrs. S *" twice a week. Monday and Thursday morning sis"*

Mrs.J *" twice a week, Monday afternoon and Thursday morning"*

Long Informant Underwent Hemodialysis

In this study, long informants undergoing hemodialysis within a variety of times, there are a new one year and there are already 5 years, but on average two to three years. This can be seen from the following interview.

Mrs. R *"1 year"*

Mrs. M *"It's was six years"*

Mrs. H *"This April is two years"*

Mrs. S *"has been 2.5 years, almost three years"*

Mrs. J *"It's was five years"*

Benefits of Hemodialysis

Based on the results of research known that hemodialysis treatment provides many benefits of the life of patients with chronic renal failure. This can be seen from the following interview quotes.

Mrs. R *"Yeah ... if the body used to feel weak, not appetite ... but now have the appetite can move again"*

Mrs. M *"Wah..much really sis, there are an appetite, can walk, can enjoy life even though not kayak first"*

Mrs. H *"Lots really ... since the dialysis, I have started appetite, the body feels fresher ... be able to move again"*

Mrs. S *"A lot of.... first the mother's body limp, not appetite ... if now it's fresher, eat already to want"*

Mrs. J *"Yes it's not tight enough anymore, better is"*

Weakness for Hemodialysis Therapy

Hemodialysis therapy provides many benefits of patients with chronic renal failure, there is no weakness for hemodialysis therapy but from interview results there are slight indications of dizziness and nausea experienced by respondents when finished undergoing

hemodialysis. This can be seen from the following interview quotes.

- Mrs. R *"oh no.... most headaches, nausea, but not for long, if taken rest, sleep ... the pain disappeared"*
- Mrs. M *"No sis most just dizzy but not long"*
- Mrs. H *"Nothing ... most if after the dialysis, like a little dizzy"*
- Mrs. S *"Just dizzies"*
- Mrs. J *"Dizzy same as nausea"*

PSYCHOLOGICAL PATIENTS
CHRONIC KIDNEY FAILURE
Feelings When Diagnosis Result Revealed Chronic Kidney Failure

In this study obtained the results that psychological informants mostly in good condition. Only the occasional patient feels sadness and feelings of worthlessness. This can be seen from the results of in-depth interviews that researchers do to informants.

Based on the results of the research note that the feelings of respondents when suffering from kidney failure is sad, mixed, feel injustice in life. Respondents consider how the next life, what kind of hemodialysis process and more that the ingredients of the informant's mind. This can be seen from the following interview quotes.

- Mrs. R *"Mixed, mother thinking disease is very heavy .. why not same with others"*
- Mrs. M *"Just cried.... sad really I think if my fate pretty my mother who died of chronic renal failure"*
- Mrs. H *"Wow .. how struck by lightning well, feelings of uncertainly already close to the same death in my mind"*
- Mrs. S *"Mother can only be silent not believe and cry ... why should happen to me"*
- Mrs. J *"Sad direct feeling to drop"*

Patient Feelings While Underwent Hemodialysis

The result of the research is known how the respondent felt when hemodialysis. This can be seen from the following interview quotes.

- Mrs. R *"Fear, worry too but now in take the course ... just take the road to the hospital ..."*
- Mrs. M *"Just surrenders like what kind of important treatment I am healthy .. can gather together children and family"*
- Mrs. H *"Fear ... just let it go important healthy"*
- Mrs. S *"Fear yes worry .. mixed up is sis"*
- Mrs. J *"Anxious afraid yes ... surrender"*

Feeling Against Physical Change

Chronic renal failure gives a physical impact that can make a patient sadly inferior. This is due of the disease of renal failure undergoing hemodialysis gives physical changes of the patient such as dry skin, the body becomes emaciated, easily tired and lethargic. This can be seen from the following interview quotes.

- Mrs. R *"Sad anyway, but want to say what else the important thing healthy .. want to turn ugly let it be"*
- Mrs. M *"When I recently wash the blood ... yes sad, especially since I felt I was so hard to walk ... The important thing is still given longevity"*
- Mrs. H *"Yes sad ... physical changes my skin become dry ... reduce energy but I am grateful still healthy and given long life ... Alhamdulillah"*
- Mrs. S *"Sad yes there is, ... but how again, .. the important thing to be healthy just are grateful"*

Mrs. J *"I'm sad .. strong-just still given age until now ... Alhamdulillah"*

The Powerlessness Inflicted on the Informant

In this study, also known feeling of powerlessness felt by informants. This can be seen from the following interview quotes.

Mrs. R *"Yes ... sometimes appear feeling helpless ... useless ... but mother always remembers, mother must be healthy for mother's children still need mother"*

Mrs. M *"First yes sis because my body is very skinny ... I used my weight 65 kg ... since sickness to 35 kgs ... I used to dare to go out of the house, embarrassed ... irritable with people and feel oh no price sis ... Just confined myself in the room ... Now my body has contained back ... weight gains ... I'm so confident agains and already want to hang out with people. "*

Mrs. H *"Initially it is yes but I'm participating in a hemodialysis patient discussion forum all over Indonesia, so I can share my experience of fellow hemodialysis patients ... Anyway, I see a lot worse than me and they are strong ... it becomes my motivation."*

Mrs. S *"Yes ... sometimes the feeling that appears if I'm alone again at home but since my daughter's daughter the same grandchildren moved to the mother's house, so the feeling was lost ... especially if playing with grandchildren"*

Mrs. J *"Sometimes if it's tired, it's saturated but if you see children and grandchildren so*

arise a new spirit to continue healthy."

Role of Informant as Wife

Based on the results of the study, it is known that the informant despite suffering from chronic renal failure and had to undergo hemodialysis twice a week but his role as wife did not change. The informant keeps serving the husband well, even with the tired physical limitations unlike the old days. This can be seen from the following interview quotes.

Mrs. R *"Still as usual but not as it used to be ... have been reduced because it is not healthy anymore"*

Mrs. M *"Still as usual nothing has changed"*

Mrs. H *"Still the same ... nothing has changed"*

Mrs. S *"There is no problem ... but there is no, now it's easy tired"*

Mrs. J *"Still, but it has been reduced as before"*

Role of Informant as Housewife for Children

In this study most of the work informants only as housewives, only 1-person informants who work as civil servants. In performing his role as a housewife, the informant is still performing its role well and not change. This can be seen from the following interview quotes.

Mrs. R *"No changed ... because all the needs of the mother's children that take care of her ... her father's work"*

Mrs. M *"My children had grown up, have a family all All my children that take care of me since this pain"*

Mrs. H *"As always if you do not work anymore, holiday..clean my house ... cook for family"*

Mrs. S *"Children understand my situation ... since this sick child that takes care of me .. Thank God"*

Mrs. J *"The kids are big ... I'm not too bothered with taking care of the kids ... even now the kids are taking care of me."*

Changes in Husband's Behavior Before and After Experiencing Chronic Kidney Failure

Based on the results of the study also known the views of respondents to changes in husband's behavior or changes from relations before and after the respondent experienced chronic renal failure.

Mrs. R *"Yes ... now the mother's husband is more affectionate, more considerate and more understanding."*

Mrs. M *"Nothing has changed ... more dear husbands."*

Mrs. H *"oh no ... my husband is dearer since I was sick"*

Mrs. S *"Nothing, our relationship is fine ... as usual"*

Mrs. J *"Nothing has changed ... my husband's always love me"*

Feelings of Informants about Fascination Reduced Before the Husband

The results of the study also known to the feelings of respondents to the attractiveness of their husbands. The informant felt his appeal was diminished in the presence of the husband because of his illness, but the informant always believed in the husband who always supported him. This can be seen from the following interview quotes.

Mrs. R *"Yeah ... at a glance there is such a thought ... but trust it with husbanding"*

Mrs. M *"There is ... but I am confident"*

Mrs. H *"There's such a feeling... but I trust my husband the same"*

Mrs. S *"Yes there first ... but yes confident"*

Mrs. J *"Yes but my dear husband and support me ... so feel no problem"*

Sexual Activity of the Informant with Husband

Sexual activity in a household is very important to maintain harmony in the household. Usually when one couple in a household is sick, sexual activity is often a problem. But not the informants in this study. Based on the results of the study note that the informant still undergoing sexual activity with her husband and never make a rejection. This can be seen from the following interview quotes.

Mrs. R *"No ... It's a wife's obligation to serve her husband"*

Mrs. M *"Still no change ... never refused because it is the duty of wife to her husband"*

Mrs. H *"No ... still as usual ... I think it's the wife's duty ... so yes have to serve the husband"*

Mrs. S *"Ordinary ... but already somewhat reduced"*

Mrs. J *"I never refused but since age we have entered the elderly ... it's rare..."*

Feelings of Fear left by Husband

Psychologically female patients with chronic renal failure that undergo hemodialysis are prone to depression, less stress and reduced self-acceptance. This is because chronic kidney failure makes significant changes in life. Body thinned, quickly feel tired, physically become unattractive to make feelings arise fear left husbands. Based on the results of the research, the five informants never felt fear left husbands. This can be seen from the following interview quotes.

Mrs. R *"Keep thinking, afraid but do not come ... believe it with husbands"*

Mrs. M *"Yes there thought but I believe my husband will not leave me"*

Mrs. H *"Ever yes always thought of it ... but my husband is dear to me ... so it's impossible to leave me"*

Mrs. S *"Think never existed ... but mother knows the nature of husband's mother ...maybe"*

Mrs. J *"There is ... but it is impossible, my husband is not the type who likes all kinds ..."*

IV. DISCUSSION

CHRONIC KIDNEY FAILURE

Based on the results of the study, it is known that the age of patients undergoing hemodialysis > 30 years. Increased age will cause changes in the physical structure and functional body. Increasing age causes a decrease in organ function.

This is in accordance with the theory put forward by Guyton (2012) said that as age increases will also be followed by a decline in kidney function. This happens mainly because at the age of more than 40 years will occur the process of loss of some nephrons. Estimates of decreased renal function by age increase per decade are about 10 ml / min / 1.73 m². Based on these estimates, if it has reached the age of the fourth decade, it can be estimated that there has been mild damage, that is with GFR values of 60-89 ml / min / 1.73 m², which means that there has been a decrease in kidney function by about 10%. As the age increases, and coupled with chronic diseases such as high blood pressure (hypertension) or diabetes, the kidneys tend to become damaged and irreversible.

Based on the results of research known that the respondents know well about chronic kidney failure disease. Respondents know the notion of chronic renal failure, its causes, signs and

symptoms and its treatment. However, respondents did not know the stage of chronic renal failure. This is because when the respondent was convicted of a doctor about his illness already at the stage of chronic renal failure.

Based on the results of research, chronic renal failure according to the respondent is a deadly disease due to broken kidney so that it does not work properly again. As is known that the kidney is the organ needed to remove the remnants of metabolism. The main function of the kidneys is to remove impurities from the urinary tract system. In addition, the kidney function is to filter feces from the blood and absorb many important nutrients into the bloodstream. On the other hand, renal function performed in the tubule (tubulus) is to balance the amount of salt and water stored (Ministry of Health, 2011)

This is in line with the conclusions of some notions of chronic renal failure according to experts that chronic renal failure is a slow decrease in kidney function resulting in kidney ability to excrete disturbed body metabolic results. Chronic renal failure is an irreversible decrease in irreversible kidney function when the kidneys are unable to maintain the metabolic, fluid, and electrolyte balance that causes uremia and azotemia (Bayhakki, 2012).

In this study is known the chronic kidney failure disease experienced by respondents caused by the influence of drug consumption of careless, diabetes, hypertension and diabetes. This indicates that prior to the occurrence of chronic renal failure, the respondent had a previous history of the disease.

The initial stage of kidney disease symptoms of a person's body is when the albumin detected in the urine. The micro albumin stage is characterized by the release of 30 mgs of albumin in urine per day. The more proteins that come out with urine, the kidney condition are already at a chronic stage. Every person with diabetes

mellitus should check their micro albumin levels every year (Dharma, 2014).

Diabetic disease with kidney complications is called diabetic nephropathy. Diabetic nephropathy is a disorder of renal function due to leakage of blood filter membrane (glomerulus). High blood sugar levels will slowly damage the glomerulus. When the kidneys function properly, the nephrons functions to maintain the condition of proteins in the body. High sugar levels will react with proteins thereby altering cell structure and function, including the glomerular basement membrane. As a result, the protein barrier becomes damaged and then leak protein into the urine. One of the kidney functions is to remove the dirt through the urine and maintain body protein levels. If the kidneys are damaged, the protein is removed from the urine and the waste liquid settles in the body (Dharma, 2014).

In addition, the results of this study are consistent with the opinion of Dharma (2014) which states that hypertension is the cause of kidney failure number two after diabetes mellitus. The main function of the kidney is as a filter system to remove excess water and waste in the blood. The filtering function is performed by millions of small blood vessels in the kidneys. Hypertension basically damages blood vessels; high blood pressure can also make blood vessels in the kidneys depressed. Uncontrolled hypertension can damage blood vessels and nephrons in the kidneys. The damaged nephron will not be able to do its job to filter waste, sodium, and excess fluid in the blood. Excess fluid and sodium present in the bloodstream will exert extra pressure on the blood vessel wall, increasing blood pressure to excess levels. Hypertension can result in kidney failure.

This is in line with the theory presented by Padila (2012) states that the cause of chronic renal failure is a systemic disease such as: diabetes mellitus, chronic glomerulonephritis, pyelonephritis,

uncontrolled hypertension, urinary tract obstruction, polycystic kidney disease, vascular disorders, hereditary lesions, toxic (lead, kadmuim, and mercury).

In this study, informants stated that the symptoms are felt back pain, dry skin, tightness, weakness, nausea and vomiting. bony living bones, like malnourished people. The decrease in weight of chronic renal failure patients is due to decreased appetite. Dizziness is more common since renal failure is a reaction to the body because there are many toxins in the body, which cannot be processed properly, because the decline in kidney function is getting worse.

The results of this study were also reinforced by the statement of Smeltzer (2012) which states that the main symptoms of chronic renal failure are pain complaints about the waist area that can be accompanied by nausea, vomiting, itching in the skin, weakness, lethargy, fatigue, lack of fluids in the body, puffiness in the face, abdomen and legs, decreased appetite, frequency in the urine and the amount of urine changed, decreased libido and irregular menstruation.

Based on the results of the study, it is also known that most informants do not know the stages of renal failure. This is because when the informant is declared suffering from kidney failure, the informant is in the final stage of chronic renal failure. During this time, before the informant was known to have chronic renal failure, the informant never looked for information about kidney failure.

According to The Renal Association (2013) the classification of CKD stage is divided into 5 stages as follows: stage 1, normal renal function, but urinary finding of structural abnormalities or genetic features indicates renal disease with $GFR > 90$ (ml / min / $1.73m^2$); staduim 2, mild decrease in renal function, and other findings (as in stage 1) showed renal disease with GFR levels of 60-89 (ml / minute / $1.73m^2$); stage 3, moderate decline in renal function, GFR 30-59 (ml /

minute / 1.73m²); stage 4, severe renal dysfunction, GFR 15-29 (ml / minute / 1.73m²); Stage 5, Kidney Failure, GFR <15 (ml / minute / 1.73m²).

In determining the option to prolong life expectancy is not an easy thing for individuals suffering from chronic renal failure. Patient has many considerations in choosing therapy according to ability he has. If the informant chooses not to undergo a transplant, his lifetime will depend on the dialysis tool to replace his kidneys function. Based on the results of the study note that some informants choose to undergo dialysis or hemodialysis.

HEMODIALYSIS

Based on the results of the research note that the informants in this study knew the outline of hemodialysis. According to the informant hemodialysis is a process of dialysis to remove toxins in the body and excess fluid.

This is in line with the opinion of Suharyanto and Madjid (2009). It states that hemodialysis is a process used in patients in acute illness and requires short-term dialysis (several days to weeks) or patients with end-stage renal disease renal disease (ESRD) that requires long-term or permanent therapy.

Based on the results of the study also known that, overall respondents undergoing hemodialysis therapy in the treatment process. This is done to remove toxins residual metabolism and excess fluid in the body. With its high amount of fluid in the body, causing the body of the respondent to become swells. So that the respondent feels obliged to do hemodialysis to avoid swelling to body and condition become healthy.

In CART patients there are three options to overcome the existing problems namely; untreated, chronic dialysis (peritoneal dialysis / hemodialysis), and transplantation. Untreated options are definitely considered but seldom selected, most people choose to get treatment of

hemodialysis or transplantation in the hope of survival.

This is in line with the opinion of Suwitra (2011) who stated that renal replacement therapy performed on chronic kidney disease stage 5 is at LFG less than 15 ml / mince. The therapy may include hemodialysis, Continuous Ambulatory Peritoneal Dialysis (CAPD) and kidney transplantation. Hemodialysis is a way to excrete metabolic waste products of a semipermeable membrane or so-called dialyzer. The remnants of certain metabolism or toxins from human blood circulation can be water, sodium, potassium, hydrogen, urea, creatinine, uric acid, and other substances.

This is also in line with Nasiri (2012) theory which states that hemodialysis is a "treatment" action with the intention of removing the rest of the metabolism or electrolytes of blood and body fluids through the process of exchange between the material present in the dialysate with the material present in the blood through the semipermeable membrane by diffusion or ultrafiltration.

The results also show that informants do not know the working principle of hemodialysis but the respondents know the process of undergoing hemodialysis. According to informants, the hemodialysis process that is often undertaken is as follows patients come to the hospital then weigh wet weight and measure blood pressure. The needle is then stabbed and connected to the hemodialysis machine for 5 hours, when it is finished weight is weighed again and measured blood pressure again.

In the hemodialysis process, blood flows out of the body and is filtered through the artificial kidney (dialyzer). The filtered blood is then flowed back into the body. The average human being has about 5.6 to 6.8 liters of blood, and during the hemodialysis process only about 0.5 liters are outside the body. For the hemodialysis process required entrance or access to the blood from the body can come out and

filtered by the dialyzer then back into the body. Prior to the hemodialysis (HD) process, the nurse will examine the patient's vital signs to ascertain whether the patient is eligible for hemodialysis. In addition, the patient weighs the body to determine the amount of fluid in the body that must be removed from the time of therapy. The next step is to connect the patient to the dialysis machines by placing the blood line and needle into the patient's vascular access, that is, access to the blood exit to the dialyzer and access to the entrance to blood into the body. Once all is installed then the hemodialysis therapy process can begin. In the hemodialysis process, blood actually does not flow through the HD machine, but only through the blood hose and dialyzer. The HD machine itself is a blend of computers and pumps, where HD machines have the functions to organize and monitor blood flow, blood pressure, and provide information on the amount of fluid released and other vital information. The HD machine also regulates the dialysate fluid that goes into the dialyzer, where it helps collect the toxins from the blood. The pump in the HD machine works to drain blood from the body of the dialyzer and restore it back into the body (Nursalam, 2006).

The results of interviews conducted on the respondents in this study note that the frequency of hemodialysis performed 2 (two) times a week on Monday afternoon and Thursday morning for approximately 5 hours.

This is in accordance with the theory that in Indonesia hemodialysis done 2 times a week with each hemodialysis for 5 hours. Other dialysis diseases are also dialysis performed 3 times a week with hemodialysis for 4 hours (Nasiri, 2012).

Based on the results of the research, known informants feel many benefits obtained after undergoing hemodialysis. According to the informants hemodialysis benefits a lot, increase appetite, can walk and can enjoy life. While the hemodialysis

weakness for the results of this study is none, only informant slightly feel dizzy when just finished hemodialysis and it does not last long.

According to Suddart (2011), in implementing hemodialysis, did not rule out the occurrence of complications in doing these actions. Common complications include low blood pressure that may lead to anemia, muscle cramps, nausea, vomiting, headache, chest pain, backache, itching, fever, chills, disturbances in the amount of calcium and phosphorus in bones, speech, sudden muscle contraction, seizures, nutritional disorders and psychological problems.

PSYCHOLOGICAL IMPACTS ON FEMALE PATIENTS WITH CHRONIC KIDNEY FAILURE UNDERWENT HEMODIALYSIS

Based on the results of the study note that, most informants feel sad, shocked and cry when first declared sentenced to suffer chronic renal failure. It is natural for humans to have feelings that need to be expressed in an event such as happy, sad, happy. In addition Kidney failure is one of the chronic diseases that have an impact on the physical and psychological condition of the person.

This is in line with the opinion of Harvey (2007) who states that important psychological aspects to note because chronic renal failure is a chronic disease and often makes patients hopeless. Patients often experience fear, frustration and feelings of anger within themselves.

Based on the results of the study note that most informants did not experience a significant change psychological burden when hemodialysis wants to undergo, physical changes that occur, feelings of helplessness, feelings of fear left husband, and feelings unattractive in front of the husband.

The psychological burden that the informant once felt on the research result was just the feeling of fear of the first hemodialysis and never felt insecure. This

is because at the beginning of undergoing hemodialysis, the informant was stabbed repeatedly in the same place and had to undergo cimino mounting operation to facilitate further hemodialysis process. The five informants stated that they felt insecure when they saw the physical changes that occurred due to the disease.

In addition, psychological burden that has been experienced by informants in connection with physical changes that occur due to chronic renal failure and hemodialysis. The informant had experienced the sadness of physical changes due to hemodialysis. His body became skinny only 35 Kg so as to make no confidence to get out of the house, become irritable and just confined himself home.

But all the psychological burden is not to drag on. This is because the informants get the attention, affection and sense of understanding from their families, especially their husbands and children who are encouraging and encouraging to the respondents.

Good husband and child relationship make respondents feel the attention and affection. Attention to family and people closest to make informants show behavior that is more able to accept the circumstances. In addition with the marriage increased motivation to survive with chronic kidney failure and in undergoing routine hemodialysis as a form of repaying affection from her husband. Through marriage, the informant feels gratitude and attention that evokes the confidence of the informant.

Hemodialysis therapy is a stressor for patients with chronic renal failure, according to Smeltzer (2012), in line with this study that patients undergoing hemodialysis therapy typically face the difficulty of defending what has become of hers, such as employment, marriage, and finance.

The results of this study are similar to Smeltzer's opinion (2012) which states that patients usually face financial problems,

difficulties in keeping jobs, disappearing sexual urges and impotence, worrying about marriage and fear of death. The occurrence of stress because of the perceived and perceived stressor of the individual, is a threat that can cause anxiety.

The study also concurs with Lubis's (2006) statement that behavioral adjustment is related to the limitations of disease and treatment. Researchers argue that social skills are perceived to be severe by patients undergoing hemodialysis therapy, influenced by aspects of limitations including physical capacity, which can interfere with the work and activities of patients in the community.

The results showed that the role of respondents as mothers and wives did not experience significant changes. Good communication with the family makes the respondent insoluble in his sadness and strives to rise to play a role in fulfilling his duty as mother to his children and as a wife to her husband.

Family role is verbal and non verbal support, can be suggestion, direct aid or attitude given by people who have closeness with subject in social environment. This support can be a presence that gives an emotional response and affects the behavior of the recipient of support.

The results of this study are consistent with the opinion of Zurmelli (2015) which states that the role dimensions and family attention given by family members can be emotional support, award support, information support, instrumental support, and social network support all of which form a form of family support.

The role of the family is an important factor of the individual when facing the problem (health), in which the family plays a role in the health nursing function of family members to achieve optimum health (Ratna, 2011). Patients need a close relationship to someone that can be used to spill their feelings in time of stress and loss of spirit during long-term hemodialysis

therapy that can be obtained from family members, in addition to making family members closer to each other (Smeltzer & Bare, 2012).

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V. CONCLUSION

Based on the results of research with the title "Psychological Analysis In Women Patients With Chronic Kidney Failure Who Underwent Hemodialysis In RSUD. Dr. M. Yunus Bengkulu can be concluded: Based on the overall information obtained from informants known as a whole informants have a good knowledge of renal failure and hemodialysis which includes understanding, symptoms, causes, processes and the importance of undergoing hemodialysis. However, the

informant knowledge is less on the stage of kidney failure and hemodialysis working principle. In the handling aspect, the whole informant know the process of hemodialysis. In undergoing the hemodialysis process, the previous informant body weights and blood pressure of the informant were measured first and then hemodialysis was done for about 5 hours. After completion of hemodialysis, body weight and blood pressure are measured again. Overall, psychological informants are quite well characterized by a minimum of stress and depression levels that are experienced because the informant has gone through 5 phases of loss and the informant has been in the acceptance phase and has the support of the family and husband well.

The suggestions that can be given from the results of this study are as follows: It is expected that nursing staff in the hemodialysis room can provide companion and learning to patients in undergoing hemodialysis so that patients minimize the negative psychological impact on the disease he suffered.

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RELATIONSHIP CHARACTERISTICS OF INDIVIDUALS AND ENVIRONMENTAL FACTORS TO CONDUCT DEFECATION (BABS)

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Abstract: Embong Sido Village is one of the villages in the Keban Agung Puskesmas working area that still has sanitation problems and clean and healthy living behavior. Toilet access has not met the 100% of target, reaching only 80.23% of the 238 families. The aim of the study was to Determine the relationship of individual characteristics and environmental factors to open defecation behavior in Embong Sido Village, Bermasi Ilir District, Kepahiang Regency. This type of research is quantitative analytic research. This research use approach of cross sectional method. Data analysis was performed using univariate and bivariate analysis and presented in the form of frequency distribution. The results Showed that there was no significant relationship between individual characteristics of Babs behavior items, namely age (p value of 0.200), level of education (p value 0.416), economic level (p value 1.000). There is a significant relationship between individual characteristics of Babs behavior items, namely the distance of the house to the river (p value 0.000), social support (p value 0.000), social sanctions (p value of 0.000). In order to pay attention to people who are still practicing Babs, by providing social support and social sanctions as well as counseling and other activities so that there are no more community members who are Babs.

Keywords: Babs, Individual Characteristics, Environmental Factors

I. INTRODUCTION

Bowel Gratuitous (Babs) or Open Defecation (OD) is an act of throwing feces or stool in the fields, forests, bushes, rivers, beaches or open area other and allowed to spread to contaminate the environment, soil, air and water [19]

Based on data from the World Health Organization (WHO) and United Nations Children's Emergency Fund (UNICEF) in Progress on Sanitation and Drinking Water in

2010 is estimated at 1.1 billion people or 17% of the world population still practice defecation (BAB) in area open, from the data above 81% of the population defecation (Babs) contained in 10 countries and Indonesia as the country's second largest discovery of people who defecate in the area open at 5% [30]

Based on observations on January 13, 2018 against Village neighborhood Embong Sido, of 10 households in the sample in the initial survey, 7 out of 10 households declared distance of homes adjacent to the river is the reason citizens to practice open defecation. Based on those researchers interested in conducting research whether there is a relationship of individual characteristics and environmental factors on behavior (Babs).

Embong Sido village is a village in the region of Puskesmas Keban Agung which still has problems of sanitation and hygienic behavior and healthy. Access latrines do not meet the target of 100% access to latrines, reached 80.23% of the

253 headcount and still found people who practice Babs. Residents who have access to healthy latrines ie 19.77% or 50 families [22]

Bowel Gratuitous (Babs) or Open defecation is an act of throwing feces or stool in the fields, forests, bushes, rivers, beaches or open area other and allowed to spread to contaminate the environment, soil, air and water [19]

II. METHODS

This type of research is quantitative analytical research. Analytic research is research that aims to determine the causal relationship between two variables observationally, where the form of the relationship can be: difference, relationship or influence.

III. RESULT

a. Univariate analysis

Table 1 Frequency Distribution of Respondents by Age

No.	Distribution	Frequency	Percentage %
1.	Age ≤ 46	77	51.7%
2.	Age > 46	72	48.3%
3	Low education	107	71.8%
4	High education	42	28.2%
5	Low economic	141	94.6%

b. Bivariate analysis

Table 2 The relationship of age to the behavior of Babs

variables	Babs behavior				amount		P	OR	CI (95%)
	Babs		not Babs		n	%			
	N	%	n	%					
Age ≤ 46	23	29.9	54	70.1	77	100	0.097	2,055	0,825-3.776
> 46	14	19.4	58	80.6	72	100			

Based on Table 2, it can be seen that from a young age of 77 respondents as many as 23 (29.9%) of the respondents and

6	High economic	8	5.4%
7	Close distance home with river	67	45.0%
8	Far distance home with river	88	55.0%
9	No social support	78	52.3%
10	Yes social support	71	47,7%
11	No Social sanctions	78	52.3%
12	Yes Social sanctions	71	47,7%
	Total	149	100%

The Can be seen from 149 respondents aged over most of 77 (51.7%) of respondents aged ≤ 46 years, it can be seen the level of education of the 149 respondents over most of that 107 (71.8%) of respondents with low education, it can be seen the economic level of the 149 respondents almost all are 141 (94.6%) of respondents have a low economic, the it can be seen within the house by the river of the 149 respondents most of which 67 (45.0%) of respondents have a distance of houses close to the river, and can be seen social sanctions of 149 respondents over the majority, namely 78 (52.3%) of respondents did not receive social sanctions.

the elderly as much as 14 (19.4%) of respondents behave Babs. Results obtained chi square test $p = 0.097$ ($\text{sig} > 0.005$).

Table 3 Relationship level of education on behavior Babs

variables	Babs behavior				amount		P	OR	CI (95%)
	Babs		not Babs		n	%			
	N	%	N	%					
Low	29	27.1	78	72.9	107	100	0,21	1.94	0,655-
High	8	19.0	33	81.0	42	100	7	8	3.811

Based on Table 3, it can be seen that out of 107 respondents low education 29 (27.1%) of the respondents and the higher

education 8 (19.0%) of respondents behave Babs. Results obtained chi square test $p = 0,217$ (sig > 0.005).

Table 4 Relation economic level to the behavior of Babs

variables	Babs behavior				amount		P	OR	CI (95%)
	Babs		not Babs		n	%			
	N	%	N	%					
No	4	5.1	74	94.9	78	100	0,00	0,06	0,006-
Yes	33	46.5	38	53.5	71	100	0	2	0119

Based on Table 4, can diketau of 141 low income respondents as many as 35 (24.8%) and high-income respondents

in 2 (25.0%) of respondents behave Babs. The test results obtained square ichi $p = 1.000$ (sig > 0.005).

Table 5 Relationships within the house by the river on the behavior of Babs

variables	Babs behavior				amount		P	OR	CI (95%)
	Babs		not Babs		n	%			
	N	%	n	%					
Close	29	43.3	38	56.7	67	100	0,00	7,05	2,943-
Far	8	9.8	74	90.2	82	100	0	9	16.934

Based on Table 5, it can be seen that out of 67 respondents whose house is close to the river most of 29 (43.3%) of the respondents and that much of the river as

much as 8 (9.8%) of respondents behave Babs. Results obtained chi square test $p = 0,000$ (sig < 0.005).

Table 6 Relationship of social support on the behavior of Babs

variables	Babs behavior				amount		P	OR	CI (95%)
	Babs		not Babs		n	%			
	N	%	n	%					
Low	35	24.8	10	75.2	14	100	1,0	.991	0,191-
High	2	25.0	66	75.0	18	100	00		5.134

Based on Table 6, it can be seen that out of 78 respondents who do not receive social support as many as four (5.1%) of the respondents and the social support as

many as 33 (46.5%) behave Babs. Results obtained chi square test $p = 0,000$ (sig < 0.005).

Table 7. Relationships social sanctions against behavior Babs

variables	Babs behavior				amount		P	OR	CI (95%)
	Babs		not Babs		n	%			
	N	%	n	%					
No	4	4.8	80	95.2	84	100	0,000	2,005	0,005- 0.092
Yes	33	50.8	32	49.2	65	100			

Based on Table 7, it can be seen that out of 84 respondents who did not receive social sanctions by 4 (4.8%) of the respondents and the social support as many as 33 (50.8%) of respondents behave Babs. Results obtained chi square test $p = 0,000$ (sig <0.005).

IV. DISCUSSION

1. Relationship of Individual Characteristics to BABS Behavior

Age Relationship to BABS Behavior

Based on the results of research on age variables using Chi Square test obtained p value $0.097 > (0.005)$. These results indicate that there is no significant relationship between age and BABS behavior. Age related to behavior change is one of the tasks of human development. The development of human knowledge is based on maturity and learning. Removing impurities from the human body includes a physiological excretion system that has existed since humans were born. Learning to control sewage, distinguish right from wrong and develop conscience are some of the tasks of human development from infancy and children. Along with increasing age, it will reach a high level of maturity in accordance with the task of development (Hurlock, 2008).

This study is different from previous studies where in the 2009 Hayden study there was a significant relationship between individual characteristics of BABS behavior. According to the theory of Health, the sociodemographic factor as

a background influences the threat of disease. In the PRECEDE-PROCEED theory (Predisposing, Reinforcing, Enabling Causes, Educational Diagnosis and Evaluation) sociodemographic factors as predisposing factors for behavior (Hayden, 2009). Can be seen from the results of the study that respondents who have age ≤ 46 as many as 23 (29.9%) respondents BABS and 54 (70.1%) respondents did not BABS.

Relationship between the level of education and the behavior of BABS

Based on the results of research on education level variables obtained p value $0.416 > (0.005)$. These results indicate that there is no significant relationship between the level of education on BABS behavior. A person's level of education includes predisposing factors to health behavior. There are several studies that do not indicate a relationship with behavior, but the level of education makes it easy to change behavior, the higher the level of education the easier it is for someone to receive new information that is constructive.

This research is in line with previous research which is based on research results that the level of education has nothing to do with the use of family latrines [19]. Respondents who had a low education level were 29 (27.1%) BABS respondents and 78 (72.9%) respondents were not BABS.

Relationship between Economic Levels on BABS Behavior

Based on the results of research on economic level variables obtained p value $1,000 > (0.005)$. These results indicate that there is no significant relationship between the economic level of BABS behavior. A person's economic status includes predisposing factors to health behavior. The higher the economic status of a person becomes a factor that makes it easy to change behavior.

This study is not in line with previous studies where low income has four times the use of latrines (Simanjutak, 2009). The respondents who have low economic level as many as 35 (24.8%) BABS respondents and 106 (75.2%) respondents are not BABS.

2. Relationship of Environmental Factors to BABS Behavior

Relationship between House Distance and River Against BABS Behavior

Based on the results of the study on the variable distance of the house with the river using the chi square test obtained p value $0.000 < (0.005)$. These results indicate that there is a significant relationship between the distance of the house and the river to the behavior of BABS. In most research subjects already have family latrines and in other research subjects even though they do not have family latrines but there are public toilets and are easily accessible, only about 100 meters from the house and the distance between the house to the river is 50 meters, it shows that the distance the journey to the toilet is not too far away although it tends to be closer to the river than the public toilet.

This research is in line with Mukherjee (2011) explaining that people who live near rivers become factors supporting

defecation in open areas. Another study stated that the distance between houses and rivers affected 1.32 times to not use latrines (Soleh, 2012). Respondents who distance houses close to the river were 29 (43.3%) BABS respondents and 38 (56.7%) respondents were not BABS.

Relation of Social Support to BABS Behavior

Based on the results of research on social support variables obtained p value $0.000 < 0.005$. These results indicate that there is a meaningful relationship between social support for BABS behavior. Counseling to increase public awareness in using latrines also contributes to changes in community defecation behavior.

This research is in line with previous research where in the study that the development of Puskesmas officers also had a significant relationship in the use of latrines [19].

V. CONCLUSION

It can be seen that there is no significant relationship between individual characteristics (age, education level, economic level) of the behavior of Babs in the village Embong Sido District of Bermani Ilir Regency Kepahiang were age (p value of 0.200), educational level (p value 0.416), the level of economic (p value 1.000). There is a significant correlation between environmental factors (distance from the house to the river, social support, social sanctions) against the behavior of Babs in the village Embong Sido District of Bermani Ilir Regency Kepahiang the distance of the house with a river (p value 0.000), social support (p value of 0.000), social sanctions (p value of 0.000).

Should provide information and increase insight into the behavior Indiscriminate defecation (Babs) Embong Sido village community Bermani Ilir

subdistrict Kepahiang District. For health centers, as information to determine the particular health maslaah environmental health in the village Embong Sido. The activities disarannkan to the clinic is to do the triggering of Stop Bowel Gratuitous (BABS).

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EFFECT OF SNACK BAR BASED ON FERMENTED GLUTINOUS BLACK RICE IN WAIST CIRCUMFERENCE DECREASE AND WEIGHT LOSS IN OBESE ADULTS

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Abstract

Consumption of fiber and anthocyanins helps lower waist circumference and weight by lowering body fat levels. Snack Bar Based on Fermented Glutinous Black Rice is one of cereals with antioxidants, bioactive compounds, and fiber. The purpose of this research is to determine the effect of Snack Bar Based on Fermented Glutinous Black Rice in waist circumference and weight decrease in obese adults. The Research design use in this study is experimental using two group pre and post test with control experimental design. The population is adult women (30-50 years) in Pasirkaliki Village, North Cimahi Subdistrict, Cimahi City. The total samples are 24 people in each group. The research was done in 30 days. Intervention group were given a Snack Bar Based on Fermented Glutinous Black Rice 1 puck (30 grams) and low calorie diet education. The control group were given low calorie diet education. Statistical tests with Paired T Test showed that there is a significant difference in waist circumference and weight loss at the beginning and the end of the research with a value of $p < 0,001$ ($p \leq 0,05$). Statistical tests with Mann-Whitney showed that there is an effect in Snack Bar Based on Fermented Glutinous Black Rice giving to a waist circumference and weight decrease by the value of $p = 0,003$ and $p < 0,001$ ($p \leq 0,05$). Socialization about this Fermented Glutinous Black Rice Snack Bar to public as an alternative food for decreasing waist circumference and weight needs to be done.

Keywords: *Snack Bar Based on Fermented Glutinous Black Rice, waist circumference, weight*

INTRODUCTION

Obesity is an accumulation of abnormal or excessive fat that can interfere with health. Obesity is increasing sharply throughout the world, which reaches a dangerous level [1]. Based on the 2013 Basic Health Research data, the percentage of overweight and obesity at the age of > 18 years according to the BMI category in West Java was 26.9% [2]. Whereas, Cimahi City is 32.1% with the same category. The percentage of obesity according to the Stomach Circular (LP) indicator of Cimahi city was 34.4%, this percentage was higher than the percentage of West Java, which was 26.4% [3]. Obesity is caused by the wrong diet (excessive food intake) by consuming high carbohydrates simple, high fat and low in fiber and not accustomed to consuming a balanced menu (balanced nutrition) [4]. Someone who has a fat intake higher than the need to have a 4.4 times higher risk of being overweight [5]. Eating fiber-containing foods can help with weight loss, where foods that contain high levels of fiber usually contain low calories [6]. In general, foods high in fiber will stay longer in the stomach. There is a slowdown in gastric emptying that causes a person to feel full after eating and eating less [7]. Subjects with lower levels of fiber intake have a 4 times greater risk of being obese [5]. According to the Ministry of Health of the Republic of Indonesia in

2013, the average number of fiber sufficiency for adults aged 19-64 years in Indonesia is 36.3 gr / day for men and 30 gr / day for women [8].

Anthocyanins are absorbed into the blood in their intact form and metabolized to methoxy derivatives in the liver and kidneys. Anthocyanin then activates

AMPK (Adenosine Monophosphate-Activated Protein Kinase) which is induced by significant phosphorylation of

ACC (Anti-AcetylcoA Carboxylase) and regulated by PPAR α (Peroxisome Proliferator-Activated Receptor α) and

ACO (Acetyl-coA Carboxylase) in the liver thereby increasing fat content through increased fatty acid oxidation [9]. Based on

research conducted by Tsuda (2003) in rats that were intentionally made to become obese by being given a high-fat diet,

explained that the consumption of anthocyanins from food (purple corn) can significantly prevent obesity and diabetes

[10]. According to research conducted prior in mice, anthocyanin extract from blueberries if added as a supplement can

significantly inhibit weight gain and accumulation of body fat [11].

Fermented Glutinous Black Rice is one of the potential commodities as a source of carbohydrates, antioxidants, bioactive compounds, and fiber which are important for health [12]. One of the products

developed from the Snack Bar Based on Fermented Glutinous Black Rice is a snack bar. Processing does not have much effect

on anthocyanin levels. Therefore, researchers are interested in knowing the effect of Snack Bar Based on Fermented

Glutinous Black Rice on decreasing waist circumference and weight in obese adults in Cimahi City.

METHOD

The research design used was Experimental using two groups pre and post test with experimental design control. This study divides the sample into 2 sample groups namely intervention and

control group. In the intervention group, there was 1 piece of black stick tape snack bar (30 grams) for 30 days with a frequency of 1 time a day and education on a low-calorie diet, while for the control group were only given a low-calorie diet. At the beginning and end of the study, both groups of samples were measured waist circumference and body weight.

The study was conducted on adult individuals (30-50 years) in RW 03 and RW 10 Pasirkaliki Village, Cimahi Utara District, Cimahi City. The inclusion criteria for both sample groups were 30-50 years old, overweight with BMI > 25.0 kg / m², female sex and willing to take part in the study and sign informed consent forms while the exclusion criteria were pregnant, sick and sportsman.

This study is a study using secondary data which includes data on the characteristics of the sample (age, education, occupation and physical activity), waist circumference data, weight data, data on energy, fat and fiber intake taken from Fauziyah (2017) research data [13]

Analysis of sample characteristics data (age, education, occupation and physical activity) is presented in the form of a frequency distribution table that displays the number and percentage, then analyzed descriptively. BMI data, energy intake data, fat intake data, and fiber intake data are presented in the form of distribution tables showing the average, standard deviation, median, and maximum minimum.

Prior to the bivariate analysis, the normality of the waist circumference and body weight data were tested for normality. Shapiro Wilk statistical tests were conducted because the sample was <50 people. If the p value > 0.05 then the data is normally distributed, but if the p value is 50.05 then the data is not normally distributed.

If the data is normally distributed then use the Dependent Paired T-Test statistical test while if the data is not normally distributed

then use the Wilcoxon statistical test with a 95% confidence level ($\alpha = 0.05$). Statistical test to determine differences in waist circumference and body weight in each group, namely the intervention group and the control group.

If the data is normally distributed, then use the Independent T-Test statistical test while if the data is not normally distributed then use the Mann-Whitney statistical test. Statistical test to see the difference in decrease in waist circumference and body weight between the two different groups, namely the intervention group and the control group with a 95% confidence level ($\alpha = 0.05$).

RESULT

Data Normality Test

In table 1 shows that the data for initial waist circumference and final waist circumference and initial and final body weight in the intervention group and the control group are normally distributed so that it will be tested using Paired T-Test. Meanwhile, data on waist circumference and weight loss between the intervention group and the control group were not normally distributed so that they would be

tested using the Mann-Whitney Test to see differences in waist circumference and weight loss between the intervention group and the control group. The Pre and Post BMI data in the intervention group were normally distributed while the Pre and Post BMI data in the control group were not normally distributed so that they were subsequently tested using Wilcoxon. Mean data on the decline in BMI between the intervention group and the control group were not normally distributed so that they were then tested using the Mann-Whitney Test.

Percentage of energy and fat intake between the intervention group and the control group was not normally distributed so that it would then be tested using the Mann-Whitney Test to see the difference in percent of energy and fat intake between the intervention group and the control group. The initial and final fiber intake data in the intervention group and control group were normally distributed so that they would be tested using Paired T-Test. Data on increasing fiber intake between the intervention group and the control group were also normally distributed so that they would be tested using the Independent T Test

Table 1. Data Normality Test Results

Variabel	Intervensi (n=24)		Kontrol (n=24)		Uji Statistik
	Nilai p	Distribusi	Nilai p	Distribusi	
Waist circumference Pre	0,084	Normal	0,380	Normal	Parametric
Waist Circumference Post	0,494	Normal	0,310	Normal	Parametric
Decreasing Circumference	0,025	Abnormal	0,050	Abnormal	Non Parametric
Pre Weight	0,070	Normal	0,495	Normal	Parametric
Post Weight	0,121	Normal	0,721	Normal	Parametric
Decreasing weight	0,000	Abnormal	0,002	Abnormal	Non Parametric
Pre BMI	0,490	Normal	0,045	Abnormal	Non Parametric
Post BMI	0,897	Normal	0,067	Normal	Parametric
Decrease BMI	0,008	Abnormal	0,631	Normal	Non Parametric
Percent of energy intake	0,916	Normal	0,028	Abnormal	Non Parametric
Percent of fat intake	0,009	Abnormal	0,541	Normal	Non Parametric
Pre fiber intake	0,084	Normal	0,154	Normal	Parametric
Post fiber intake	0,221	Normal	0,270	Normal	Parametric
Increased fiber intake	0,707	Normal	0,079	Normal	Parametric

Sample Characteristics

Age

Based on Table 2 it is known that most of the samples (66.7%) of intervention were aged 41-50 years and a small portion of the sample (33.3%) were aged 31-40 years. While for the control group some (58.3%) were 41-50 years old, some (33.3%) were aged 31-40 years and a small proportion (8.3%) were <30 years old. For the age data between the intervention group and the control group, $p = 0.234$ ($p > 0.05$) so that the data is said to be homogeneous.

Work

Based on table 2 it can be seen that most of the samples were housewives in the intervention group (91.7%) and in the control group (62.75%). In the intervention group only a small proportion were employed as laborers (4.2%) and self-employed (4.2%). Whereas, in the control group profession is quite diverse as laborers (12.5%), entrepreneurs (12.5%), civil servants (8.3%) and teachers (4.2%). For job data has a value of $p = 0.108$ ($p > 0.05$) so that it can be said homogeneous job data.

Education

Based on Table 2 it is known that in the intervention group a portion of the sample (45.8%) had the last education in elementary school, some (29.2%) had the last education in junior high school and some (20.8%) had the last high school education, and only a small portion (4, 2%) with the last D3 education. While for the control group some of the sample had the last high school education (37.5%), junior high school (33.3%) and elementary school (20.8%). Only a small percentage (8.3%) have a final education S1. For education data has a value of $p = 0.104$ ($p > 0.05$) can be said to be homogeneous education data.

Physical Activity

Based on Table 2 it is known that in the intervention group most of the samples

(66.7%) had mild physical activity and some samples (33.3%) had moderate category physical activity. Likewise, in the control group most of it (70.8%) with physical activity in the light category and only a portion of the sample (29.2%) with moderate category physical activity. For physical activity data has a value of $p = 1,000$ ($p > 0.05$) can be said homogeneous physical activity data.

Table 2. Frequency Distribution of Sample Characteristics

Variabel	Interventio		Control		Pvalue
	n	%	n	%	
Age					0,234
< 30	0	0	2	8,3	
31 – 40	8	33	8	33,3	
41 – 50	16	67	14	58,3	
Work					0,108
Housewife	22	92	15	6	
Labor	1	4	3	13	
Private	1	4	3	13	
Teacher	0	0	1	4	
Government employees	0	0	2	8	
Education					0,104
SD	11	46	5	21	
SMP	7	29	8	33	
SMA	5	21	9	38	
D3	1	4	0	0	
S1	0	0	2	8	
Physical Activity					1,000
Light	16	67	17	71	
Medium	8	33	7	29	
Weight	0	0	9	0	
Total	24	100	24	100	

The mean BMI of the intervention group at the beginning of the study was 30.16 kg / m² and in the control group 30.04 kg / m². Whereas, the mean BMI of the intervention group at the end of the study was 29.66 kg / m² and in the control group 29.90 kg / m². The mean decrease in the BMI of the intervention group was 0.50 and the control group was 0.13.

BMI, Energy Intake, Fat Intake and Fiber Intake

Table 3. Distribution of Average BMI, Energy Intake, Fat Intake, and Fiber Intake

Variabel	Kelompok	Rerata	SD
Pre BMI	Intervention	30,16	2,95
	Control	30,04	3,47
Post BMI	Intervention	29,66	2,86
	Control	29,90	3,42
Decrease BMI	Intervention	0,50	0,53
	Control	0,13	0,69
Percent of energy intake	Intervention	116,85	25,96
	Control	114,58	27,73
Percent of fat intake	Intervention	140,95	28,68
	Control	135,98	42,82
Pre fiber intake	Intervention	7,92	2,70
	Control	8,00	3,26
Post fiber intake	Intervention	9,63	2,74
	Control	10,08	3,41
Post fiber intake	Intervention	1,72	0,60
Increased fiber intake	Control	2,08	0,67

The mean percent of the energy intake of the intervention group was 116.85% and in the control group 114.58% with p value = 0.967 ($p > 0.05$) or it could be said that there were no significant differences between the intervention group and the

Bivariate analysis

Table 4. Overview of waist circumference and initial and final body weight in the intervention group and control group

Kelompok	Variabel	Rerata	SD	Median	Min-Maks	Nilai p*
Intervention	Waist circumference					<0,001
	- Pre	90,28	7,70	91,25	77,30 – 101,80	
	- Post	83,02	7,33	82,50	71,00 – 95,50	
Control	Waist Circumference					0,003
	- Pre	89,70	8,62	91,65	67,50 – 105,90	
	- Post	86,53	7,86	86,40	67,70 – 99,00	
Intervention	Weight					<0,001
	- Pre	67,32	9,10	70,05	47,60 – 83,50	
	- Post	66,03	8,90	68,20	46,70 – 82,00	
Control	Weight					0,563
	- Pre	67,26	12,0	66,20	45,20 – 97,50	
	- Post	67,48	11,77	67,30	45,60 – 94,40	

*) Paired T Test

control group or homogeneous data. The mean fat intake of the intervention group was 140.95% and in the control group 135.98% with p value = 0.837 ($p > 0.05$) or it could be said that there were no significant differences between the intervention group and the control group or homogeneous data.

The mean fiber intake in the intervention group at the beginning of the study was 7.92 g and in the control group 8.00 g. Meanwhile, the mean fiber intake in the intervention group at the end of the study was 9.63 g and in the control group 10.08 gr. The average increase in fiber intake in the intervention group was 1.72 gr and the control group was 2.08 gr.

The statistical test used is Paired T Test on the degree of trust 95% showed a significant difference in mean fiber intake at the beginning and end of the study in each group, namely the intervention group and the control group with $p < 0.001$ ($p \leq 0.05$). Based on the results of statistical tests using the Independent T Test, it was known that $p = 0.053$ ($p > 0.05$) there was no difference in the increase in fiber intake between the intervention group and the control group.

Table 5. Overview of Decreasing Circumference and Weight Loss Between Intervention and Control Groups

Variabel	Mean	SD	Median	Min-Max	P _{value} *
Decreasing Circumference					0,003
- Intervention	7,26	3,78	6,75	2,40 – 16,70	
- Control	3,17	4,70	2,25	-4,40 – 11,40	
Decreasing weight					<0,001
- Intervention	1,30	0,94	1,20	0,00 – 4,20	
- Control	-0,21	1,78	-0,30	-6,50 – 3,10	

*) *Mann-Whitney Test*

Differences in waist circumference and initial and final body weight in each group Table 4 shows the mean waist circumference of the intervention group at the beginning of the study was 90.28 cm with a standard deviation of 7.70 cm and at the end of the study was 83.02 cm with a standard deviation of 7.33 cm. The statistical test used is Paired T Test at 95% confidence level shows that there is a significant difference in waist circumference at the beginning and end of the study in the intervention group, namely the group given black stick bar tape snack and low calorie diet education with $p < 0.001$ ($p \leq 0.05$).

Table 4 shows the mean waist circumference of the control group at the beginning of the study was 89.70 cm with a standard deviation of 8.62 cm and at the end of the study was 86.53 cm with a standard deviation of 7.86 cm. The statistical test used is Paired T Test at 95% confidence level shows that there is a significant difference in waist circumference at the beginning and end of the study in the control group, namely the group was only given a low calorie diet education with a value of $p = 0.003$ ($p \leq 0.05$).

Table 4 shows the mean weight of the intervention group at the beginning of the study was 67.32 kg with a standard deviation of 9.10 kg and at the end of the study is 66.03 kg with a standard deviation of 8.90 kg. The statistical test used is

Paired T Test at 95% confidence level showed that there was a significant difference in mean weight at the beginning and end of the study in the intervention group, namely the group given the black stick tape bar snack and the low calorie diet education with $p < 0.001$ ($p \leq 0.05$). Table 4 shows the mean weight of the control group at the beginning of the study was 67.26 kg with a standard deviation of 12.0 kg and at the end of the study was 67.48 kg with a standard deviation of 11.77 kg. The statistical test used is Paired T Test at 95% confidence level shows that there is no significant difference in mean weight at the beginning and end of the study in the control group, namely the group was only given a low calorie diet education with $p = 0.563$ ($p > 0.05$).

Decrease in Waist Circumference and Weight Loss Between Intervention Groups and Control Groups

Table 5 shows the median decrease in waist circumference of the intervention group was 6.75 cm with a minimum value of 2.40 cm and a maximum of 16.70 cm. Whereas the median decrease in waist circumference of the control group was 2.25 cm with a minimum value of -4.40 cm and a maximum of 11.40 cm. The statistical test used is the Mann-Whitney Test with a 95% confidence level indicating there is a significant difference in the decrease in waist circumference between the intervention group and the control group with $p = 0.003$ ($p \leq 0.05$). So there is an effect of Snack Bar Based on Fermented Glutinous Black Rice and low

calorie diet education on decreasing waist circumference.

Table 5 shows the median weight loss of the intervention group was 1.20 kg with a minimum value of 0.00 kg and a maximum of 4.20 kg. Whereas, the median control group weight loss was -0.30 kg with a minimum value of -6.50 and a maximum of 3.10 kg. Statistical test used is the Mann-Whitney Test with a 95% confidence level showed a significant difference in weight loss between the intervention group and the control group with $p < 0.001$ ($p \leq 0.05$). So that there is the influence of Snack Bar Based on Fermented Glutinous Black Rice and education on low calorie diet for weight loss.

DISCUSSION

Sample Characteristics

Overweight occurs in adulthood because the amount of fat deposits in an adult's body has increased by 10 percent. Changes in a person's lifestyle have contributed to an increase in body fat [7]. This is in line with the research conducted by Nadimin, et al in 2015 which stated that age is one of the causes of obesity in adults with a total sample age of > 25 years [14].

Based on the results of the study, it is known that most of the samples were housewives in the intervention group (91.7%) and the control group (62.5%). Housewives have physical activity that is not too heavy so they have a tendency to be overweight. Physical activity is known to be one of the factors of obesity [15]. Technological advancements that are progressing from year to year provide convenience to lifestyle and reduce the number of physical activities in daily activities including domestic work [16].

It is known from the results of this study that in the two sample groups most of them had low category physical activity with the intervention group at 66.7% and the control group at 70.8%. This research is in line with the research conducted by

Aprianty (2015), which states housewives have a 5.5 times risk of becoming obese because they have low activity [17].

Some of the samples in the intervention group had the last education in elementary school (45.8%) and the rest were junior high (29.2%), high school (20.8%), and D3 (4.2%). While in the control group some had the last high school education (37.5%), junior high school (33.3%), and elementary school (20.8%).

BMI, Energy Intake, Fat Intake, and Fiber Intake

IMT is a simple tool for monitoring the nutritional status of adults especially those related to deficiency and being overweight [18]. IMT measurements are more sensitive in assessing the distribution of fat in the body, especially those in the abdominal wall [19]. Thus, a decrease in BMI can be a simple indicator to monitor weight loss and distribution of body fat, especially in the abdomen.

The mean percent of energy intake in the intervention group was 116.85% and in the control group 114.58%. The average energy intake in both groups was in the more category because of $> 100\%$ need [20]. High energy intake due to excessive consumption of food is not balanced with the use of energy for metabolism and physical activity causing obesity [21]. Based on the results of statistical tests using Mann-Whitney Test obtained p value = 0.967 ($p > 0.05$) or it can be said that there is no significant difference between the intervention group and the control group or homogeneous data. So, the sample energy intake does not affect the research.

The mean percent of fat intake in the intervention group was 140.95% and in the control group 135.98%. The average is in the more category because $> 110\%$ of needs [22]. Fat consumption which exceeds the body's needs can cause fat accumulation in adipose tissue and cause obesity [7]. Someone who has a fat intake higher than the need to have a 4.4 times higher risk of

being overweight [5]. Based on the results of statistical tests using Mann-Whitney Test p value = 0.837 ($p > 0.05$) or it can be said that there is no significant difference between the intervention group and the control group or homogeneous data. Thus, the fat intake of the sample did not affect the study.

The statistical test used is Paired T Test on 95% confidence level shows that there is a significant difference in mean fiber intake at the beginning and end of the study in each group, namely the intervention group and the control group with $p < 0.001$ ($p < 0.05$). Based on the results of statistical tests using the Independent T Test, it was known that $p = 0.053$ ($p > 0.05$) there was no difference in the increase in fiber intake between the intervention group and the control group. This shows that dietary fiber intake does not affect research.

Bivariate analysis

The Influence of Snack Bar Based on Fermented Glutinous Black Rice and Low Calorie Diet Education Against Decreasing Waist circumference.

According to the WHO Asia-Pacific perspective guidelines, the cut-off point for obesity is waist circumference ≥ 90 cm for men and ≥ 80 cm for women [23]. In this study, of the 48 intervention and control samples there were only 7 samples with no obesity category based on waist circumference at the beginning of the study with 4 samples in the intervention group and 3 samples in the control group. At the end of the study it was found that there were 3 samples with a waist circumference including the obesity category and then decreased to reach the category of not obese (≥ 80 cm).

The Snack Bar Based on Fermented Glutinous Black Rice given to the sample made from Fermented Glutinous Black Rice is processed into a snack bar. Fermented Glutinous Black Rice is a fermented alcoholic food product that is consumed by Indonesian people because it is easy to make, cheap, and has a soft and

watery texture with a sweet and sour taste [24]. In black glutinous rice the dominant phenolic component detected is anthocyanin compounds and has antioxidant activity and fiber content [25,26].

Anthocyanins are absorbed into the blood in their intact form and metabolized to methoxy derivatives in the liver and kidneys. Anthocyanin then activates AMPK (Adenosine Monophosphate-Activated Protein Kinase) which is induced by significant phosphorylation of ACC (Anti-AcetylcoA Carboxylase) and regulated by PPAR α (Peroxisome Proliferator-Activated Receptor α) and ACO (Acetyl-coA Carboxylase) in the liver thereby increasing fat content through increased fatty acid oxidation [9].

This study is in line with research conducted by Tsuda (2003) conducted on mice with a high-fat diet, explaining that the consumption of anthocyanins from food (purple corn) as a functional food factor can significantly prevent obesity and diabetes [10]. However, in this study using anthocyanins from Fermented Glutinous Black Rice,

use the waist circumference indicator to determine obesity and do it in humans.

In addition, the fiber content in Fermented Glutinous Black Rice plays a role in decreasing waist circumference. Fiber causes slowing of emptying of the stomach so that someone feels full faster. Most of the fiber will be broken down by bacteria in saekum and colon. The process of decomposition by bacteria is in the form of gases, short chain fatty acids and other molecules. All of these substances and the nature of holding water in the remaining fiber fragments together will result in a larger stool mass. The result of many stool mass and soft (because it contains water) one of them is an increase in the frequency of bowel movements and a reduction in colonic transit time [7].

This study is in line with Santawati's (2010) study, which states that there is a relationship between fiber intake and waist

circumference that shows a meaningful relationship. In this study fiber was obtained from Fermented Glutinous Black Rice. The correlation of fiber intake with waist circumference is negative, meaning that the higher the fiber intake, the lower the waist circumference [27].

It is known that the results of this study both in the intervention group and in the control group significantly decreased waist circumference based on the results of statistical tests. This, shows that the education of a low-calorie diet also has an influence on the results of this study because in the control group who were only given a low-calorie diet, there was a decrease in waist circumference. This study is in line with the research conducted by Asiah (2009), which states that a balanced low-calorie diet for 14 days can cause a significant reduction in waist circumference of 2.5% [28].

Based on the results of this study it is known that, the sample with a age <40 years experienced a decrease in waist circumference averaging 5.9 cm while for samples with age \geq 40 years experienced a decrease in waist circumference averaging 4.9 cm. Increases in waist circumference occur in tandem with the aging process, even without weight gain [29]. This occurs due to changes in physiological function in the age group of 20 to 64 years who experience an increase in body weight and fat tissue. Conversely, there is a decrease in muscle mass which causes redistribution of fat in the body, with reduced subcutaneous fat and accumulation of fat in the abdominal cavity, thus affecting the incidence of central obesity [30].

Effect of Snack Bar Based on Fermented Glutinous Black Rice and Low Calorie Diet Education on Weight Loss

It is known from the results of statistical tests, that there was no significant difference in mean weight at the beginning and end of the study in the control group while for the waist circumference variable in the same group showed significant mean

differences at the beginning and end of the study. This research is not in line with the research conducted by Meidelwita (2010), shows that based on statistical tests it was found that there were significant differences between body weight before and after a low calorie balanced diet with aerobic physical exercise [31]. This can occur due to the physical activity of the sample which tends to be mild. Body weight describes the amount of protein, fat, water and minerals found in the body [32]. Meanwhile, waist circumference is used to predict the presence of fat deposits in the intra-abdominal region or often called central obesity [33]. Thus, it can be said that body weight describes the composition of the entire body while the waist circumference only describes the distribution of fat in the abdomen. Low calorie diet education is less effective for weight loss because of a longer reduction compared to waist circumference. The results of this study are in accordance with Heysmfield et al's report that weight loss will be slower due to fat oxidation takes longer than the time to oxidize carbohydrates and proteins [34].

This study is in line with research conducted prior to mice, anthocyanin extract from blueberries if added as a supplement can significantly inhibit weight gain and accumulation of body fat [11]. However, this study was carried out on humans and sources of anthocyanins were obtained from Fermented Glutinous Black Rice.

In this study, it was discovered that after a sample of Snack Bar Based on Fermented Glutinous Black Rice felt full longer and slightly bloated. It is known that Fermented Glutinous Black Rice is a product of alcoholic fermentation [24]. The dominant phenolic components detected in Fermented Glutinous Black Rice are anthocyanin compounds and other components such as fiber [25].

Anthocyanin is known to increase fat levels by increasing oxidation of fatty acids [9]. Thus, there is a decrease in body

fat levels faster than with the control group as a result of weight loss and the results of data analysis showed the mean weight loss of the intervention group was 1.30 kg.

The effects of satiety are produced from consuming Snack Bar Based on Fermented Glutinous Black Rice to fiber and fermentation. The fiber contained in Snack Bar Based on Fermented Glutinous Black Rice is a type of insoluble food fiber. Fiber can provide full effects for longer, so that losing weight and being overweight can be avoided [35]. A slowdown in gastric emptying causes a person to feel full after eating and thus eat less. Fiber also, resulting in a lot of stool mass and soft (because it contains water) one of which is an increase in the frequency of defecation and a reduction in colonic transit time [7]. With increasing frequency of defecation and decreased frequency of eating due to longer satiety caused weight loss in the intervention group who were given Snack Bar Based on Fermented Glutinous Black Rice and educated low calorie diet.

CONCLUSION

1. There were significant differences in waist circumference and body weight at the beginning and end of the study in the intervention group with $p < 0.001$ ($p \leq 0.05$) respectively.
2. There is an effect of black sticky tape snack snack on decreasing waist circumference and body weight with each p value = 0.003 and $p < 0.001$ ($p \leq 0.05$)

SUGGESTION

1. It is necessary to socialize the importance of consuming black sticky tape as an alternative functional food to prevent obesity by reducing waist circumference and weight
2. Further research is needed on the relationship between consumption of black sticky rice tape with a decrease in waist circumference and weight in a

larger sample size, using various doses of administration, paying attention to confounding factors such as food intake and physical activity, longer treatment times and paying attention to impressions. sample after consuming black sticky rice tape

3. There is a need to develop black snack bar tape snack products as a snack option to prevent obesity accompanied by a low calorie diet

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ASI RELATIONS HOUSE EXCLUSIVE AND ENVIRONMENT OF EVENTS OF PNEUMONIA IN THE HEALTH DISTRICT Width CITY BENGKULU

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Abstract: According to the World Health Organization (2014), it is stated that the highest infectious cause of death is respiratory infections (ARI), one of the which is pneumonia. Risk factors that Affect the incidence of pneumonia include exclusive breastfeeding and home environment. The purpose of this study is to find out Whether there is a relationship between exclusive breastfeeding and home environment to the incidence of pneumonia in the district of the City of Bengkulu wide center.this health research method used and retrospective case control design approach. With a sample size of 105 Infants and toddlers Obtained by accidental sampling techniques. Data processing by using questionnaire. Data Reviews These were Analyzed using univariate analysis and bivariate analysis with Chi-Square test. The results of the bivariate analysis Showed that the variable of exclusive breastfeeding was associated with the incidence of pneumonia in infants and toddlers $p = 0.001$ with an odds ratio of 4,458 and home environment variables $p = 0.000$ with an odds ratio of 6769. This study shows that the factors that are most associated with pneumonia are Home Circles. It is expected that health center staff will provide health education about PHBs (healthy and clean life behavior), prevention of pneumonia, and handling of pneumonia.

Keywords: Exclusive breastfeeding, Home Environment, Pneumonia

I. INTRODUCTION

Acute respiratory infections (ARI) is a respiratory disease caused by an infectious agent transmitted from human to human. According to the World Health Organization (2014), states that the infectious disease cause of death was respiratory infection (ARI), one of which is pneumonia. Pneumonia alone in America is the first cause of infant mortality, followed by Singapore, Vietnam, Thailand, Malaysia and Brunei Darussalam.

Pneumonia targeted in Sustainable Development Goals (SDGs), in an effort to reduce child mortality. Based on data from the WHO in 2013 there were 6.3 million child deaths in the world, and at 935,000/15% of child deaths caused by pneumonia, diarrhea 9%, and malaria 7% (WHO, 2013).(Ii and Library, 2013) Pneumonia caused by inflammation of the lung with the main source of bacteria, viruses, mikroplasma, mushrooms, various chemicals and particles that make the airways become sore and a little oxygen intake (Klein, 2008).(Anwar and Dharmayanti, 2014), Pneumonia is a severe form of acute respiratory infections bottom that specifically affects the alveoli of the lungs where the state of one or both lungs filled with fluid which causes disruption of the exchange of oxygen which makes it difficult to breathe (Riskasdas, 2007). (Rida, 2014)

Risk factors associated with the incidence of pneumonia is divided into two

major groups, namely intrinsic and extrinsic factors. Intrinsic factors include age, sex, nutritional status, low birth weight, immunization status, breastfeeding and providing Vitamin A. Extrinsic factors include population density, air pollution, type of housing, ventilation, humidity, temperature, type of fuel, the use of drugs, mosquitoes, cigarette smoke, as well as maternal factors both maternal education, maternal age, maternal knowledge (WHO, 2003). (Efni, Machmud and Earth, 2016)

Research conducted by the American College of Allergies estimates that 50% of illnesses are caused by indoor air pollution. While the US EPA or United States of Environment Protection Agency states that the air in the room is two to ten times more dangerous than the air outdoors (Haris.dkk, 2012). (Mahalastri, 2014)

Based on data from the City Health Office Bengkulu. In 2017, the data on pneumonia is highest in region-wide district health centers estimate that as many as 464 people with pneumonia in infants and found as many as 51.11% of children under five. While in 2016, a total of 460 estimates of pneumonia in infants and found 5.2% toddlers.

Based on the description of the above background, seen that the incidence of pneumonia is still in high prevalence and requires attention, the researchers are interested in and are interested in doing research entitled "Exclusive breastfeeding Relations and Events Home Environment Against Pneumonia".

II. METHODS

The design of this study design is the design of case control analytic approach: one study (survey) analytics on how the risk factors studied using retrospective approach. The study design used in a group of cases that were diagnosed with pneumonia, then included in the control group were children who go undiagnosed pneumonia.

This study population is infants and young children in the area of Bengkulu city-wide district health centers in 2018 with a population of 464 infants. The sample in this study was a toddler in the area of Bengkulu city-wide district health center diagnosed pneumonia, with a comparison group of cases and controls 1:2. The total sample in this study is $(n_1 + n_2) = 105$ infants and toddlers.

This research has been conducted in the area of Bengkulu city-wide District Health Clinics. This study was conducted from February - July 2018 sub-district health centers in the area as wide as the city of Bengkulu. This research was conducted using primary data were collected using a questionnaire and a check list which includes Identity Respondents, History of exclusive breastfeeding and the source of air pollution in the House and secondary data in this study is used in making the initial data is data obtained from Puskesmas Betungan Bengkulu city. The collected data were processed and analyzed using univariate analysis and bivariate analysis.

III. RESULTS

1. Univariate analysis

Table 1. Pneumonia, coverage of exclusive breastfeeding, home environment in the area of Bengkulu city-wide health center

variables	Frequency (n = 105)	Percentage (100%)
Pneumonia		
Pneumonia	35	33.3
not Pneumonia	70	66.7
Exclusive breastfeeding		
Exclusive breastfeeding photo	47	44.8
Exclusive Breastfeeding	58	55.2
Home environment		
Exposure to Air Pollution	54	51.4
Not Exposed to Air Pollution	51	48.6

Based on Table 1, shows that of the 105 respondents in the area of Bengkulu city-wide health centers almost half 33.3% had pneumonia, almost 44.8% were not given exclusive breastfeeding and 51.4% largely home environment exposed to air pollution.

2. Bivariate analysis

Table 2. The relationship of exclusive breastfeeding, home environment with the incidence of pneumonia in the area of Bengkulu citywide health center

Independent variables	Pneumonia				P	OR (CI 95%)
	Pneumonia		Not Pneumonia			
	N	%	N	%		
Exclusive breastfeeding						
Exclusive Breastfeeding photo	24	68.6	23	32.9	0,001	4.458 (1.867 to 10.649)
Exclusive breastfeeding	11	31.4	47	67.1		
Home environment						
Exposure to Air Pollution	28	80.0	26	37.1	0,001	6.769 (2.593 to 17.674)
Not Exposed to Air Pollution	7	20.0	44	62.9		
Total	35	100.0	70	100.0		

Based on Table 2, shows that of the 35 respondents who experienced pneumonia, most of which 68.6% were not given exclusive breastfeeding, while 70 respondents who did not have pneumonia majority of 67.1% breastfed exclusively.

Statistical test results obtained $p = 0.001$ and $\alpha = 0.05$. It showed statistically significant correlation between exclusive breastfeeding with pneumonia in region-wide health center city of Bengkulu. The results showed that the respondents were not given exclusive breastfeeding are more at risk for pneumonia by 4.458-fold when compared to respondents who were breastfed exclusively.

Based on Table 2, shows that of the 35 respondents who experienced pneumonia entirely 80.0% of the home environment are exposed to air pollution, while 70 respondents who did not have pneumonia majority of 62.9% of the home environment are not exposed to air pollution.

Statistical test results obtained $p = 0.000 \leq \alpha = 0.05$. It showed statistically significant correlation between home environment with the incidence of pneumonia in the area of Bengkulu city-wide health center. The results showed that the respondents were exposed to air pollution the home environment more at risk for pneumonia by 6.769-fold when compared to respondents that the home environment is not exposed to air pollution.

IV. DISCUSSION

Exclusive breastfeeding relationship with Genesis Pneumonia In Area Health Center as wide as the city of Bengkulu.

Based on the results of the univariate analysis shows that almost half of 44.8% of respondents were not given exclusive breastfeeding and the majority with 55.2% of respondents who were breastfed exclusively. This means that the respondents had not given exclusive breastfeeding is still quite high, coverage of exclusive breastfeeding is still a problem that must be observed by all parties. Whether it's the mother, the family, especially her husband, puhak health workers and the government. This is important because breast milk plays an important role in improving public health. This needs serious attention because it was exclusive breastfeeding promotion program has not gone well, and the mothers are not aware that feeding infants less than 6 months can jeopardize the safety of babies given the baby's digestion is not perfect, the more solid foods consumed by infants, then wane anyway energy intake and Micronutrients from ASI. This causes the quantity and quality of breast milk consumed by infants is low.

The results of the bivariate analysis showed no significant association between exclusive breastfeeding relationship with the incidence of pneumonia in the area of Bengkulu city-wide health center, visible

from 35 respondents who experienced pneumonia majority of 68.6% were not given exclusive breastfeeding, while breastfed exclusively mostly 67.1 % did not develop pneumonia.

The relationship between breastfeeding with the incidence of pneumonia is based on the number of protective factors found in breast milk, because the milk is a living fluid that contains antibodies that will protect the baby from infections, bacteria, viruses, parasites and fungi (Roesli, 2005). (Mahalastri, 2014) The studies that have been conducted by experts reported breastfeeding can reduce the incidence and severity of diarrhea, respiratory tract infections, otitis media, meningitis, urinary tract infections and gastrointestinal infections are accompanied by tissue death (Tumbelaka and Karyanti, 2008). (Mahalastri, 2014)

Environmental Relations Home With Genesis Pneumonia In Bengkulu city-wide Regional Health Center

Based on the results of the study showed that the majority of 51.4% of respondents were exposed to air pollution and almost half of 48.6% of respondents who are not exposed to air pollution. This means that the respondents had exposure to air pollution in the area of Bengkulu city-wide health center is quite high.

The results showed also no significant relationship between the home environment with the incidence of pneumonia in the area of Bengkulu city-wide health center, as seen from the respondents who experienced pneumonia 80.0% whole home environment exposed to air pollution, while respondents who did not have pneumonia mostly 62,9% of the home environment are not exposed to air pollution.

The persistently high home environment respondents exposed to air pollution due to various factors, one of which is lack of good ventilation, ventilation in the room such as the kitchen.

The kitchen includes rooms in the house should be ventilated so that smoke from the combustion of the cooking process can be replaced with fresh air. In addition there are family members who smoke in the home is also a risk factor for the home environment become exposed to air pollution, as well as the use of mosquito coils. Use of insect repellent is not recommended for use mosquito coils will cause smoke such as cigarette consumption. The smoke produced from carbonil mosquito coils containing compound (formaldehyde and acetaldehyde) which are carcinogenic.

Air pollution caused by the use of insect repellent is also a factor that is associated with the occurrence of pneumonia in infants. The smoke produced from the combustion residue can increase 3-fold risk of experiencing respiratory disorders in children under five years of exposure than children under five years old are not exposed. Actions that can be done is to replace the function of mosquito coils with the use of mosquito nets If can not be abandoned, good ventilation should be maintained so that the air exchange to occur properly

V. CONCLUSION

Based on the research results There is a relationship between exclusive breastfeeding and Home Environment with the incidence of pneumonia in the area of Bengkulu city-wide health center. Responses were not given exclusive breastfeeding more easily infected with viral pneumonia compared respondon that is given exclusive breastfeeding for 6 months and respondents who have a home does not qualify a healthy home into the factors most associated with the incidence of pneumonia

Suggested for health services should improve the dissemination of information through outreach to the community to raise awareness of mothers to breastfeed until the baby is 6 months old, reduce activities

that cause a lot of smoke like cooking with kerosene or firewood and replace it with the use of electricity or gas for cooking and do not use mosquito coils and replace it with the use of mosquito nets.

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THE RELATIONSHIP OF PERSONAL HYGIENE BEHAVIOR AND ENVIRONMENTAL HEALTH FACILITIES AVAILABILITY WITH TYPHOID FEVER IN SUKAMERINDU HEALTH CENTER BENGKULU CITY

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ABSTRACT

Abstract: The presence of a disease in an area depends on the human condition and the environment that is suitable for the life of disease-causing microorganisms, one of which is salmonella typhosa which causes typhoid fever. Sukamerindu Health Center has the most cases of Typhoid Fever with a total of 115 people and 102 clinical patients. This study aims to determine the relationship between personal hygiene behavior and the availability of environmental health facilities with the incidence of Typhoid Fever in the Sukamerindu Health Center in Bengkulu City. The type of research used is analytic epidemiology with a case-control study design. The population in this study were all patients with Typhoid Fever in the Sukamerindu Health Center in Bengkulu City. The sample in this study was a sample of 52 people and a control sample of 52 people. The collected data were processed and analyzed using univariate, bivariate and multivariate analyzes. The results of this study indicate that there is a significant relationship between socioeconomic and typhoid fever ($p = 0.029$) and there is a relationship between the habit of washing raw food ingredients before consumption with typhoid fever ($p = 0.030$). The results of this study also showed several research variables that were not related to typhoid fever, including eating habits outside the home, washing hands after defecation, eating habits outside the home, clean water facilities, facilities for disposal of feces. It is suggested that people always maintain personal hygiene such as washing their hands with soap before eating, washing their hands with soap after defecation, and washing fruits and vegetables that will be consumed immediately.

Keywords: personal hygiene, environmental health facilities, typhoid fever

I. INTRODUCTION

Typhoid fever is an acute infectious disease that affects the digestive tract with symptoms of fever that lasts more than one week, disorders of the gastrointestinal tract, and disturbances of consciousness. The cause of this disease is salmonella typhosa, gram-negative bacillus that moves with bristles, not spreading (Ngastiyah, 2005). Typhoid and Paratyphoid Fever are endemic in Indonesia. This disease is rarely found epidemically and is sporadic, i.e., scattered in an area, and rarely occurs in more than one case at home people (Mansjoer. 2007).

The presence of a disease in an area depends on the presence of sensitive humans and environmental conditions suitable for the life of disease-causing microorganisms. Agricultural fields, animal husbandry, fecal use habits for fertilizers, environmental hygiene, poor sanitation, and personal hygiene and poverty are all factors that can increase the spread of disease. Epidemiological studies carried out in Indonesia show that infectious diseases are still an important cause of death in Indonesia. The Lack of clean water facilities, narrow land where families live, eating habits with hands that are not washed first, reuse of leaves and food packaging that has been thrown into the trash, vegetables eaten raw, river water use for various necessities of life (bathing, washing food, washing clothes, gargling, brushing teeth, which are also used as latrines), and using feces for vegetable fertilizers, increasing the spread of

infectious diseases that attack the digestive system (Soedarto, 2009).

Typhoid fever is the highest disease number 3 in the city of Bengkulu after ILI (Influenza Like Illness) and diarrheal diseases. The case report from the Bengkulu City Health Office stated that the Sukamerindu Health Center had the most cases of typhoid fever with a total of 115 people and 102 clinical patients. This study aims to determine the relationship between personal hygiene behavior and the availability of environmental health facilities with the incidence of typhoid fever in the Sukamerindu Health Center in Bengkulu City.

II. METHOD

The type of research used is a type of analytic epidemiology research. The research design used in this study was a case-control study design. In a case-control study, a group of cases (patients suffering from typhoid fever) was compared with a group of controls (those who did not have typhoid fever). This study wants to know whether certain risk factors affect the occurrence of the effects studied by comparing the frequency of exposure to these risk factors in the case group with the control group (Sudigdo Sastroasmoro S & Ismail S, 2011).

The population in the study were all patients with typhoid fever at the health center in Sukamerindu city of Bengkulu, divided into two, namely the case population and control population. The case population in this study were all patients with Typhoid Fever in Community Health Centers in Bengkulu city in

2017. The control population in this study were patients who did not suffer from Typhoid Disease in Sukamerindu Health Center, Bengkulu City. The sample in this study were patients with typhoid fever at the health center of Sukamerindu, Bengkulu city.

Samples taken as a case were 52 people who were a total sample of typhoid fever patients at health centers Sukamerindu city of Bengkulu as many as 52 people and for control as many as 52 people who did not suffer from typhoid fever. This research was conducted in March, November 2017 at Sukamerindu Health Center, Bengkulu City. The collected data were processed and analyzed using univariate, bivariate and multivariate analyzes. The data presented in the form of narratives, tables, and graphs.

III. HASIL

Table 1. Age Characteristics, Gender and Frequency Distribution Data from Typhoid Fever Patients

Characteristics of Respondents	f	%	Total
Age			
15-35 years	55	52,9	104
≥ 35 years	49	47,1	
Gender			
Male	47	45,2	104
Female	57	54,8	
Socio-economic			
Low	60	57,7	104
High	44	42,3	

Table 1 shows that the majority of typhoid fever patients, 52.7% were aged 15-35 years, 54.8% were female, and 57.7% had low economic status.

Table 2. Relationship between Personal Hygiene Behavior and Availability of Environmental Health Facilities with Typhoid Fever Occurrences at Sukamerindu Health Center 2017

Variable	Typhoid Fever				OR	Sign %
	Cases		control			
	N	%	n	%		
Socio-economic						
Low	36	60,0	24	40,0	2,625	0,029
High	16	36,4	28	63,6		
Hand washing habits before eating						
Not good	27	55,1	22	44,9	1,473	0,432
Good	25	45,5	30	54,5		

Hand washing habits after defecation						
Not good	30	52,6	27	47,4	1,263	0.694
Good	22	46,8	25	53,2		
Habits of eating outdoors						
Yes						
No	25	58,1	18	41,9	1,749	0,232
	27	44,3	34	55,7		
The habit of washing raw food ingredients before consumption						
Not good	29	63,0	17	37,0	2,596	0,030
Good	23	39,7	35	60,3		
Clean water facilities						
Not eligible	22	61,1	14	38,9	1,990	0,149
Qualify	30	44,1	38	55,9		
Stool disposal facilities						
Not eligible	23	62,2	14	14	2,153	0,101
Qualify	29	43,3	38	38		

Table 2. shows that there is a significant relationship between socioeconomic with the incidence of typhoid fever. There is no significant relationship between the habit of hand washing before eating and the incidence of typhoid fever. There is no significant relationship between the habit of hand washing after defecation with the prevalence of typhoid fever, no Significant relationship between eating habits outside the home and the incidence of typhoid fever. There is a significant relationship between the habit of washing raw materials before consumption with the prevalence of typhoid fever, and there is no relationship between clean water facilities and the incidence of typhoid fever and there is no relationship between stool disposal facilities and the prevalence of typhoid fever.

IV. DISCUSSION

a Relationship between Social Economy and Typhoid Fever Events in Sukamerindu Health Center, Bengkulu City in 2017

There is a significant relationship between Social Economy with Typhoid Fever Events in Sukamerindu Health Center, Bengkulu City in 2017 with (p-value = 0.029). Low economic status greatly affects the incidence of typhoid fever which may be due to factors of food that is consumed less sterile so that it can change the occurrence of typhoid fever.

b. A relationship between Hand washing Habits Before Eating with Typhoid Fever Events in the Sukamerindu Health Center, Bengkulu City in 2017

There was no significant relationship between the habit of Hand Washing Before Eating with Typhoid Fever Occurrence in Sukamerindu Health Center, Bengkulu City in 2017 with a value of $p = 0.432$. It is possible because most respondents have had the habit of washing their hands before eating using soap, running water and rubbing the toes of the hands and nails. Hands are the part of the human body that is most directly related to the mouth and nose so that the hands become one of the main introduction to the entry of disease-causing germs into the human body. One habit that can minimize the number of bacteria on the hand is by washing hands. This proves that respondents have the habit of washing their hands before eating much better.

It is not in line with the study of Papatungan, W, et al., which stated that there was a relationship between the habit of hand washing with soap before meals with a $p = 0.04$ and Maghfiroh AE research, et al. with a value of $p = 0.003$. Not in line with Nuramman's research, H. et al. who stated that there was a relationship between the habit of washing hands before eating with typhoid fever.

c. The Relationship of Eating Habits Outside the Home with Typhoid Fever Events in the Sukamerindu Health Center in Bengkulu City in 2017

There was no relationship between eating habits outside the home and typhoid fever at the Sukamerindu City Health Center in Bengkulu in

2017 with a value of $p = 0.232$. A snack selling place greatly influences the cleanliness of food and drinks sold, if food and beverages are sold on the roadside, the risk of contracting typhoid fever will be high. A roadside is an open place so that vector, dust will easily enter the contaminated food or drink so that if consumed it can cause typhoid fever (Diah, 2007).

Eating outside the home is a habit of most people, from this habit it is not uncommon for someone to pay less attention to the cleanliness of the food they eat. Drinks are essential because using unripe drinking water can cause a risk of typhoid fever such as contaminated water, contaminated ice water. *Salmonella typhi* infection generally occurs due to consuming contaminated food and beverages due to unhygienic handling (Nurvina, 2013). Respondents in this study are likely only some who have a snack habit outside the home with a frequency of more than three times in a week.

It is not in line with the study of Paputungan, W. et al. which states that there is a relationship between eating habits outside the home with typhoid fever with p -value = 0.030.

d. The Relationship between Washing Habits of Raw Food Material Before Consumption with Typhoid Fever Occurrence in Sukamerindu Bengkulu City Health Center in 2017

There is a relationship between the habit of washing raw food ingredients before consumption with the incidence of typhoid fever in the health center of Sukamerindu, Bengkulu city in 2017 with a value of $p = 0.030$. In this study, respondents do not have the habit of washing raw materials that will be consumed directly, and respondents do not have good habits in washing food ingredients that will be consumed directly. It is because respondents did not wash raw fruits and vegetables before consumption, because it is possible that fruits and vegetables often contain pesticides or fertilizers derived from human feces. Therefore, the community should be accustomed to washing raw fruits and vegetables that will be consumed directly so that *salmonella typhi* bacteria which may be found in fresh fruits and vegetables can be removed by the correct washing process.

This study is not in line with Paputungan's research, W. et al., which stated that there was no correlation between the habit of washing raw food ingredients before consumption with the incidence of typhoid fever with $p = 0.774$.

e. Relationship of Clean Water Facilities with Typhoid Fever Occurrences in Sukamerindu Health Center, Bengkulu City in 2017

There is no relationship between the relationship of Clean Water Facilities with Typhoid Fever Events in Sukamerindu City Bengkulu Health Center in 2017 with a value of $p = 0.149$. Household water that does not meet health quality requirements tends to be a means of spreading various diseases, including typhoid fever. For various life necessities, clean water must meet several physical and bacteriological requirements. Respondents in their homes have had clean water supply and PDAM. The distance from sources of clean water that are far from sources of contaminants (latrines) is probably one way to avoid the possibility of spreading *salmonella typhi*. It is caused by bacteria from the source area of contamination spreading a maximum of 2-5 meters, then narrowing to 11 meters. Contamination is in the direction of groundwater flow and not vice versa. So that if the distance between the source of clean water and the nearest pollutant source is less than 10 meters, the higher the possibility of contamination.

This study is not in line with Pramitasari, O, P (2013) stating that there is a relationship between sources of clean water with the incidence of typhoid fever with a value of $p = 0.045$.

F. Relation of Fecal Disposal Facilities with Typhoid Fever Events in Sukamerindu Health Center, Bengkulu City in 2017

There is no relationship between Fecal Disposal Facilities and Typhoid Fever Events in Sukamerindu City Bengkulu Health Center in 2017 with a value of $p = 0.101$. Some of the respondents in this study had disposal facilities that have fulfilled health requirements. Stool disposal facilities that meet the requirements will be able to avoid one of the causes of the development of typhoid *salmonella* bacteria and can avoid one of the causes of typhoid fever.

This research is in line with the research of Sari, W.Y, (2013) which states that there is no relationship between ownership of latrines and the incidence of typhoid fever. Respondents who had latrines were more extensive in the case group compared to the control group.

V. Conclusions

The results of this study indicate that there is a significant relationship between socioeconomic and typhoid fever ($p = 0.029$) and there is a

relationship between the habit of washing raw food ingredients before consumption with typhoid fever ($p = 0.030$). The results of this study also showed several research variables that were not related to typhoid fever, including eating habits outside the home, washing hands after defecation, eating habits outside the home, clean water facilities, facilities for disposal of feces. It is suggested that people always maintain personal hygiene such as always washing their hands with soap before eating, washing their hands with soap after defecation, always washing fruits and vegetables that will be consumed immediately.

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RISK ANALYSIS IMPAIRED RESPIRATORY DUE TO GAS AMMONIA (NH₃) IN THE FACTORY WORKER RUBBER

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Abstract

Ammonia (NH₃) is a chemical used for the production of latex and useful in a rubber factory industry. This study is a descriptive that portray the environmental health risk analysis, analyzing exposure to ammonia gas to rubber factory workers. indicate a potential source of exposure to ammonia derived from the latex. The concentration of ammonia gas (NH₃) the highest of 1.28 g / Nm³ and the lowest was 0.09mg / Nm³. All rubber factory workers are not at higher risk of non-carcinogenic (RQ <1).

Keywords: Risk Analysis, Respiratory Disorders, Ammonia

INTRODUCTION

Rubber factory working environment harmful to the respiratory and pulmonary health. This is caused by exposure to chemicals are corrosive, suspended in the air, such as ammonia. Pollutants Ammonia is stationary so that the environment receives a high risk of pollution impact. As well as humans will have a high risk and bad for health (Kris, 2002). When the ammonia levels are continuously exposed to the workers will create an impact and risk to the health problems of workers. So researchers need to know the risk analysis of respiratory disorders due to ammonia gas (NH₃) at a rubber factory workers.

METHOD

Type a descriptive study conducted by environmental health risk analysis approach at Padang City Rubber factory. Samples are workers who worked in production buildup of latex, washing, counting and rolling pin, dryer and scales up to 30 people. **The sampling technique of ammonia in this study refers to the Indonesian National Standard (SNI) 19-7117.6-2005. Intake of exposure to Ammonia ((NH₃) can be calculated using the following equation:**

$$I = \frac{C \times R \times t \times f \times e \times D}{W \times T_{avg}}$$

The calculation uses the following

formula: $RQ = \frac{Intake}{RfC}$

The calculation of RQ produce two categories of risk level is the level of risk is less or equal than 1

RESULTS

Sources of potential activities that there are elements of ammonia gas (NH₃) is actually derived from the production of processed rubber (latex) itself derived from rubber plantations was transported.

Table 1. Concentration of Ammonia (NH₃) in the working environment Rubber Factory

Measurement of Ammonia (NH ₃)	Results of Measurement (mg / Nm ³)	Maximum levels (mg / Nm ³)	Description
point 1(Front of the factory)	0.09	2	Qualify
Point 2 (in the factory)	1.28	2	Qualify
Point 3 (rear factory)	0.75	2	Qualify

Table 1 above, the gas concentration of ammonia (NH₃) the highest of 1.28 mg / Nm³ at the measurement point in a rubber factory production area.

Respiratory Disorders

Table 2. Respiratory Disorders rubber factory worker

Respiratory Disorders	f	%
Impaired	16	53.3
Uninterrupted	14	46.7
Total	30	100

From Table 2 known to most workers experience respiratory symptoms (53.3%).

Risk Analysis

Intake of ammonia gas inhaled by workers while around the rubber factory production area is 0.6798 mg / kg / day, while the average intake of ammonia gas projections rubber factory worker of 30 years is 0.1293 mg / kg / day. Characteristics of risk (RQ) of ammonia gas risk agents (TSP) at the time during the working (*realtime*) shows all of the workers are not at risk (RQ <1) or secure.

DISCUSSION

When compared to standard values issued by ATSDR (2004) and EPA (2004) the concentration of ammonia in the rubber factory is still below the standards that have been defined. Exposure factors are factors related to the characteristics and human behavior that can make populations

or organisms exposed to an agent (EPA, 2011; ATSDR, 2015). Basically the larger the value of the intake of ammonia exposure, the greater the risk of respondents have no safe exposure to ammonia,

ACKNOWLEDGMENTS

Researchers say thanks to rubber factory management which facilitated this research activity.

CONCLUSION

Employee Health Risk Level rubber factory production categorized as not at risk and for risk characteristics (RQ) during the 30-year projection. The recommended permanent workers using personal protective equipment (PPE) such as masks and gloves while working.

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THE EFFECT OF HEALTH EDUCATION THROUGH SOCIAL MEDIA ON THE KNOWLEDGE OF ADOLESCENTS ABOUT PREMARITAL SEX AT SENIOR HIGH SCHOOL NUMBER 10 OF BENGKULU CITY

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Abstract— Bengkulu Province, based on the 2016 Indonesian Demographic and Health Survey (IDHS) states that was ranked 6th out of 34 provinces in Indonesia, the highest number of marriages under the age of 21. Meanwhile, Senior high school number 10 of Bengkulu City is a state high school with the highest drop out that is from 583 students there are 7 (1.2%) who come out because of juvenile delinquency. The purpose of the study was to determine the effect of health education through social media on the knowledge of adolescents about premarital sex at Senior high school number 10 of Bengkulu City. This research is a quasy experimental study, with pretest-posttest control group design. The total sample is 68 respondents. The results of this study are the influence of health education through social media on knowledge of adolescents about premarital sex in senior high school number 10 of Bengkulu City (p value = 0.002). It is expected to provide health education about premarital sex to increase teenage knowledge about the effects of premarital sex.

Keyword: Education, Knowledge, and Premarital Sex

I. INTRODUCTION

Data from WHO (World Health organization) that conducts research in several developing countries shows that around 40% of teenagers aged 18 years

have had sex even though there is no marriage bond. As a result of sexual intercourse, about 12% have been positively affected by sexually transmitted diseases and about 27% are positive for HIV / AIDS [1].

In Indonesia, premarital sexual behavior carried out by adolescents (15-18 yers) form of kissing, petting and oral sex (93.7%) are not virgins (62.7%), have had an abortion (21.2 %), had watched pornographic films (97%) [2]. In Bengkulu Province, based on data obtained from the Ministry of Health, Republic of Indonesia (2012) also explained that around 33.3% of girls and 34.5% of boys aged 15-19 started dating when they were not 15 years old. While in the city of Bengkulu, public schools found teenagers who came out because of premarital sex were Senior High School number 10 of Bengkulu city [3].

Ariani (2014) knowledge is human curiosity towards something and a desire to improve the quality of life nd more comfortable which develops as an effort to fulfill human needs both now and in the future. [4].

Social media according to Joyce Kasman Valenza (2014), social media is an internet platform that allows individuals to share immediately and communicate continuously with their communities. One of the advantages of social media is that information sources are easier and faster to obtain and more transparent[5].

Based on the description above, it is necessary to conduct research to overcome

these problems, so that the formulation of the problem in this study is whether there is an influence of health education through social media on the knowledge of adolescents about premarital sex in senior high school number 10 of Bengkulu City.

II. METHODS

Experimental quasi-research was used in this study. The design of this study used pretest-posttest control group design.

Sampling using purposive sampling technique with a total sample of 68 respondents consisting of 34 respondents in the experimental group and 34 respondents in the comparison group. The instrument in this study uses a questionnaire containing 15 questions with 3 answer choices. If the respondent answers correctly it will be given a score of 1 and if the respondent's answer is wrong then a score of 0 will be given at each question point. The pre-test questionnaire was given to the experimental group and comparison group, after the pre-test was given education through social media (Facebook and Instagram) in the experimental group and given education through leaflets in the comparison group. After the intervention is done, the respondent will be given the same questionnaire to find out the post test score.

Tabel 1 Perbedaan Tingkat Pengetahuan Sebelum dan Setelah Diberikan Pendidikan Pada Kelompok Eksperimen (Media Sosial)

Variabel	N	Mean	SD	Sig.(2-Tailed)
Pengetahuan laki-laki				
Sebelum	17	6.23	2.19	0.001
Setelah	17	8.64	1.99	
Pengetahuan perempuan				
Sebelum	17	7.11	2.20	0.000
Setelah	17	14.23	1.14	

Berdasarkan tabel 1 diatas dapat dilihat bahwa skor rata-rata kelompok eksperimen laki-laki setelah diberikan pendidikan melalui media sosial menjadi 8.64 dengan

nilai signifikansi pada penelitian ini adalah $p\ value=0.001 \leq 0.05$ dengan tingkat kepercayaan 95 %, sementara pada kelompok eksperimen perempuan yaitu yang dengan skor rata-rata setelah 14.23 dan nilai $p\ value=0.000 \leq 0.05$ dengan tingkat kepercayaan 95 %, jadi dapat disimpulkan bahwa H_a diterima yang berarti terdapat perbedaan tingkat pengetahuan sebelum eksperimen dan setelah eksperimen baik pada kelompok laki-laki dan kelompok perempuan dan kelompok dengan skor tertinggi adalah kelompok eksperimen perempuan.

Tabel 2 Perbedaan Tingkat Pengetahuan Sebelum dan Setelah Diberikan Pendidikan Pada Kelompok Pemanding (Leaflet)

Variabel	N	Mean	SD	Sig.(2-Tailed)
Pengetahuan laki-laki				
Sebelum	17	5.64	1.99	0.001
Setelah	17	9.23	2.38	
Pengetahuan perempuan				
Sebelum	17	8.88	1.90	0.000
Setelah	17	11.05	1.47	

Berdasarkan tabel 2 diatas dapat dilihat nilai signifikansi kelompok pembanding laki-laki nilai $p\ value=0.001 \leq 0.05$, sehingga terjadi perbedaan pada sebelum dan setelah pada kelompok pembanding laki-laki. Namun pada kelompok perempuan nilai signifikansi pada penelitian ini adalah $p\ value=0.000 \leq 0.05$ dengan tingkat kepercayaan 95 %, sehingga kesimpulan dari hasil tabel tersebut adalah pendidikan melalui leaflet lebih berpengaruh terhadap pengetahuan remaja perempuan.

Tabel 3 Pengaruh Pendidikan Kesehatan Melalui Media Sosial Terhadap Pengetahuan Remaja Tentang Seks Pranikah di SMA Negeri 10 Kota Bengkulu

Variabel	N	Mean	SD	Sig.
Pengaruh penelitian				
Media sosial	34	11,44	3.25	0.002
Leaflet	34	10,14	2.16	

Berdasarkan tabel 3 memperlihatkan rata-rata pengetahuan responden dengan media sosial sebesar 11,44 sementara responden media leaflet sebesar 10,14. Terjadi perbedaan sebesar 1,3 point, sehingga secara uji statistic diperoleh nilai $p\text{ value}=0.002 \leq 0.05$ dengan menggunakan tingkat kepercayaan 95 %, maka dapat disimpulkan bahwa H_a diterima dan H_0 ditolak. Artinya ada pengaruh pendidikan melalui eksperimen (Media Sosial) dan leaflet. Namun skor rata-rata yang lebih signifikan adalah skor rata-rata pendidikan melalui media sosial (facebook dan instagram), sehingga dapat disimpulkan bahwa terdapat pengaruh yang lebih signifikan antara pendidikan kesehatan melalui media sosial terhadap pengetahuan remaja tentang seks pranikah jika dibandingkan dengan pendidikan kesehatan melalui leaflet terhadap pengetahuan remaja.

III. DISCUSSION

Based on table 1 it can be seen that the average score after being educated through social media to 8.64 with a significance value in this study is $p\text{ value} = 0.001 \leq 0.05$ with a 95% confidence level, while in the female experimental group that is the average score after 14.23 and the value of $p\text{ value} = 0.000 \leq 0.05$ with a 95% confidence level, so it can be concluded that H_a is accepted which means that there is a difference in the level of knowledge before the experiment and after the experiment both in the male group and the female group and the group with the highest score is the female experimental group.

Based on table 2 it can be seen that there was an increase in knowledge in the comparison group of men, because the value of $p\text{ value} = 0.001 \leq 0.05$, so that there was a difference before and after the comparison group of men. But in the female group the significance value in this study was $p\text{ value} = 0.000 \leq 0.05$ with a 95% confidence level, so it can be

concluded that H_a was accepted which means that there was a difference in the level of knowledge in the female comparison group. So the conclusion from the results of the table is that there is an influence of education through leaflets on the knowledge of adolescents.

Based on the results of statistical analysis using the T-test test get Sig. $0.002 < \alpha 0.05$ using 95% confidence level, which means that H_a is accepted, so that there is an influence of health education through experiments (Social Media) and leaflets. This research is in line with research conducted by Cynthia Vera Nugrohoi (2014). The effect of giving reproductive health materials through facebook groups on adolescent knowledge, the results of linear regression tests showed that Facebook has an effect on knowledge ($p\text{ value} = 0.002$), so there is a significant difference in respondent's knowledge.

Research conducted by Utari, Syarifah, Namora lumongga lubis (2012) which showed that there was an influence of electronic media with the knowledge, attitudes and actions of students about premarital sex with a $p\text{ value} = 0.046 \leq 0.05$.

Based on the explanation above, it was found that the results of the study answered the hypothesis that there was an influence of health education through social media on the knowledge of adolescents about premarital sex at Senior High School number 10 of Bengkulu city .

CONCLUSION

The results of this study can be concluded that the characteristics of respondents are mostly 18 years old, class XI and male and female. In the respondent's characteristics, age and class did not significantly influence the increase of knowledge in this study, but female sex had more influence on health education through social media and leaflets compared to men. Both the experimental group and the comparison group experienced increased knowledge. The provision of health education through

social media further enhances the knowledge of adolescents about premarital sex when compared to providing education through leaflets.

For schools, it is expected to provide health education about premarital sex to increase knowledge of adolescents and to avoid premarital sex.

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ICE SHERBET SUMBER ANTOSIANIN DAN SERAT BERBASIS TAPE KETAN HITAM DAN STROBERI SEBAGAI ALTERNATIF PENCEGAH KEGEMUKAN

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ABSTRACT

Obesity is a condition caused by disturbance of energy balance in the body, 19.7% of Indonesian male population is overweight and 32.9% are women. Antosianin and fiber have been associated with several therapeutic roles including beneficial effects on obesity. Black Tapai Berry Ice Sherbet product is rich in anthocyanin and fiber are needed to prevent obesity which has been proven that some studies are used as antiobesity. The purpose of this research is to get the formulation of black-stained tapai and strawberry, to determine the effect of Black Tapai Berry Ice Sherbet formula to the color, aroma, taste, and texture of the product, and to analyze the anthocyanin and fiber of product. This type of research is an experimental study using Complete Randomized Design. The method research used hedonic test to know the organoleptic properties, differential pH for anthocyanin test, and enzymatic gravimetric for fiber test. The formulation of Black Tapai Berry Ice Sherbet was obtained from previous research, F1(25:% 75%), F2 (50%: 50%), F3 (75%: 25%). The results of Kruskal Wallis test showed significant differences in hedonic test (color, aroma, taste, and texture). F3 has the highest level in color, aroma, taste, and texture. The anthocyanin and fiber content in Black Tapai Berry Ice

Sherbet products is 22,1 mg and 3.25 g per 100 g of product.

Keywords: Black Tapai Berry Ice Sherbet, Organoleptic Properties, Anthocyanin, Fiber

Introduction

Obesity is often defined as an abnormal condition or excess fat that is serious in adipose tissue, which disrupts health. The main cause of obesity is an imbalance between energy entering and energy out¹. In 2014, more than 1.9 million adults were overweight (overweight), and more than 600 million people were obese. The prevalence of obese adult male population in Indonesia in 2013 was 19.7%, while the prevalence of adult female obesity was 32.9%².

Obesity is a condition caused by a disturbance of energy balance in the body. In obese conditions, adipose tissue produces various cytokines and hormones (adipokine or adipocytokine), one of which is adiponectin. Adiponectin is the most abundant adipocytokine and is found to have decreased in conditions of obesity. Decrease in adiponectin levels associated with obesity is evidenced by experiments using mice (knock out-mice) in which the adiponectin gene has been deactivated so that the ability to remove free fatty acids in plasma becomes decreased³.

Anthocyanin is a water-soluble pigment found in fruits and vegetables,

anthocyanins have been associated with several therapeutic roles including beneficial effects on obesity. Anthocyanins can suppress weight gain by regulating lipid metabolism by suppressing genes related to fatty acid synthesis and inducing the expression of β -oxidation-related genes, besides anthocyanins can also reduce insulin resistance, affect the number and size of adipocytes in adipose tissue, and increase adiponectin concentration⁴.

Consumption of foods that contain high fiber can also control weight so as to prevent obesity. Foods that are rich in fiber, when digested longer in the stomach, then the fiber will draw water and give a sense of fullness longer so as to prevent consuming more food⁵.

Fermented Glutinous Black Rice is a traditional fermentation product. Tape ketan has a slightly sour sweet taste and has a distinctive taste because it contains alcohol⁶. Tape ketan can be made from white glutinous rice and black glutinous rice. Tape black sticky rice has phenolic, anthocyanin, and also contains fiber components. Fauziyah's (2015) study shows that there is a significant relationship between consumption of black sticky rice tape and the incidence of metabolic syndrome, one of which is obesity, where daily consumption of black sticky tape has a protective effect on the incidence of metabolic syndrome by 12 times compared to non-consumption of black sticky rice⁷.

In addition to black sticky tape, anthocyanins are an important component in strawberries⁸. Strawberries also contain lots of water and fiber, have many small seeds in the fruit. Prior, et al (2008) study showed that giving strawberry powder had an effect on obesity characterized by an emphasis on weight gain in the sample⁹.

Processed products favored by the public, one of which is frozen food products or frozen dairy products, such as ice cream, mellorine, gelato, sorbet, and sherbet. Sherbet has different characteristics from ice cream, which has a

lower fat content of 1-2%¹⁰. Looking at the anthocyanin and fiber content in the tape of black and strawberry sticky rice, and the low fat content of the sherbet, food diversification was carried out with the aim of getting new products (Black Tapai Berry Ice Sherbet) as intermittent foods that have high anthocyanin and fiber content as food functional to prevent obesity.

METHOD

The research design used was experimental study design. The dependent variable is *Black Tapai Berry Ice Sherbet* with a formulation of tape of black and strawberry sticky rice 25%: 75%, 50%: 50%, and 75%: 25% affecting the dependent variable, namely organoleptic properties, anthocyanin levels, and product fiber content. This research was an experimental study with a completely randomized design (CRD), which was carried out at the Food Technology Laboratory of the Nutrition Department of the Ministry of Health Poltekkes Bandung for the manufacture of products, organoleptic tests carried out in the Laboratory of Organoleptic Testing, and anthocyanin level testing and fiber content carried out at the Center for Research and Development Postharvest Test Testing Laboratory, Bogor, during January - April 2018. The balance used is F1 (25%: 75%), F2 (50%: 50%), and F3 (75%: 25%).

The main ingredient used in this study is a tape of black and strawberry sticky rice with the addition of other ingredients such as full cream milk and CMC. The chemicals used are 15% HCl, methanol, potassium chloride, sodium acetate, concentrated HCl, buffer solution, termamyl solution, 4 M HCl solution, pepsin, pancreatin, ethanol, acetone, and petroleum ether.

The tools used in the manufacture of Black Tapai Berry Ice Sherbet product formulas are basins, measuring cups, pans, baking sheets, paper cups, measuring

spoons, blenders, ice ream makers, refrigerators / freezers, and food scales digital. Whereas the equipment used for anthocyanin and fiber testing is a beaker, measuring cup, measuring flask, pipette, filter paper, test tube, 1 cm cuvette, digital analytic balance, UV-Vis spectrophotometer, soxhlet apparatus, vacuum funnel, fume hood, crucible, muffle furnaces, and desiccators.

This research was conducted through several stages, namely the stage of making Black Tapai Berry Ice Sherbet products, the hedonic test stage based on aspects of color, aroma, taste, and texture, as well as

the stages of anthocyanin and fiber analysis tests.

Making Black Tapai Berry Ice Sherbet Products

Blend the black sticky rice and strawberries using a blender. Prepare a basin, put the tape dough and strawberries into it. Add full cream milk and CMC to the mixture, then homogenize using a mixer. Cool it to 4°C quickly by using ice cream maker. Put it in the freezer until the ice texture hardens. The composition of the Black Tapai Berry Ice Sherbet product formulation can be seen in table 1.

Table 1. Materials for making Black Tapai Berry Ice Sherbet products

No	Bahan	Formulation 1 FGBR: Strawberry 25% : 75%	Formulation 2 FGBR : Strawberry 50% : 50%	Formulation 3 FGBR : Strawberry 75% : 25%
1	Fermented Glutinous Black Rice (FGBR)	188 gram	375 gram	562 gram
2	Strawberry	562 gram	375 gram	188 gram
3	Susu <i>Full Cream Milk</i>	250 ml	250 ml	250 ml
4	CMC	3 gram	3 gram	3 gram

Hedonic Test

Hedonic testing was carried out on 30 trained panelists¹¹, who are lecturers and students at Nutrition Department of Bandung Health Ministry Polytechnic who had received material on Organoleptic Tests. The instrument used is a questionnaire form in the form of a hedonic test form on aspects color, aroma, taste, and texture, with a scale of 1-7, namely: (1) strongly dislike, (2) dislike, (3) rather dislike, (4) neutral, (5) rather like, (6) likes, and (7) really like. Determination of the most preferred product or superior product is seen from the highest level of panelists who declare their likes and likes among the three formulas. Data processing and analysis were carried out to determine the effect of black and strawberry sticky rice tape on the level of panelists' preference for Black Tapai Berry Ice Sherbet products, analysis using SPSS 20.0

software. The test used is the Kruskal Wallis test and continued with the Mann Whitney test.

Anthocyanin and Fiber Analysis Test

Black Tapai Berry Ice Sherbet products are analyzed for the content of anthocyanins and fiber contained in the product. Anthocyanin analysis was carried out using the differential pH method, while the fiber test was carried out by gravimetric enzymatic method.

RESULTS

Hedonic Test

Based on Table 2, products that have the highest level of preference in the aspect of color are F3 with a 75%: 25% tape of black and strawberry sticky tape where as many as 22 panelists (73.4%) stated their likes and loved the color produced. The results of the Kruskal Wallis test obtained

p (0.002) < α (0.05), then Mann Whitney test was conducted where there were statistically significant differences in F1 and F2 with p (0.040) < α (0.05) and in F1 and F3 with p (0.001) < α (0.05), but there is no significant difference between F2 and F3 with p (0.099) > α (0.05).

In the aroma aspect, the product that has the highest level of preference is F3, where as many as 21 panelists (70.0%)

stated their likes and loved the aroma. The results of the Kruskal Wallis test obtained p (0.001) < α (0.05), then the Mann Whitney test was conducted where there were statistically significant differences in F1 and F3 with p (<0.001) < α (0.05) and in F2 and F3 with p values (0.018) < α (0.05), but there is no significant difference between F1 and F2 with p values (0.133) > α (0.05).

Table 2. Hedonic Test Results

Formula Type	Hedonic Aspects			
	Color (%)	Aroma (%)	Taste (%)	Texture(%)
Formulation 1	40,0	16,7	13,4	36,6
Formulation 2	66,7	43,3	53,3	60,0
Formulation 3	73,4	70,0	66,7	66,7

In the aroma aspect, product that has the highest level of preference is F3 where as many as 20 panelists (66.7%) stated like and very like. The results of the Kruskal Wallis test showed that the results of p (<0.001) < α (0.05), followed by the Mann Whitney test where there were statistically significant differences in F1 and F2 with p (<0.001) < α (0.05) and in F1 and F3 with p (<0.001) < α (0.05), but there is no significant difference between F2 and F3 with p (0.115) > α (0.05).

Product that has the highest level of preference in the texture aspect is F3 where as many as 19 panelists (63.9%) stated their likes and likes very much. The results of the Kruskal Wallis test showed that the results of p (0,032) < α (0,05), then performed the Mann Whitney Test where there were statistically significant differences in F1 and F2 with p values (0,043) < α (0,05) and in F1 and F3 with p value (0.015) < α (0.05), but there is no significant difference between F2 and F3 with p value (0.621) > α (0.05).

Analysis of Anthocyanin and Fiber Content

The sample analyzed was F3 sample with a balance of 75% 25% tape of black

and strawberry sticky rice. The results of anthocyanin content analysis and Black Tapai Berry Ice Sherbet product fibers can be seen in table 3.

Table 3. Results of Analysis of Anthocyanin and Fiber Content

Parameters	Result	Unit
Anthocyanin	221,0	ppm
Fiber	3,25	%

Based on table 3, the results of the analysis showed that the anthocyanin content contained in the Black Tapai Berry Ice Sherbet product was 221 ppm, when converted into milligrams (mg) the anthocyanin contained in the product was 22.1 milligrams of anthocyanin in 100 grams of product. As for fiber content, the results of the analysis showed that the fiber content contained in the Black Tapai Berry Ice Sherbet product was 3.25%, equivalent to 3.25 grams of fiber in 100 grams of product. The results of the anthocyanin and fiber analysis obtained were then compared with the adequacy. Comparison of anthocyanin and fiber levels with nutritional adequacy can be seen in table 4.

Tabel 4. Perbandingan Kadar Antosianin Dan Serat Dengan Kecukupan Gizi

Parameters	Nutritional Value Per Portion	Recommended Nutrition Adequacy	% Recommended Nutrition Adequacy
Antosianin (mg)	22,1	10 ¹²	221%
Serat (g)	3,25	2,5	130%

Keterangan : Kecukupan gizi dihitung berdasarkan persentase makanan selingan (10%) disesuaikan dengan rekomendasi kebutuhan

Table 4 shows the comparison of the levels of antosiani products with nutritional adequacy, anthocyanin levels of Black Tapai Berry Ice Sherbet products, which fulfill 221% of anthocyanin needs. So that one portion of the Black Tapai Berry Ice Sherbet product has met the needs of anthocyanins for interlude. While the fiber content of Black Tapai Berry Ice Sherbet products meets 130% of the fiber requirements. So that one portion of the Black Tapai Berry Ice Sherbet product has met the fiber needs for interlude.

DISCUSSION

Hedonic Test

The assessment of the quality of food ingredients generally depends on several factors including taste, color, texture, and nutritional value, but before these factors are considered visually, the color factor is sometimes very decisive. The color in the visual is generally influenced by the raw material¹³.

Based on the hedonic test of Black Tapai Berry Ice Sherbet products, it was found that in F1 with a balance of black sticky rice tape compared to strawberries 25%: 75% as many as 18 panelists or as much as 40.0% said they liked and really liked the product color. F2 with a balance of 50%: 50% as many as 20 panelists or 66.7% expressed likes and likes very much, and at F3 with a balance of 75%: 25% as many as 22 panelists or 73.4% said they liked and really liked the color of the product Black Tapai Berry Ice Sherbet. So that it can be said that F3 is a superior product with the highest level of preference among other products.

The color expected from the Black Tapai Berry Ice Sherbet product is a reddish purple color derived from the anthocyanin pigment of black and strawberry sticky tape. The purple color of the product is produced from anthocyanin tape, black sticky rice, while the red color of the product comes from strawberries, namely from polyphenol compounds such as anthocyanins¹⁴.

Kruskal Wallis statistic test showed p value (0.002) < α (0.05), so it can be concluded statistically there is a different effect between black and strawberry sticky tape on the color of Black Tapai Berry Ice Sherbet produced. Furthermore, Mann Whitney test was conducted to determine differences in the three types of treatment. Based on the Mann Whitney test results can be known in the treatment of F1 and F2 with (p (0.040) < α (0.05)) and the treatment of F1 and F3 (p (0.001) < α (0.05)) which have differences in color produced on Black Tapai Berry Sherbet products.

The aroma is a sensory sensation experienced by the five senses of smell. In the food industry, the odor test is very important because it can quickly give results regarding consumer's preference for the product. The scent on Black Tapai Berry Ice Sherbet products is not the main quality determinant, but still an important parameter.

Based on the results of the hedonic test, on the product aroma aspect of Black Tapai Berry Ice Sherbet, F1 with a balance of black sticky rice tape compared to strawberry 25%: 75% as many as 8 panelists or as much as 26.7% said they like and really like the aroma of the

product. In the second formula with a balance of 50%: 50% as many as 13 panelists or 43.3% expressed likes and likes very much, and in the third formula with a balance of 75%: 25% as many as 21 panelists or 70.0% stated like and very like to the aroma of Black Tapai Berry Ice Sherbet products.

The expected aroma of the Black Tapai Berry Ice Sherbet product is neutral flavor, where the aroma of black and strawberry sticky tape does not dominate too much. Based on organoleptic (hedonic) testing from the aroma aspect, Black Tapai Berry Ice Sherbet products with a 75%: 25% balance become superior products compared to other counterparts.

Statistical tests were conducted to determine the effect of a black sticky rice strawberry with strawberry on the Black Tapai Berry Ice Sherbet texture produced, namely using the Kruskal Wallis test.

Based on the results of the analysis of the texture obtained p value $(0.032) < \alpha (0.05)$, it can be concluded statistically there is a different effect between the black and strawberry sticky tape on the resulting Black Tapai Berry Ice Sherbet texture. Furthermore, Mann Whitney Test was conducted to determine the differences in the three types of treatment. Based on the Mann Whitney test results obtained that the balance that has the effect of differences in taste are in F1 and F2 with p values $(0.043) < \alpha (0.05)$, and in F1 and F3 with p values $(0.015) < \alpha (0.05)$.

Analysis of Anthocyanin and Fiber Content

The anthocyanin content of the Black Tapai Berry Ice Sherbet product was analyzed quantitatively using a differential pH method. Based on the results of the analysis, the levels of anthocyanins contained in Black Tapai Berry Ice Sherbet products are 221 ppm or as much as 22.1 mg / 100 grams of product. When compared with nutritional adequacy, the levels of anthocyanins contained in Black

Tapai Berry Ice Sherbet products meet 221% adequacy.

Anthocyanins are compounds that have low stability. Anthocyanin stability is strongly influenced by the chemical structure and concentration of anthocyanins, pH, temperature, the presence of enzymes, oxygen and light, and the presence of other compounds such as ascorbic acid, pigments, proteins, metals, and sugars¹⁵.

The biggest anthocyanin contributor among the two main food ingredients is black sticky tape. Anthocyanin content in 100 grams of black sticky rice tape is 25.7 mg, while anthocyanin content in 100 grams of strawberries is 21.1 mg¹⁶. When compared to the main ingredient, namely black and strawberry sticky tape, Black Tapai Berry Ice Sherbet products have atocyanine content that is greater than strawberries and smaller than black sticky tape. The contribution of black glutinous tape to a product can be said to be very large, based on research by Aminah, et al (2017) showing brownies with black sticky tape raw material have a high anthocyanin level of 1,144.41 ppm or equivalent to 114,441 mg / kg of product¹⁷. Research by Fauziyah, et al (2017) showed that snack bar products made from black sticky tape had anthocyanin levels of 1,115.28 ppm, equivalent to 111,528 mg of anthocyanin in 1 kg of product¹⁸. Based on this, Black Tapai Berry Ice Sherbet products have the advantage of being made from ingredients that have high levels of anthocyanins, making Black Tapai Berry Ice Sherbet products as an alternative to high anthocyanin products.

Fiber is a component of plant tissues that is resistant to hydrolysis by enzymes in the stomach and small intestine. Foods rich in fiber, have a longer digestion time in the stomach, then the fiber will draw water and give a feeling of fullness longer so as to prevent eating more food. Foods with high crude fiber content usually contain low calories, low levels of sugar

and fat which can help reduce the occurrence of obesity⁵.

Fiber content of Black Tapai Berry Ice Sherbet products was analyzed quantitatively using gravimetric enzymatic methods. Based on the results of the analysis, the fiber content contained in the Black Tapai Berry Ice Sherbet product is 3.25% per 100 grams of product or equivalent to 3.25 grams of fiber in 100 grams of product. When compared with nutritional adequacy, the fiber content found in 100 grams of Black Tapai Berry Ice Sherbet products is sufficient 130% of nutritional adequacy.

The biggest fiber contributor between the two main food ingredients is black sticky tape. The fiber content in 100 grams of black sticky rice tape is 5.9 grams, while the fiber in 100 grams of strawberries is 2 grams^{7,19}.

The high fiber content in Black Tapai Berry Ice Sherbet products is inseparable from the contribution of the constituent ingredients. Research by Aminah, et al (2017) shows brownies with black sticky tape as raw material having a fiber content of 3.84 grams¹⁷. Research by Fauziyah, et al (2017) shows that snack bar products made from black sticky tape have fiber content of 6.31 grams¹⁸. This shows that Black Tapai Berry Ice Sherbet products made from black sticky tape can be used as an alternative to high fiber intervals.

CONCLUSION

There is a difference in the balance between the organoleptic properties of Black Tapai Berry Ice Sherbet products in terms of color, aroma, taste and texture. Based on the results of the hedonic test, F3 with a 75%: 25% balance excels in all aspects, namely color, aroma, and taste, and texture. Anthocyanin test results on the Black Tapai Berry Ice Sherbet third formula product at 221 ppm or equivalent to 22.1 mg / 100 grams meet 221% of nutritional adequacy. The results of the

third fiber test on Black Tapai Berry Ice Sherbet products amounted to 3.25 g / 100 g to meet 130% nutritional adequacy.

SUGGESTION

This product cannot be applied as an alternative to prevent obesity to the public because it is only examined from the aspect of preference (hedonic) and nutrient content. Therefore, researchers expect further research on the effect of giving Black Tapai Berry Ice Sherbet products to samples with obesity. Further research can be further investigated regarding the product shelf life to obtain information about the durability of Black Tapai Berry Ice Sherbet products. It is hoped that this product can be developed and known to the public as a high-calorie low-calorie anthocyanin and fiber frozen product by collaborating with various related parties such as home or commercial industries.

THANK-YOU NOTE

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THE FORMULA AND DETERMINE THE EFFECT OF MUFFIN BASED ON FERMENTED GLUTINOUS BLACK RICE AND BLACK RICE ON ORGANOLEPTIC PROPERTIES, FIBER CONTENT, AND ANTHOCYANIN

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ABSTRACT

Central obesity is excessive accumulation of fat in the abdominal area and one of the forms of oxidative stress triggered by a lack of antioxidants, one of which is anthocyanin. Central obesity is affected by low fiber intake. Muffin based on Fermented Glutinous Black Rice and Black Rice consists of a Fermented Glutinous Black Rice and Black Rice which contains high anthocyanins and fiber so that it is appropriate for alternating food alternatives in central obesity. This study aims to obtain the formula and determine the effect of Muffin based on Fermented Glutinous Black Rice and Black Rice on organoleptic properties, fiber content, and anthocyanin. The research method used is the hedonic quality test to determine organoleptic properties, spectrifotometry for anthocyanin testing, and gravimetric enzymatic for fiber testing. The formula of . Muffin based on Fermented Glutinous Black Rice and Black Rice consists of three counterparts, with a comparison of Fermented Glutinous Black Rice and Black Rice (%) F1 (75:25), F2 (50:50), and F3 (25:75). The results of the Kruskal Wallis test showed that there were significant differences in organoleptic results including color, aroma, taste and texture. In the results of organoleptic tests, F1 balance is superior in color, aroma, taste, and texture. The results of anthocyanin and fiber analysis were tested on superior products. Anthocyanin content is 21, 91mg / 100gr, and fiber is 5.8 gr / 100gr. Anthocyanin

and Fiber meet the needs of adult central obesity.

Keywords: *Fermented Glutinous Black Rice Muffin, Organoleptic Test, Anthocyanin, Fiber.*

INTRODUCTION

Central obesity or visceral obesity is a condition where fat accumulation occurs excessively and far exceeds normal in the andomen¹ region. According to WHO (2000), visceral fat tissue has more adipose fat². The adipose tissue makes and releases several proinflammatory cytokines³. The presence of proinflammatory cytokines is the beginning of the formation of ROS (reactive oxygen species) and increased oxidative stress⁴. Oxidative stress is an imbalance between free radicals or pro-antioxidants and antioxidants that are triggered by the presence of two general conditions, namely lack of antioxidants and excess free radical production⁵. Population aged ≥ 15 years in Indonesia in 2007, it was known that the central obesity prevalence in Indonesia was 18.8%, while in 2013 it increased to 26.6% (7.8% increase). Then the central obesity prevalence in the province of West Java (26.4%) was almost the same as the national figure (26.6%)⁶. According to research Naomi, 2012, showed that low fiber intake was associated with central obesity⁷. Fiber is part of carbohydrates and is incorporated into non-starch polysaccharides. Consuming fiber-containing foods can reduce the risk of central obesity. High consumption of fiber such as vegetables,

fruits and whole grains is associated with a reduction in BMI and abdominal circumference. It was also found that increasing fiber intake was related to adipose parameters. Increased fiber intake of 12 grams / day is associated with a decrease in 0.63 cm of abdominal circumference¹⁰.

Anthocyanin is a sub-type of organic compounds from the flavonoid family, and is a member of a larger group of compounds namely polyphenols. 16.

Anthocyanin works as a secondary antioxidant as well as with β -carotene, which breaks down the oxydacylipid peroxide chain. Antioxidants are destructive substances or antidotes to free radicals¹¹.

Based on research conducted by Tsuda, 2003, conducted on mice with a high-fat diet, explained that the consumption of anthocyanins from food (purple corn) as a functional food factor can significantly prevent obesity and diabetes¹². Then anthocyanin as a flavonoid compound works as an anti-inflammatory and reduces oxidative conditions in obesity¹³.

Fermented Glutinous Black Rice (FGBR) is an alcoholic fermented food product consumed by the Indonesian people¹⁴. Besides that, Fermented Glutinous Black Rice has phenolic, fiber and anthocyanin components¹⁵.

In a previous study conducted by Fauziah Nur, 2015, showed that there was a significant relationship between consumption of Fermented Glutinous Black Rice and the incidence of metabolic syndrome which showed that daily consumption of Fermented Glutinous Black Rice had a protective effect on the incidence of metabolic syndrome by 12 times compared to black consumption of rice every day and abdominal or central obesity is included in the metabolic syndrome¹⁵.

Black rice contains high fiber values¹⁶. Anthocyanin pigment which is one of the secondary metabolites in Fermented Glutinous Black Rice which can act as an

antioxidant. The primary secondary metabolite in black rice is anthocyanin¹⁷. Seeing the benefits of black glutinous rice and black rice tape, it is possible to convert food in order to get a new product (Fermented Glutinous Black Rice Muffin) which is rich in anthocyanins and fiber as a functional food in preventing central obesity and can be used as a distraction.

METHOD

The research design is an experimental design. Independent variables are Fermented Glutinous Black Rice Muffin with formula F1 (75 &: 25%), F2 (50%: 50%) and F3 (35%; 75%) affecting dependent variables, namely organoleptic properties of hedonic methods, anthocyanin levels and levels fiber. with a completely randomized design (CRD).

Preliminary research

Preliminary research is the determination of the making of Fermented Glutinous Black Rice Muffin formula which consists of 3 formulas (table 1), and product manufacture. Making the product is by mixing wet and dry ingredients, stirring without a mixer, then printed on a muffin cup and baked at 150°C for 30 minutes.

Main Research

The main research is the three formulas tested by organoleptic test Hedonic methods with aspects of color, aroma, taste, and texture with seven scales, namely very dislike, dislike, rather dislike, neutral, somewhat like, like, and very like, for looking for the best product.

This superior product is the next one to do anthocyanin level test and fiber content. In anthocyanin level test using spectrophotometric method, while for fiber content test using gravimetric enzymatic method.

The samples in organoleptic testing were 30 trained panelists. The research target (panelists) in question are lecturers and students of the Bandung Ministry of Health Poltekkes Nutrition Department who have

received food material regarding organoleptic testing.

The research site was conducted at the Food Technology Laboratory of the Bandung Department of Nutrition, Poltekkes for the manufacture of products. Organoleptic test laboratory for Nutrition Department of Poltekkes Bandung for organoleptic testing, and at the Center for Agricultural Postharvest Research and Development Testing Laboratory, Agricultural Research and Development

Agency, Bogor for testing anthocyanin and fiber levels.

Data analysis was performed to determine the effect of different levels of Muffin based on Fermented Glutinous Black Rice and Black Rice on organoleptic properties, fiber content, and total anthocyanin. Processed using the SPSS application. Normality test was carried out with 95% confidence ($\alpha = 0.05$). followed by the Kruskal Wallis test, then continued with the Mann Whitney test.

Tabel 1. Formula Muffin based on Fermented Glutinous Black Rice and Black Rice

No	Material	Formula 1	Formula 2	Formula 3
		75:25	50:50	25:72
1	Fermented Glutinous Black Rice	225 gr	150 gr	75 gr
2	Black Rice	75 gr	150 gr	225 gr
3	Egg whites	100 gr	100 gr	100 gr
4	Soda kue	1½ tsp	1½ tsp	1½ tsp
5	Sweetener	1 tsp	1 tsp	1 tsp
6	Margarine	20 gr	20 gr	20 gr
7	Low Fat Milk	200 ml	200 ml	200 ml

RESULT

Table 2. Hedonic Test Results

Formula Type	Aspek Hedonic Aspect			
	Color	Aroma	Taste	Texture
Formula 1	63.3 %	60%	63.3	53.3%
Formula 2	26.6%	20%	19%	26.7%
Formula 3	19%	40%	6.6%	16.6%

Hedonic Test

The value of P (0.00) $< \alpha$ (0.05) was obtained in the data normality test for aspects of color, aroma, taste, and texture, which means that the data is not normally distributed. Thus the statistical test used for the four aspects above is the Kruskal-wallis test.

Hedonic aspects of color

The Kruskal Wallis test showed that the results obtained p (0.005) $< \alpha$ (0.05), which means that there were significant differences in organoleptic properties based on the color parameters between the

three Muffin based on Fermented Glutinous Black Rice and Black Rice.

In the Mann Whitney test there were statistically significant differences between F1 and F2 with p values (0.007) $< \alpha$ (0.05), and F1 and F3 with p values (0.003) $< \alpha$ (0.05). But there is no significant difference between F2 and F3 p (0.937) $> \alpha$ (0.05). Based on these data, the color of formula 1 (75% Fermented Glutinous Black Rice: 25% of black rice) has a statistically significant difference.

In addition to F1 when viewed from the percentage of likes and likes of as much as 63.3% (n = 19), at F2 percentage of likes and likes 26.6% (n = 8), and at F3 a

percentage of 26.0% (n = 6). so F1 is declared superior in color aspects. Results can be seen in table 2.

Hedonic aspects of aroma

In the Kruskal Wallis test, the results of p (0.024) $p < \alpha$ (0.05), which means there are significant differences. Furthermore, Mann Whitney test was performed that there was a statistically significant difference between F1 and F2, with p values (0.004) $< \alpha$ (0.05). But there is no significant difference between F1 and F3 with p values (0.087) $< \alpha$ (0.05) and F2 and F3 p (0.571) $> \alpha$ (0.05). Based on these data, the aroma in formula 1 (75% of black sticky rice tape: 25% of black rice) has a statistically significant difference.

Besides that in F1 when viewed from the percentage of likes and likes as much as 60.0% (n = 18), at F2 percentage of likes and likes 20.0% (n = 6), and at F3 percentage of 40.0% (n = 12), so F1 declared superior in the aspect of aroma.

Hedonic aspects of taste

In the Kruskal Wallis test, the results of p (0.000) $< \alpha$ (0.05) were obtained, which means that there were significant differences in organoleptic properties based on the taste parameters between the three Muffn based on Fermented Glutinous Black Rice and Black Rice.

In the Mann Whitney test there was a statistically significant difference between F1 and F2 with p (0.001) $< \alpha$ (0.05, F1 and F3 with p (0.000) $\leq \alpha$ (0.05, and F2 and F3 with p values (0.043) $< \alpha$ (0.05) Formula 1 (75% tape black sticky rice: 25% black rice) there is a statistically significant difference.

However, when viewed from the percentage of preference, in F1, the highest percentage is the liking and liking score of 63.3% (n = 19), at F2 percentage of likes and likes as much as 20.0% (n = 6), and at F3 percentage of likes and very like 6.6% (n = 2) so F1 is declared superior in terms of taste.

Hedonic Aspect Texture

The Kruskal Wallis test showed that p (0.006) $p < \alpha$ (0.05), which means there were significant differences in organoleptic properties based on the texture parameters between the three Muffn based on Fermented Glutinous Black Rice and Black Rice.

In the Mann Whitney test there was a statistically significant difference between F1 and F3 with p values (< 0.002) $< \alpha$ (0.05), and F2 and F3 with p value (< 0.045) $< \alpha$ (0.05). However there is no significant difference between F1 and F2 with p (0.125) $> \alpha$ (0.05). However, when viewed from the percentage of preference, in F1, the highest percentage is the rating of likes and likes as much as 53.3% (n = 16), at F2 percentage of likes and likes of 26.6% (n = 8), and at F3 percentage of likes and very like 16.6% (n = 5), so F1 is declared superior in texture aspects.

Organoleptic results

Based on the results of the organoleptic test of the hedonic method, F1 (75% Fermented Glutinous Black Rice: 25% black rice) is the most superior product. So that the anthocyanin and fiber test analysis is only carried out on F1.

Analysis of Anthocyanin and Fiber Content

Table 3 Results of Analysis of Anthocyanin and Fiber Content from Muffn based on Fermented Glutinous Black Rice and Black Rice

Sample	test	Result	Unit
F1 75% :25%	anthocyanin	219,18	ppm
F1 75% :25%	fiber	5.8	%

The samples analyzed in the anthocyanin and fiber assays were F1 (75% Fermented Glutinous Black Rice: 25% black rice) and the results of the analysis and Muffn based on Fermented Glutinous Black Rice and Black Rice can be seen in Table 3

Based on table 3, the results of the analysis showed that the anthocyanin content contained in the Muffn based on

Fermented Glutinous Black Rice and Black Rice was 219.8 ppm which was then converted to 21.918 mg / 100 gr. then the results of the analysis showed that the fiber content contained in Muffn based on Fermented Glutinous Black Rice and Black Rice was 58% which was then converted to 5.8 gr / 100 gr.

Fiber Content Analysis

Table 4. Contribution of levels of anthocyanin and fiber per serving dose Muffn based on Fermented Glutinous Black Rice and Black Rice to the adequacy of nutrients

Sample	Nutrient	Levels per serving	Adequacy	% Adequacy
F1 75%;25%	anthocyanin	21,918 mg/100gr	10 mg	219%
F1 75%;25%	fiber	5.8 gr	2.5gr	232%

The number of serving sizes of Muffn based on Fermented Glutinous Black Rice and Black Rice is 100 grams, which is 2 servings of muffins. Anthocyanin adequacy is 100 mg / day. For interlude, the distribution of food distribution per day is 10% of the adequacy, so that the adequacy of anthocyanin in 1 time is 10 mg. Then by consuming 2 servings of Muffn based on Fermented Glutinous Black Rice and Black Rice (100 grams)

was able to meet the anthocyanin adequacy of 219% in one interlude.

Adequacy of fiber is 25 gr / day. For interlude, the distribution of food distribution per day is 10% of sufficiency, so that the adequacy of anthocyanin in 1 time is 2.5 mg. Then by consuming 2 servings of Muffn based on Fermented Glutinous Black Rice and Black Rice (100 grams) was able to meet the fiber adequacy of 232% in one interlude.

Analysis of nutritional value

Table 5. Contribution Per Serving Size of 100 gr Muffn based on Fermented Glutinous Black Rice and Black Rice to Nutritional Adequacy

Nutrient	Nutrient Per Serving Size of 100 gr	Nutritional Adequacy	% Nutritional Adequacy
Energy	162.4 kcal	200 kcal	81.2 %
Protein	6.32 gr	7.5 gr	84.2%
Fat	3.24 gr	5.5 gr	58.9%
Carbohydrate	26 gr	30 gr	86..6%

The samples analyzed were F1 (tape 75% black sticky rice: 25% black rice) and the analysis and Muffn based on Fermented Glutinous Black Rice and Black Rice can

be seen in Table 5. Based on Table 5. that Muffn based on Fermented Glutinous Black Rice and Black Rice can provide 81.2% of energy , 84.2% protein, 58.9%

fat and 86.6% carbohydrates. Adequacy has been fulfilled due to this snack for adults with central obesity so that snacks should not exceed the adequacy of the principle of low-calorie snacks.

DISCUSSION

Muffin based on Fermented Glutinous Black Rice and Black Rice is muffins made from a base of black sticky rice and black rice which has been ground as a substitute for flour. The resulting muffins weigh 50 grams per portion and are shaped like cupcakes, only the texture is soft but denser than cupcake. has a sweet and slightly savory taste, has a distinctive aroma of black sticky rice and black rice. Has a deep purple to purple black. Storage conditions in a dry, closed place. This product can be eaten directly or can be stored in a dry and closed place at room temperature around 1-2 days.

Color

Colors that appear on Muffin based on Fermented Glutinous Black Rice and Black Rice comes from flavonoid pigments, anthocyanins. The color of the Muffin based on Fermented Glutinous Black Rice and Black Rice with black rice, which is thick purple to purple black. Anthocyanin pigments will experience degradation in the event of cooking. This will affect the color quality and also the nutritional value¹⁸.

Judging from the color, F1 has a lighter color compared to F2 and F3. This is because the content of Fermented Glutinous Black Rice is more than black rice. Black rice makes the color darker and thicker. This is possible to be the reason for the color F1 is preferred compared to F2 and F3.

Aroma

Fragrance is considered very important in the food industry because it can give results to the level of product preference. The aroma is influenced by the ingredients used, such as black sticky rice, black rice,

margarine. Most of the panelists stated that they liked F1 (53.3%), F2 (20.0%), and F3 (30.3%). Among the three formulas based on the results of the aroma test most of the other panelists liked F1 (53.3%).

The aroma contained in the Muffin based on Fermented Glutinous Black Rice and Black Rice is a distinctive aroma of the black sticky tape and the distinctive aroma of black rice. The aroma will increase when the Fermented Glutinous Black Rice is more than black rice. Tape black sticky rice is a food product from alcoholic fermentation, has a watery texture with sweet and sour taste¹⁴. The addition of yeast makes the fermentation process which then produces tape with a sweet, sour, and distinctive flavor of the tape¹⁵. In addition to the fermentation process, the yeast rice sticky rice is wrapped in campolai leaves which adds a distinctive aroma to the Fermented Glutinous Black Rice¹⁵. The longer the fermentation process causes an increase in ethanol levels¹⁵.

This is because in F1 the Fermented Glutinous Black Rice content is more than F2 and F3. In F1, The distinctive aroma of Fermented Glutinous Black Rice is more out due to the roasting process and makes the aroma more fragrant. Compared to F2 and F3. This might be the reason F1 is preferred.

Taste

Taste and aroma are one of the interconnected properties. The taste can be known after the product is eaten. Taste can be distinguished as sweet, salty, and tasteless and is influenced by the ingredients used.

On Muffin based on Fermented Glutinous Black Rice and Black Rice the difference in taste is very different between F1, F2 and F3. In the recipe, the sugar added to the dough uses slim tropical sugar where there is less calories than regular sugar. Then the amount of sugar added to each formula is the same. So the difference will

be clear because the Fermented Glutinous Black Rice has a sweet, sour taste and a distinctive tape aroma¹⁵. This is because the fermentation process increases the level of reducing sugars so that the taste will get sweeter if the fermentation process takes longer¹⁵.

In F1, the tape content is more than black rice, compared to F2 and F3. So that sweetness increases in F1. Sweetness decreases when black rice is added more. This allows the taste of Muffin based on Fermented Glutinous Black Rice and Black Rice F1 black rice is preferred compared to F2 and F3.

Texture

The texture of the Muffin based on Fermented Glutinous Black Rice and Black Rice is different for each. In F1 the texture is softer compared to F2 and F3. This is because the Fermented Glutinous Black Rice makes the texture softer. Whereas the more black rice the texture will be more dense and a little hard as F3. Fermented Glutinous Black Rice has a watery texture while black rice flour has a dry and dense texture. So that it will affect the results of the Muffin based on Fermented Glutinous Black Rice and Black Rice. The distinctive feature of muffins is shaped similar to cupcake, cracking on the top surface, soft and dense inside texture¹⁹.

F1 is preferred because in F1 the texture is softer and closer to the muffin texture in general so it is preferred compared to F2 and F3.

Anthocyanin

The biggest contribution of anthocyanins among the two main food ingredients are Fermented Glutinous Black Rice and Black Rice. The anthocyanin content of 100 grams of Fermented Glutinous Black Rice is 25.7 mg and anthocyanin in black rice is 53.22 - 650.37 mg / 100 gr²⁰. However, based on the results of anthocyanin analysis Muffin based on Fermented Glutinous Black Rice and

Black Rice obtained 21.9 mg, which should be able to get a higher amount of anthocyanin.

On the Muffin based on Fermented Glutinous Black Rice and Black Rice there is a roasting process. In the roasting process research carried out on an ordinary stove oven with an average temperature of 150°C. Whereas anthocyanin levels are very influential on temperature. Based on Suhartatik's research, Naniek (2013), the stability and color of anthocyanin extract from fermented black glutinous rice during the heating and storage process. The results show that the higher the heating temperature and the longer the heating time, causing more anthocyanin damage. Except for heating <50°C no more than 15 minutes which can increase the anthocyanin stability²¹.

A decrease in anthocyanin levels is also experienced when heating at temperatures above 30°C. A decrease in anthocyanin levels >50% was experienced in anthocyanins heated at temperatures >70°C²¹. Some researchers have also stated that temperatures during storage have a logarithmic effect on anthocyanin damage. This is in line with previous studies that the results of the anthocyanin content of Muffin based on Fermented Glutinous Black Rice and Black Rice were small because of the roasting process with a temperature of >70°C²¹.

Besides that the contribution of black sticky tape to a product can be said to be large. This is based on the research of Aminah, et al (2017) showing brownies with Fermented Glutinous Black Rice raw materials have high levels of anthocyanin which is 1,144.41 ppm or equivalent to 114.4 mg / 100 g of product²². This can be said to be of considerable value for products made with roasting process. Research by Fauziyah, et.al (2017) showed that snack bar products made from Fermented Glutinous Black Rice had anthocyanins of 1,115.28 ppm or equivalent to 111.53 mg of anthocyanin /

100 gr²³. And this was said to be large enough for the product made. with the roasting process. This is the reason why Muffin based on Fermented Glutinous Black Rice and Black Rice is still getting enough anthocyanin values and can meet 219% of the need for anthocyanin values for interruption in central obesity adults.

Fiber

The food fiber content obtained was 5.8 gr / 100 g of ingredients. Based on needs, the recommended fiber content is 25 grams / day. so that in intervals per day (estimated 10% of daily needs) needs are 2.5 gr. The value of muffin fiber levels is sufficient for the needs of intermittent fiber for central obesity.

The biggest fiber contribution between the two ingredients is Fermented Glutinous Black Rice and Black Rice. This can be seen from the fiber content on Fermented Glutinous Black Rice and Black Rice. Fermented Glutinous Black Rice has 5.9 gr / 100 gr 14 fiber. While black rice has a fiber content of 20.1 gr / 100 gr²⁴.

Muffin based on Fermented Glutinous Black Rice and Black Rice is also inseparable from the contribution of its constituent ingredients, namely black sticky tape. Based on research by Aminah, et al (2017) showed brownies with Fermented Glutinous Black Rice raw material has a fiber content of 3.84 grams²². Research Fauziyah, et al (2017) showed that snack bar products made from Fermented Glutinous Black Rice had 6 fiber content, 31 gram²³. Based on this, products Muffin based on Fermented Glutinous Black Rice and Black Rice have the advantage that they are made from materials that have high fiber content and have fulfilled 232% of the fiber requirements in intervals.

CONCLUSION

1. There are differences in the balance of the organoleptic properties of Muffin based on Fermented Glutinous Black Rice and Black Rice from aspects

of color, aroma, taste, and texture. Based on the results of the hedonic test, F1 with a 75%: 25% balance excels in all aspects, namely color, aroma, taste and texture.

2. Anthocyanin test results in Formula 1 75%: 25%, namely 21,918 mg / 100 g of ingredients and have met the anthocyanin needs 219%.
3. In one interlude the test results of food fiber in Formula 1 were 75%: 25% ie 5.8 gr / 100 g of ingredients and had fulfilled the fiber requirement of 232% in one interlude.
4. Giving products 2 servings of muffin tape black rice black rice can meet the needs of Energy, Protein, Fat, Carbohydrates, Anthocyanin, and Fiber for interlude for adults with central obesity.

SUGGESTION

1. This product cannot be applied as an alternative to interfering with the central obesity community because it is only examined from the organoleptic aspects and nutrient content.
2. From that, researchers expect further research on the effectiveness of giving Black Rice Black Glutinous Muffin Tape to central obese adults.
3. In addition, further research can be conducted on products made from Tape, black sticky rice and black rice to make it more varied, such as making Black Rice Glutinous Muffins as a distraction for central obesity.

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THE EFFECT ON DIAPERING CARE EDUCATION (DIAPERS USE AND CARE) TOWARDS DIAPERING CARE AND DIAPER RASH ON INFANTS IN PUSKESMAS BENGKULU CITY 2018

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Abstract---Diapering Care was an act of care and use of diapers for babies every day. Parents must have been educated on how to practice skin care that can reduce inflammation, improve skin and prevent diaper dermatitis. This study aimed to determine whether there was an impact of diaper care education (diaper use and care) toward diapering care and diapering rash on infants in Puskesmas in Bengkulu City in 2018. This study used a quasi-experimental research design (static group comparison). The samples were 44 female respondents who had 0-1 year old babies using disposable diapers. 22 respondents were control group and the others were intervention group. Measuring instruments used diapering rash scale and diapering care measurements. This study showed that the average score of diapering care before education in the intervention group was 6.96 and the control group was 6.90 while the average score of diapering care after education in the intervention group was 7.63 and the control group was 7.04 with p value of 0.002. There was an increasing in mothers' ability after intervention using p value 0,000. The average scores of the diapering rash before given education in the intervention group was 1.22 and in the control group was 1.31 while the average diapering rash score after given education in the intervention group was 0.34 and in the control group was 0.65

with p value 0.023. There was no decreasing in diapering rash scale after given intervention using p value 0.242. It was important for parents to increase their knowledge in the use and care of disposable diapers to prevent rashes in their children

Keywords---Education, diapering care, diapering rash

INTRODUCTION

Diapering rash was one of the most common skin irritation disorders in neonates and infants due to diaper use. Babies had extensive and complex problems, especially skin problems. Physiologically, during the postnatal period baby's skin would change as part of the final adaptation to life outside the womb. Baby's skin was susceptible to infection, irritation and allergies because newborns had typical skin characteristics which were relatively ideal skin, smooth, pH was more acidic, inner layer had a higher dampness [15]

The impact of using disposable diaper could cause diaper rash, skin damage, pain and fungal and bacterial infections that caused anxiety in infants and parent [14]. Lack of mother's knowledge when experienced diaper rash was caused by the mother did not look at type or quality of diaper [11]. All parents

need to be educated about the general ways to reduce rash diapers by paying attention to the proper and accurate cleaning of diapers in skin care [1] A

study conducted by [5] about the effectiveness of programs to identify and maintain diaper dermatitis.

From the directions and interviews conducted, there were 6 out of 10 babies (60%) from the the diaper-covered area, 1 in 6 babies (16%) had red spots and small bump spots around the baby's genitals. For daily baby care, 60% of mothers only changed diapers 2-3 times a day and 4 out of 10 mothers (40%) changed diapers 4-5 times a day. Most of the mothers perceived that the signs of diaper rash such as redness in the closed area of the diaper were commonly in using diapers and they would disappear naturally and no need special treatment, it was enough using the powder around closed diaper area.

Many mothers still cared baby diapers in a wrong way and the results of the initial survey conducted found that most mothers were still lack of skin care knowledge, especially in diaper-covered areas. Most mothers perceived that signs of a diaper rash such as redness in a

diaper-covered area were common in using diapers and would disappear naturally and no need to do special treatment.

METHODS

This study used a quasi-experimental research design (static group comparison). The population in this study was mothers who had infants aged 0-1 years using disposable diapers. The samples were taken with the technique of the total population of 44 respondents.

The reserch instrument used a questionnaire and diaper rash scale. Univariat analysis was carried out to describe the characteristics of respondents according to the type of numerical or categorical scale data. Univariate analysis was carried out for hypothesis testing that had been formulated and factors related to diapering care and diaper rash on infants. Tests used for each group using t-paired (one tail) test (normal data distribution). To determine the effect of diapering care education and diaper rash scale with the t-Independent test (two tail) (normal data distribution).

RESULTS

Table 1 **Characteristics and Equivalences of Respondents**

A description of the characteristics of the respondents, the equivalence of the research variables, the initial care of diapering care and the initial of diaper rash's degree in Puskesmas in Bengkulu City (n = 44)

No	Variable	Group intervention	Control	P Value
1	Education			0,595
	Junior High	1 (4,5%)	0	
	Senior High	13 (59,1%)	14 (63,%)	
2	University	8 (36,4%)	8 (36,4%)	0,523
	Occupation			
	Civil Servant			
	Private	5 (22,7%)	6(27,3%)	
	Employee	4 (18,2%)	2(9,1%)	
3	Bussiness	2 (9,1%)	7(31,8%)	0,220
	House wife	11 (50 %)	7(31,8%)	
	Income			
	Low	0		
	Average	11 (50%)	7 (31,8%)	
	High	11 (50%)	15 (68,2%)	

4	Gender			
	Male	9 (40,9%)	8 (36,4%)	0,757
	Female	13 (59,1%)	14 (63,6%)	
5	Age (in months)			
	Mean	6,5	5,8	0,473
	Min	1	1,5	
	Max	12	10	
	SD	3,686	2,696	
	SE	0,786	0,574	
	CI 95%	4,91;8,18	4,64;7,03	
6	Frequency of changing diaper			
	Mean	3,3	3,4	0,365
	Min	3	3	
	Max	4	4	
	SD	0,477	0,510	
	SE	0,102	0,109	
	CI 95%	3,11;3,53	3,23;3,68	
7	Duration of using diaper (in hours)			
	Mean	7,3	7,1	0,365
	Min	6	6	
	Max	8	8	
	SD	0,953	1,019	
	SE	0,203	0,217	
	CI 95%	6,94;7,79	6,64;7,54	
8	Initial Knowledge			
	Mean	80	81	0,714
	Min	65	65	
	Max	95	95	
	SD	9,88	10,5	
	SE	2,106	2,253	
	CI 95%	75,6;84,3	76,4;85,8	
9	Knowledge of diapering care			
	Mean	6,63	6,90	0,185
	Min	6	6	
	Max	8	8	
	SD	0,72	0,61	
	SE	0,154	0,130	
	CI 95%	6,31;6,95	6,63;7,17	
10	Diaper rash initial scale			
	Mean	1,22	1,31	0,665
	Min	0	0,5	
	Max	3	2,5	
	SD	0,76	0,60	
	SE	0,163	0,129	
	CI 95%	0,88;1,56	1,04;1,58	

The highest education level of mothers was senior high school, 59.1% in intervention group and 63.6% in control group. The occupation of most mothers in the intervention group or 50% were housewives and in the control group, 31.8% of the mothers were housewives and business. Family income in the intervention group was 50% in the

medium economy and 50% in the high economy, while in the control group was 68.2% in the high family economy. Gender of the respondents was female, in the intervention group was 59.1% and in the control group was 63.6%. Based on the table above, the infants in the intervention group were in the range of 1-12 months while in the control group were 1-10 months. The average infant in

the intervention group was 6.5 months and in the control was group 5.8 months.

The frequency of changing diaper was in the range 3-4 times a day. Changing diaper was at least 3 - 4 times including when the infants had bowel movements. The average diaper in the intervention group was 3.3 and in the control group was 3.4. The duration of using diaper was in the range of 6-8 hours a day. The average length of diapers in the intervention group was 7.3 hours while in

the control group was 7.1 hours. The average initial knowledge of mothers was 80 in the intervention group and 81 in the control group. Initial diapering care knowledge was 6.63 in the intervention group and 6.90 in the control group. The initial diaper rash scale was in range of 0-3 with the average of 1.22 for the intervention group and in the control group for diaper rash scale in the range of 0.5-2.5 with an average of 1.31.

Tabel II Overview of The Mean oin Diapering Care

Description of mean in diapering care on infants in Puskesmas in Bengkulu City (n = 44)

Variable	Mean	Min-Max	SD	SE
Diapering care before education				
Intervention group	6,63	6-8	0,726	0,154
Control group	6,90	6-8	0,610	0,130
Diapering care after education				
Intervention group	7,63	7-9	0,581	0,123
Control group	7,04	6-8	0,575	0,122

Diapering care before education for infants in the intervention group was in the range of 6 to 8 with the average score of initial diapering care 6.63 while in the control group the average score before education was 6.90. After education

through the booklet media, the average score of diapering care in the intervention group was 7.63 with a range of 7-9 while the average value of diapering care in the control group was 7.04

Tabel III. Overview of The Mean in Diaper Rash Sclae

A description of the mean in Diaper Rash Scale on infants in Puskesmas in Bengkulu City (n=44)

Variable	Mean	Min-Max	SD	SE	CI 95%
Diaper rash before education					
Intervention Group	1,22	0-3	0,767	0,163	0,88;1,56
Control Group	1,31	0,5-2,5	0,608	0,129	1,04;1,58
Diaper rash after education					
Intervention Group	0,34	0-1,5	0,419	0,089	0,15;0,52
Control Group	0,65	0-2	0,472	0,100	0,44;0,86

Diaper rash prior to education for infants in the intervention group was in the scale range of 0 to 3, which meant that from no rash to severe rash with the average score of the diaper rash scale before education was 1.22 while in the

control group the average score of the diaper rash scale was before education was 1.31 with the range of 0.5 to 2 which meant that from a very mild rash to a moderate rash. After education through the booklet media, the average score of

the diaper rash scale in the intervention group was 0.34 with range of 0 to 1.5 while the average score of the diaper rash

scale in the control group was 0.65 with range of 0 to 2,5 which meant from no rash to moderate/severe rash.

Tabel IV Bivariate analysis
Differences of the mean in diapering care

Variable	Mean	Min-Max	SD	SE	CI 95 %	P value in group	P value per group
Caring before education							
Intervention Group	6,63	6-8	0,726	0,154	6,31;6,95		
Control Group	6,90	6-8	0,610	0,130	6,63;7,17		
Caring after education							
Intervention Group	7,63	7-9	0,581	0,123	7,37;7,89	0,000*	
Control Group	7,04	6-8	0,575	0,122	6,79;7,30	0,083	0,002

After education through the booklet media was done, the average score of diapering care in the intervention group was 7.63 with range of 7 to 9 while the average score of diapering care in the control group was 7.04 with range of 6 to 8. P value in the intervention group was 0,000 which meant that there was a difference in diapering care for infants before and after given education. While

the p value in the control group was 0,083, which meant that there was no difference in diapering care for infants before and after self learning through leaflet. The independent statistical test results of the t-test showed p value was 0.002 ($p \leq \alpha = 0.05$). There was an effect of diapering care education on infants towards increasing of the average score of diapering care on infants

Tabel V Differences of diaper rash scale Differences of diaper rash scale before and after the intervention on infants in Puskesmas in Bengkulu city (n=44)

Variable	Mean	Min-Max	SD	SE	CI 95 %	P value in group	P value per group
Diaper rash before education							
Intervention Group	1,22	0-3	0,767	0,163	0,88;1,56		
Control Group	1,31	0,5-2,5	0,608	0,129	1,58;1,30		
Diaper rash after intervention							
Intervention Group	0,34	0-1,5	0,419	0,089	0,15;0,52	0,000*	
Control Group	0,65	0-2	0,472	0,100	0,44;0,86	0,000*	0,023

After given the intervention using booklet media, it illustrated the difference in the diaper rash scale in the intervention

group in the range 0 to 1.5, which means from a scale of 0 (no rash) to a scale of 1.5 (mild / moderate) with decreasing

average of 0.34 with SD 0.419 while in the control group, the average diaper rash scale score was 0.65 with SD 0.472.

The statistical test results showed that the p value was 0.023 so that it could

mean that there was a difference in the mean score of the rash score before and after the education intervention using booklet media.

Tabel VI Differences of The Increasing of Diapering Care Average score after Intervention

Differences of the increasing of diapering care average score after intervention in Puskesmas in Bengkulu city (n=44)

Variable	Mean	Min-Max	SD	SE	CI 95 %	P value per group
Caring after education						
Intervention Group	1,00	0-2	0,617	0,131	0,72; 1,27	0,000
Control Group	0,18	0-1	0,394	0,084	0,00; 0,35	

Table 5.6 After given the education through booklet media illustrated the difference of increasing in diapering care average score in the intervention group in range of 0 to 2 with increasing of average of 1.00 and SD score of 0.617 while in the control group there was no increasing of

average of 0.18 with SD 0.394. Statistical test results showed that the p value obtained was 0,000 so that it could be interpreted that there was a difference of increasing in mothers' ability in diapering care average score after intervention

Tabel VII. Differences of The Decreasing of Diaper Rash Average Scale after Intervention

Differences of the decreasing of diaper rash average scale after intervention in Puskesmas in Bengkulu city (n=44)

Variable	Mean	Min-Max	SD	SE	CI 95 %	P value per group
Caring after intervention						
Intervention Group	1,22	0,5-2	0,615	0,131	0,61; 1,15	0,242
Control Group	0,68	0,5-1,5	0,524	0,111	0,44; 0,91	

Table 5.7 After given the education through booklet media, the decreasing of average score in diaper rash scale in intervention group was 0.88 and SD score was 0.615 while in the control group there was no decreasing average of 0.68 with SD 0.524. Statistical test results showed p value obtained 0.242 so that it could be interpreted that there was no difference of the decreasing average score in the diaper

rash scale on infants after given the intervention.

DISCUSSION

All parents had to be educated about the general way to reduce the possibility of diaper rash by paying attention to the proper and accurate cleaning of diapers in skin care [1] because every infants who

used diapers had potential suffering from diaper rash. A study conducted by [5] on the effectiveness of teaching programs regarding the prevention and management of diaper dermatitis revealed that there was a considerable increasing in mothers' knowledge after a structured teaching program. The results of this study after given diapering care intervention 3 times in 1 week showed that there was an increasing in the average score of diapering care in the intervention group to 7.63 with the difference in the average score before intervention was 1,00. This proved that intervention in diapering care could increase the intervention score by 1.00 points with p value of 0,000.

This research was in line with [9] about Effectiveness Of Diaper Rash Preventive Strategy On Knowledge, Practice Of Primi Mother And Occurrence Od Diaper Rash Among Their Newborn" revealed that diaper rash prevention strategies through education and demonstrations on diaper changing techniques increased with the average in the intervention group was 14.23 while in the control group was 10.73 with p value 0.000

One of the factors influenced the diaper rash included parents' attitudes and knowledge about diaper rash. If parents' knowledge of diaper rash was good, it would influence attitudes and preventive actions against the infants so that they avoided diaper rash [7]. The mother's knowledge in some questions about perianal care was well influenced by mothers's education level which was high school and college. This was in accordance with Hurlock's theory which stated that the higher a person's education, the better he received information.

The increasing was due to that before a person adopted a new behavior, the person experienced a sequential process, namely: awareness, that was, the person was aware of the importance of health information; interest, that was, people began to be interested in the

information received; an evaluation that was to weigh up the information was useful or not for him; trial, the subject started doing something as desired stimulus. One effort to make education messages understandable and to impact behavior change was to use the right method [3]

CONCLUSION

Based on the results of the discussion it could be concluded that:

1. The highest mothers' education was senior high school, mostly mothers were housewives, and family income was at the moderate economic level, and the gender was female. The babies' age was 0-1 years, The frequency of diaper changes was in range 3-4 times a day. The duration of diaper use was in range of 6-8 hours a day.
2. The average score of diapering care in the intervention group was 7.63 while the average score of diapering care in the control group was 7.04 after given education.
3. The average score of the diaper rash scale in the intervention group was 0.34 with the range of 0-1.5 while the average score of the rash diaper scale in the control group was 0.65 with the range of 0-2 meaning that from no rash to moderate rash
4. There was an effect of diapering care education on infants in increasing the average value of diapering care on infants (p value 0.002)
5. There was a difference in the average value of the diaper rash scale before and after given education intervention (p value 0.023)
6. Educational intervention could increase the average of diapering care of intervention groups by 1.00 and control group by 0.18 on infants in Puskesmas in Bengkulu City (p value 0,000)

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GEL FORMULATION OF GUAVA LEAF (*PSIDIUM GUAJAVA* LINN) ETHANOL EXTRACT WITH HPMC (HIDROKSIPROPIL METIL SELULOSA) AS GEL BASE

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Abstract---In this study gel was formulated from 5% guava leaf (*Psidium guajava* Linn) ethanol extract with variation of HPMC concentrations as gel base, they were 1%, 1.5% and 2%. This study was aimed to formulated gel from 5% guava leaf extract. Guava leaf extract was obtained by using maceration method. Guava gel was formulated in 3 formulas with HPMC, they were FI 1% of HPMC, FII 1.5% of HPMC and FIII 2% of HPMC. Gel of guava leaf ethanol extract was evaluated in various parameters like organoleptic, homogeneity, pH, spreadability, adhesion, stability study and irritation test. The results can be concluded that FIII has best characteristic from other. FIII was transparent gel, homogeneous, has a good spreadability (in a range 5.1-5.8 cm), adhesion (5.35 minutes) and stability. FIII does not irritating skin when applied (pH 6).

Keywords---Gel, Guava, *Psidium guajava* Linn

I. INTRODUCTION

Indonesia, the country was famous has a lot of medicinal plant. There are around 30.000-40.000 medicinal plants that have been found in Indonesia [8]. Guava (*Psidium guajava* Linn.) is one of the medicinal plants that have been known and used traditionally as herbal medicine [1].

Guava was a medicinal plant that can be used as part of its stem, leaf, roots and fruit. Guava leaf was commonly used traditionally to help treat diarrhea, diabetes, flatulence, bleeding wounds, mouth sores. Some study was shown guava leaves have been flavonoid content, especially quercetin which used as antibacterial agent [12].

Aponno et. al. (2014) conducted study about formulation gel of guava leaf extract with 1%, 5% and 7% of extract concentration. Gel was formulated using Na-CMC as gel base. The study was shown that 5% of guava leaf in gel form could be as antibacterial against *Staphylococcus aureus* was healing wound in rabbit. However, the gel form had been spreading less than 5 cm (2.6 cm average), it was due to Na-CMC which was bad as gel base. Na-CMC gave bad viscosity in gel form.

HPMC (Hydroxypropyl methylcellulose) is one of semi-synthetic cellulose derivative which is ether of propylene glycol from methyl cellulose [6]. HPMC will be produce gel form was better than gel form with Na-CMC base. HPMC was generally known as non-toxic and non-irritating ingredient [9].

In this study guava leaves were extracted by maceration method using 96% of ethanol. 5% of ethanol extract of guava leaf was formulated into three formulas with variation of HPMC concentration, they are Formula I (FI 1%), Formula II (FII 1.5%) and Formula III (FIII 2%). Gel form were evaluated its organoleptic,

homogeneity, pH of the preparation, dispersion, stickiness, panelist test, and skin irritation test.

II. MATERIAL AND METHOD

Plant Collection and Identification

Fresh guava leaves (*Psidium guajava* Linn.) were collected from guava tree growing at Jalan Raden Fatah, Bengkulu City. Samples were then identified at Laboratory of Department Biology, Faculty Mathematics and Natural Science of Bengkulu University. Guava leaves had been obtained were sorted wetly, then it dried in the air.

Extraction Procedure

Guava leaves was washed in tap water, dried, and placed into blender to be grounded into powder. 250 g of guava leaf powder was extracted by maceration method with 1000 mL 96% of ethanol in a dark bottle for 3 days. After 3 days, sample was filtered to get its filtrate and the residue was macerated again for 3 days in 750 mL 96% of ethanol. The filtrate was evaporated with rotary evaporator at 40 °C to got thick extract.

Formulation of Guava Leaf Extract Gel

In this study gel from guava leaf ethanol extract was designed bellow:

TABLE I. DESIGN GEL FORMULA OF GUAVA LEAF ETHANOL EXTRACT

Ingredients	FI	FII	FIII	Function
Guava leaf ethanol extract	5%	5%	5%	Active ingredient
HPMC	1%	1.5%	2%	Gelling agent
Glycerin	10%	10%	10%	Moisturizer
Propylene glycol	5%	5%	5%	Humectant
Methyl paraben	0.02%	0.02%	0.02%	Preservative
Corrigens coloris	qs	qs	qs	Improve gel color
Distilled water	Up to 25 mL	Up to 25 mL	Up to 25 mL	Solvent

Formulation procedure; 10 mL distilled water was heated at temperature of 80 °C.

HPMC was swelling on hot water for 5 minutes, then added methyl paraben and ethanol extract of guava leaf, while stirred homogeneous. The gel mass has been formed then added glycerin and propylene glycol, finally added distilled water adequate while stirred homogeneous.

Evaluation of Guava Leaf Extract Gel Organoleptic

Evaluation aimed to saw physical form by observing visually from shape, color, and odor of gel form.

pH Evaluation

pH of gel was measured by using pH stick universal.

Homogeneity test

Homogeneity was tested by visual inspection. It was tested for its presence and appearance of any aggregates.

Spreadability test

Spreadability is expressed to extent of gel distribution when gel readily spread on application skin which is correlated with its effect. This evaluation is expressed immediately when gel finished to formulated. 0.5 g of gel was weighed, then was place in the middle of petri dish. Above the gel is placed small-scale glass and give the load sequentially from the smallest to the largest size (50 g, 100 g, 150 g and 200 g) within 1 - 2 minutes. Measure its diameter of spread, good spreadable value is in range 5 - 7 cm.

Adhesion test

0.125 g of gel is placed between two object glass in adhesion testing tool, 500 g of load is placed for 2.5 minutes, then the load is lifted and given 40 g of load on the tool and recorded release time.

Stability study

Stability study was done with open and close container. This study was observed at room temperature for 1 month.

Skin irritation test

Tests were carried out on 10 volunteers for one day. Gel is applied on arm skin with diameter of 2 cm, then covered with gauze and plaster. After 8 hours observe irritation skin symptom.

III. RESULT

Plant Extraction

Guava leaf (*Psidium guajava* Linn) was extracted by maceration method with 96% of ethanol as solvent. Maceration was produce 32.60 g of thick extract. Extract was dark brown and specific odor.

Gel Formulation and Evaluation

Ethanol extract of guava leaf was

formulated into three formulas they are FI, FII, and FIII. Gel was formulated with various concentration of HPMC (Hydroxypropyl methylcellulose) as gel base. Gel form was evaluated in various parameters like organoleptic, homogeneity, pH, spreadability, adhesion, stability study and irritation test. The results was shown in Table II.

TABLE II. RESULT OF EVALUATION FROM GUAVA LEAF ETHANOL EXTRACT GEL

Evaluation Parameter	FI	FII	FIII
Organoleptic	Transparent, greenish, specific odor	Transparent, greenish, specific odor	Transparent, greenish, specific odor
pH	6	6	6
Homogeneity	Good	Good	Good
Adhesion	4.9 minutes	5.25 minutes	5.35 minutes
Spreadability (cm)	7.4 - 7.8	6.4 - 7.3	5.1 - 5.8
Stability (1 month, room temperature)	Stable (close)	Stable (close)	Stable (close)
Skin irritation test	Not irritating	Not irritating	Not irritating

IV. DISCUSSION

In this study gel formulation of guava leaf ethanol extract was determined by Biology Laboratory at University of Bengkulu. Determination is aimed to

ensure that sample are species of *Psidium guajava* Linn.

250 g of guava leaf powder was extracted with 96% of ethanol. The result of extraction was obtained 32.60 g of thick extract with yield was 13.04 % and has characteristics dark brown color and specific odor. The yield and characteristics is suitable with guava extract standard in Farmakope Herbal Indonesia. Standard of yield guava extract is at least 12.3% [3].

Gel of guava leaf ethanol extract was formulated with 5% of extract in three gel formulas (FI, FII, and FIII) according to the formula design in Table I. Aponno et al (2014) study's showed that 5% guava leaf extract was optimal as an antibacterial against *Staphylococcus aureus* in gel preparation which is formulated using NaCMC base.

Gel was formulated using HPMC with concentration: 1% in Formula I (FI); 1.5% in Formulas II (FII); and 2% in Formulas III (FIII). HPMC has better characteristics than NaCMC as a gel base. HPMC can produce gel form that are more transparent and has better spreadability [7].

Evaluation result of gel formulas were shown in Table II. Gel have organoleptic: greenish color and specific odor in all formula (FI, FII, and FIII). Gels are transparent and good homogeneity. pH value was in 6 and gel does not irritating skin of 10 volunteers. pH value of gel form must suitable with skin pH (4.5 - 6.5) so not to irritate the skin when applied [11].

Spreadability

Spreadability is expressed to extent of gel distribution when gel readily spread on skin application which is correlated with its effect [4]. Spreadability test was shown in Table III and Figure 1.

Figure 1. describes when weight of load was increased, the spreadability was increased. It was observed that by increasing the concentration of HPMC, the dynamic contact angle values also increased, thus, decreasing the spreading behavior of the polymer solution [5].

TABLE III. EVALUATION OF SPREADABILITY

Weight of Load (g)	Spreadability of Formulas (cm)		
	F1	FII	FIII
50	7.4	6.4	5.1
100	7.6	6.8	5.3
150	7.7	7.1	5.6
200	7.8	7.3	5.8

Figure I and Table III describe F1 and FII have spreadability value more than standard, but FIII is suitable with standard of spreadability. The standard of gel spreadability is in a range 5 - 7 cm. Spreadability is correlated with its effect when gel is applied on skin. Gel that has good spreadability will distribute active compound optimally [4].

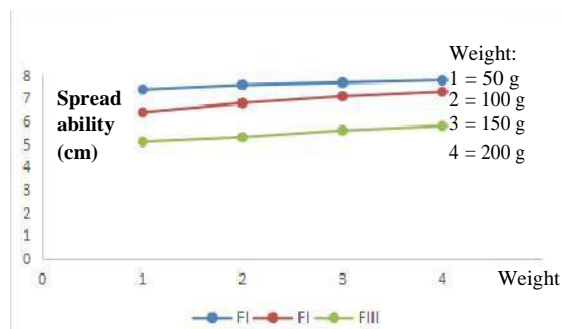


Figure 1. Evaluation of spreadability

Adhesion properties

Adhesion is one of critical characteristic in gel properties which is correlated with its absorption. Long adhesion value will give good absorption [10].

Using HPMC in formulas will give adhesion better than NaCMC. In other hand, increasing concentration of HPMC will increase adhesion [10]. In this study was describe in Table 2, F1 with HPMC concentration of 1% has adhesion of 4.9 minutes, while in FIII with HPMC concentration of 2% has adhesion of 5.35 minutes. It is mean that FIII has better absorption than other formulas.

V. CONCLUSION

This study can be concluded, FIII has best characteristic from other. FIII was transparent gel, homogeneous, has a good spreadability (in a range 5.1- 5.8 cm), adhesion (5.35 minutes) and stability. FIII does not irritating skin when applied (pH 6). FIII may be giving better absorption and optimal effect when it is applied.

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RELATIONSHIP BETWEEN ANEMIA AND UTERINE ATONIA IN HOSPITAL MOTHER IN DR. M YUNUS BENGKULU

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Abstract— *Maternal Mortality Rate in Indonesia is still high. the main cause of bleeding and indirect causes one of them anemia. Uterine atony is the cause of postpartum hemorrhage. Risk factors of uterine atony are anemia, maternal age, parity and birth spacing. The objective of the study was to investigate the relationship between anemia and the occurrence of uterine atony in RSUD.*

M Yunus Bengkulu 2017. The study used case control design with the population of all maternal vaginal mothers dr. M. Yunus in 2017 that amounted to 111 respondents were determined in total sampling with a systematic random sampling technique. Data were analyzed by univariate analysis, bivariate using Chi- square test. The result of univariate analysis means Hb ≤ 11 g / dl (54.1%), uterine atony (33.3%), maternal age 20-34 years old (28.8%), mother parity number 2-4 (31, 5%) and bivariate analysis showed that there was an association between anemia and the occurrence of uterine atony ($p = 0.026$; $OR = 2.781$; $95\% CI: 1.200-6.443$). However, there was no maternal age relationship with the incidence of uterine atony ($p = 0.711$; $OR = 1.296$; $95\% CI: 0.549-3.058$), parity with occurrence of uterine atony ($p = 0.170$; $OR = 0.480$; $95\% CI : 0.192-1.199$), birth spacing with uterine atony ($p = 0.946$; $OR = 0.897$; $CI = 0.407- 1.799$). Health care workers to improve

midwifery services by early detection of pregnant women with anemia and improve management services for the treatment of uterine atony.

Keywords--uterine atony, anemia, maternal age, parity and birth spacing

I. INTRODUCTION

The World Health Organization (WHO) estimates that 800 women die every day due to complications of pregnancy and the birth process. About 99% of all maternal deaths occur in developing countries [1]. MMR in Indonesia is 359 per 100,000 live births [2]. The direct cause of maternal death is bleeding 30.3%, hypertension in pregnancy (HDK) is 27.1% and infection is 7.3%. other causes (non-obesity) of 34.3% [3]. The indirect cause of maternal death is 40% anemia, chronic lack of energy (KEK) 37%, and other causes 23% [4]. Preliminary study results at the Regional General Hospital (RSUD) dr. M. Yunus Bengkulu was found in 2015 cases of complication in births and pregnancies, namely uterine atony as much as 53 (4.16%) cases out of 1,271, in 2016 as many as 25 (2.33%) cases from 1,070 birth mothers and in 2017 as many as 40 (5, 89%) cases of 678 mothers giving birth [5].

Uterine atony is a state of the uterus that fails to contract adequately and shrinks after childbirth, known as uterine atony

due to several risk factors, namely anemia, age that is too young or too old, multiparity, birth distance, labor induction, anesthesia, myometrium fatigue, excessive uterine distension, and a history of uterine atony [6] .

Anemia in pregnant women with hemoglobin levels <11 g /dl before labor is associated with weakness that can be considered as a direct cause of uterine atony because the lack of oxygen sent by hemoglobin in the blood causes the uterus to be deficient in nutrients so that the contraction of the uterine muscles is inadequate resulting in atony uteri which causes bleeding a lot and extends [7] .High parity triggers uterine atony . This is related to the ability of the uterine muscles if they give birth too often then myometrial muscle fibers have decreased function in contracting [8] .

Age is an important factor that can trigger uterine atony due to age associated with organs and hormones that play a role in labor. If you are too young (<20 years) organs and hormones are not yet ready in labor, N Amun, if it is too old (> 35 years) the function of organs and hormones decline [9] . spacing s orang

women after childbirth takes 2 years or more within the next bore so that the state of the uterus and general condition of the mother recovered. Short gestational distances will increase the risk of uterine atony [10].

It is hoped that this research can be a source of information to recognize early risk factors for anemia in maternity mothers that can cause uterine atony and find out efforts to prevent it from occurring in order to reduce MMR, especially in Bengkulu Province .

II. METHODS

This type of research uses a case control design with a retrospective approach . The population in this study were all vaginal delivery mothers in the

C1 Mawar room of RSUD dr. M. Yunus Bengkulu in 2017 totaling 378 people . In this study there were two types of samples namely case samples and control samples . Decision of the samples taken in cases of total cases of atonic cases that met the inclusion criteria as many as 37 people at a ratio of 1: 2 between cases and controls.

III. RESULT

Table I Distribution of Frequency of Hb, Atonia Uteri, Maternal Age, Parity and Birth Distance Levels on Maternity Mothers in Dr. M Yunus Bengkulu Hospital in 2017.

Variable	Frequency (N = 111)	Percentage (100%)
Hb level		
- Anemia (≤ 11 gr / dl)	60	54.1%
- Normal (> 11 gr / dl)	51	45.9%
Uterine atony		
- Yes	37	33.3%
- no	74	66.7%
Mother's age		
- High risk (<20 years and > 35 years)	32	28.8%
- Low risk (20 - 34 years)	79	71.2%
Parity		
- High risk (primipara and grandemultipara)	35	31.5%
- Low risk (multiparous)	76	68.5%
Birth Distance		
- High risk (<2 years and > 7 years)	53	52.3%
- Low risk (2-6 years)	58	

Result analysis of Table I can see that out of 111 respondents vaginal birth mothers with anemia most respondents (54.1%), most women giving birth vaginally to

experience an atonic (33.3%), most of the high risk age (28,8%), almost in part with high parity (31.5%) and also almost in part with high risk birth spacing (47.7%).

Table II The Relationship between Anemia and Occurrence of Attonia Uteri in maternity mothers at Dr. M Yunus Bengkulu in 2017.

Anemia	Uterine atony		Not atony uterine		Total		p	OR (95% CI)
	n	%	n	%	n	%		
Yes	26	70.3	34	45.9	60	54.1		2.781
No	11	29.7	40	54.1	51	45.9	0.026	
amount	37	100	74	100	111	100		1,200- 6,443

Statistical test results with chi-square calculations obtained p value = 0.026 <0.05 means that there was a relationship between anemia and uterine atony in mothers with OR 2.781 (CI 1200-6.443).

OR values indicate that anemic mothers have a risk of 2,781 times greater for uterine atony than women who have normal hemoglobin levels.

Table III Relationship between Mother's Age and Attonia Occurrence Uteri in mothers

Mother's age	Uterine atony		No uterine atony		Total		p	OR (95% CI)
	n	%	n	%	n	%		
High risk	12	32.4	20	27.0	32	28.8		1.296
Risk Rendh	25	67.6	54	73.0	79	71.2	0.711	
amount	37	100	74	100	111	100		0.549-3.058

Statistical test results with *chi-square* calculations obtained p = 0.711 > 0.05 means there was no relationship between maternal age and the incidence of uterine

atony in maternity mothers with OR 1.296 (CI. 499-3.058). OR values indicate that the mother's age only has a risk of 0.711 times for uterine atony.

Table IV Relationship between Parity with Occurrence of Attonia Uteri in mothers giving birth in Dr. M. Yunus Bengkulu in 2017.

Parity	Uterine atony		No uterine atony		Total		p	OR (95% CI)
	n	%	n	%	n	%		
High	8	21.6	27	36.5	35	31.5		0.480
Low	29	78.4	47	63.5	76	68.5	0.170	
amount	37	100	74	100	111	100		0.192- 1.199

Statistical test results with chi-square calculations obtained p value = 0.170 > 0.05 means there was no relationship between parity with the incidence of

uterine atony in labor mothers with OR 0.480 (CI .192-1.199). OR values indicate that parity only has a risk of 0.480 times for uterine atony.

Table V Relationship between pregnancy distance and attonia incidence in the maternal maternity at Dr. M Yunus Bengkulu in 2017.

Birth distance	Uterine atony		No uterine atony		Total		p	OR (95% CI)
	n	%	n	%	n	%		
High risk	17	45.9	36	48.6	53	47.7		0.897
Risk Rendh	20	54.1	38	51.4	58	52.3	0.946	
amount	37	100	74	100	111	100		0.407-1799

The results of statistical tests with *chi-square* calculations obtained p = .946 > 0.05, meaning that there was no significant relationship between birth spacing and the incidence of uterine atony in labor mothers with OR 0.897 (CI 0.407-1799). OR values indicate that the pregnancy distance only has a risk of 0.946 times for uterine atony.

IV. DISCUSSION

1. Relationship between anemia and atherosclerosis

The results of univariate analysis showed that out of 111 respondents, most of them 54.1% had Hb levels of gr11 gr /dl, and almost most (45.9%) with Hb levels > 11gr

/ dl. The results of bivariate analysis also showed that maternity mothers experienced uterine atony, most (70.3%) had Hb level ≤ 11 gr / dl (anemia) with a value of $p = 0.026$ or $p < 0.05$, meaning there was a relationship between anemia and the incidence of atony of the uterus and having OR = .2.781 times the chance of experiencing uterine atony. The results of this study in accordance with the theory of Manuaba (2009) states that the lack of hemoglobin in the blood can cause more serious complications for the mother both in pregnancy, childbirth and postpartum one of which is bleeding due to uterine atony [5].

Anemia in pregnant women is very influential on the health of the mother and fetus, if pregnant women with low Hb or > 11 gr / dl (anemia) can occur bleeding caused by uterine atony. The lack of hemoglobin in the body causes the amount of oxygen that is bound and carried down so that it cannot meet the needs of the uterine tissue. if the amount of oxygen supplied is reduced, the performance of the uterus will decrease, while the smooth process of contraction will be disrupted causing the uterine muscle to fail to contract adequately resulting in uterine atony [10].

In line with the results of research conducted by Wuryanti (2010) in Wonogiri Regional Hospital in 2010 which showed that there was a relationship between anemia and the incidence of uterine atony with the results of p -value = 0.008 [11]. Furthermore, research by Dina, Seweng, and Nyorong (2013) stated that there was a significant relationship between anemia and uterine atony in Majene General Hospital 2013 and the results obtained OR = 2.9 so it can be stated that anemic mothers have a 2.9 times greater risk of experiencing atony uteri compared to mothers who are not anemic [12].

Based on the theory and results of research that pregnant women who are anemic are at risk of uterine atony. therefore, special

treatment is needed regarding the problem of anemia in pregnancy, thereby reducing the risk of uterine atony. During pregnancy more iron is needed to produce red blood cells because the mother must meet the needs of the fetus and herself as well as at the time of birth it needs enough hemoglobin to provide energy so that the uterine muscles can contract properly so that atony of the uterus does not occur [5].

2. Relationship of Mother's Age with Asthma Uteri Events

The results of univariate analysis showed that out of 111 respondents almost half (28.8%) of mothers with ages < 20 years and > 35 years, while most (71.2%) mothers were aged > 20 years to 35 years. The bivariate results showed that mothers who had uterine atony, almost half (32.4%) with age < 20 years and > 35 years while most (67.8%) with those aged 20-35 years with the results of *chi-square* test showed $p = 0.711$ or $p > 0.05$ means there is no relationship between maternal age and the incidence of uterine atony. The chance of atrial uterine with a risky age can be seen from the OR = 1.298 in the interval 0.549-3.058, which means that the smallest risk group will be at risk of 0.549 times for uterine atony and the highest is 3,058 times for uterine atony.

The most favorable age for a pregnant woman is between 20-35 years because in this period the risk of having complications or complications of pregnancy and childbirth is less than the age of < 20 years and > 35 years [13]. This is because at the age of < 20 years the reproductive function has not developed perfectly, while the age > 35 years of reproductive function has decreased compared to normal reproductive function. At the age of > 35 years, decreased uterine function is characterized by weakened uterine contractions caused by atrophy of the myometrium and decreased expression of calcium ion channels which increases the risk of uterine atony [14].

The results of this study are in line with the results of research conducted by Anggrainy, Irianto and Irmayani (2013) who conducted research in NTB General Hospital in 2012 which concluded that there was no relationship between age and incidence of uterine atony as indicated by a p value of 0.225 [15]. The study was also conducted by Feerasta, SH; Motiei, A; et al. (2000) conducted a study in Pakistan 2000 Tertiary Care Hospital which found no relationship between maternal age and incidence of atony a uterus with a value of $p = 0.123$ [16].

The results of the study contradict the theory above this can occur because the results of the data obtained are influenced by the number of subjects included in the risky age group who are less than the number of subjects in the group who are not at risk. The average age of mothers in this study was 20-34 years so that the health and development conditions of the mother's reproductive system were mature and the uterine muscles were still working optimally and at the age of 20-34 years the readiness of mothers to accept pregnancy and face childbirth was good physical, mental and knowledge. Furthermore, in the research of Feerasta, SH; Motiei, A; et al. (2000) entitled a risk factor analysis of uterine atony at Pakistan's 2000 Tertiary Care Hospital also said that maternal age is not a risk factor that can cause uterine atony directly but maternal age is a predisposing factor for uterine atony if accompanied by other risks such as high parity, <2 years or> 7 years, birth bad lifestyle , preeclampsia, and anemia [16].

3. Relation of parity to the incidence of uterine atony

The results of univariate analysis showed that out of 111 respondents, most of them (31.5%) with risk parity (primipara and grandemultipara) and most (68.5%) with multiparous. Bivariate results showed that respondents who

experienced uterine atony were only 8 respondents (21.6%) with high risk parity (primipara or grandemultipara) whereas with uterine atony cases most of them were 29 respondents (78.4%) in low risk parity (multiparous). *Chi-square* test showed that $p = 0.170 > 0.05$ means there was no relationship between parity and the incidence of uterine atony with an OR = 0.480 indicating that the chance of uterine atony affected by high parity at the smallest risk interval would be 0.192 times the risk of experiencing uterine atony and for the greatest risk 1,199 times to experience uterine atony. In line with the research conducted by Friyandini, Lestari and Utami (2015) which states that there is no relationship between parity and the incidence of uterine atony with a value of $p = 0.953$ that is $p > 0.05$ with OR = 0.351 indicates that parity is not a direct factor for atony uteri [17].

Mothers who have given birth to many children cause the uterus to tend to work inefficiently at all times of labor so that a high risk of experiencing postpartum hemorrhage due to myometrial and muscle tone conditions that are ineffective, causing failure of uterine contractions that cause uterine atony so much bleeding and elongation [5]. Increasing parity, the more connective tissue in the uterus so that the ability to contract decreases as a result of the difficulty in suppressing open blood

vessels after placental detachment so that in grand multiparity, recurrent endometrial involution occurs, allowing for minor minor defects which result in reduced myometrial fibers so that labor in grandemultiparity tends to experience uterine atony [18]. According to the American Journal of Obsetric and Gynecology by Wetta, Luisa A; Szychowki, Jeff M; et al. (2013) which states that parity is not a contributing factor to uterine atony in vaginal delivery as evidenced by $p = 0.342$ but a causative factor which has a correlation

with the incidence of uterine atony which has $p > 0.05$ ie preeclampsia, karioamnionitis, prostaglandin induction, anemia, twins and KEK [19]. However, the results of this study are contrary to the results of research conducted by Yekta Satriyandi and Nena Riski Hariyati (2017) which states that there is a relationship between parity with uterine atony with a value of $p = 0.042$ which is $p < 0.05$ with $OR = 0.351$ influenced by several factors including parity not a direct cause of uterine atony but parity will cause uterine atony when followed by other risks such as < 2 years or > 7 years, < 20 years or > 35 years and Hb < 11 gr / dl. In addition, most of the respondents in this study were in non-risk parity (2-4) with large numbers (68.5%). Of the 35 respondents with high-risk parity (primipara or grandemultipara) who experienced uterine atony only 8 respondents and no uterine atony there were 27 respondents. means that there are good success factors from health workers in conducting health promotion, providing health services and the coverage of KN 1 and KN4 in Bengkulu Province is very good then supported also by the behavior of mothers who have a healthy lifestyle and awareness of health so that mothers want to check their health and pregnancy [20].

4. Relationship between birth spacing and incidence of uterine atony

The results of univariate analysis showed that most (47.7%) mothers gave birth with a pregnancy interval of < 2 years or > 7 years while most (52.3%) with a pregnancy distance > 2 years to 6 years. The results of bivariate analysis showed that only 17 respondents (45.9%) with uterine atony with birth spacing had a high risk < 2 years and > 7 years. While most of the 20 respondents (54.1%) with a birth interval of 3-6 years. *Chi-square* test showed that $p = 0.946$ or $p > 0.05$ means there was no relationship between the distance of pregnancy and

the incidence of uterine atony. The chance of uterine atony with a birth spacing that has a high risk can be seen from the $OR = 0.897$ which is in the interval 0.407 - 1.979, which means that the group with the highest risk of pregnancy will have a risk of 0.407 times for uterine atony and the largest 1,979 times experiencing uterine atony. In line with the results of the research by Trisnawati Yuli and Purwanti Sugi (2015), it was proved that there was no correlation between the distance of pregnancy with postpartum hemorrhage due to uterine atony with a value of $p = 0.123$ [17].

Pregnant women who have a short birth spacing pose a risk of the occurrence of postpartum hemorrhage because the body has not recovered after previous birth the ideal birth interval is at least 2 years. The distance of a pregnancy that is too close to the previous pregnancy will have a dangerous risk for both the mother and the fetus . The uterus that is still not fully recovered due to previous deliveries has not been able to maximize the formation of food reserves for the fetus and for the mother herself. The result will increase the risk of acute anemia. Pregnant women with acute anemia will increase the risk of bleeding, complications of pregnancy, premature babies, the risk of bleeding during childbirth, and the worst risk of miscarriage [5].

According to Manuaba (2007) that birth spacing can cause acute anemia and this theory states that the closer the distance of childbirth to maternity mothers the higher the incidence of postpartum hemorrhage [5]. This is different from the results of research conducted by researchers because the cause of postpartum hemorrhage is not only uterine atony, but the results of the data obtained are influenced by the number of subjects included in the risky birth spacing group which is less than the number of subjects in the group who are not at risk and the results are also influenced by the success of medical

personnel, medical services and proven by the high coverage of K1 (90%), K4 (81%), Fe + (89%) in 2016 in Bengkulu Province [20].

V. CONCLUSION

Based on the above results it can be concluded that the average Hb \leq 11 g / dl with the lowest hemoglobin Hb 6.0 and the highest 12.9, the average maternal age 20-34 years with the youngest age is 16 years and the oldest is 46, the average number of maternal parity is 2-4 and the average pregnancy is 3-6 years with the closest distance is 1 year 8 months and high risk distance is 11 years, there is an influence of anemia with keja in anatonia uteri in mothers giving birth at dr. M. Yunus Bengkulu in 2017 , there was no influence of maternal age with kean dionia uteri on maternity mothers in dr. M. Yunus Bengkulu year , there was no effect of parity with keja in uterine anatomy on maternity mothers in dr. M. Yunus Bengkulu in 2017 , there was no influence on the distance of birth to keja in uterine anatomy on maternity mothers in dr. M. Yunus Bengkulu in 2017 and the most dominant factor influencing the incidence of uterine atony in dr. M. Yunus Bengkulu in 2017 is anemia. It is expected that officers and health services should improve obstetric services by conducting early detection of pregnant women who experience anemia and improve management services for the treatment of uterine atony .

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DATES EFFECTIVE ACCELERATES LABOR IN PRIMIPARA MOTHER

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ABSTRACT: *Most of the problems in this first stage were prolonged labor which was an indication of the delivery of the action. The duration of labor at first stage in primipara lasts approximately 13 hours, and in multiparous about 7 hours. One of the efforts to accelerate the first stage is to consume dates that contain high carbohydrates so that they can provide enough energy. Foods that are rich in sugar elements, this is because of the many contractions of the uterine muscles when they will remove the baby. Purpose of this study was to determine the effect of the consumption of date fruit at the end of pregnancy to the first stage of labor progress. The design of this study using a quasi-experimental design with the post test only control group design, sampling technique using purposive sampling approach, analysis of data Bivariate statistical tests using independent sample t- test. Hypothesis test results with respect to the progress of the first stage of labor is obtained p-value=0,000 so that H_0 refused means "no influence between the consumption of date fruit regularly in late pregnancy with progress first stage of labor in primigravida in the BPM Bengkulu City year 2017.it is advisable for pregnant woman to consume dates and amounts when appropriate for that during pregnancy, the process of labor and breastfeeding.*

Keyword: Date Fruit, duration of the first stage of labor

PRELIMINARY

The World Health Organization (WHO) in 2015 mentioned 99% of maternal deaths due to labor problems. The highest mortality ratio was 450 maternal deaths per 100,000 live births, with a comparison ratio of 9 developed countries and 51 developing countries. AKI in Indonesia is 126 I 100,000 live births and this figure is still very far from the target of Sustainable Development Goals (SDG's) to reduce MMR to 70/100,000 live births (BAPPENAS, 2015).

The average old part of the world causes maternal deaths by 8% and in Indonesia by 9% (Suroso, 2016). The results of the 2012 Household Health Survey found that prolonged labor was the number 5 cause of maternal death in Indonesia (Amiruddin, 2012). Research studies conducted by Syahda (2017) found that the number of patients giving birth in 2014 was 257 patients. There were patients who were referred to by 48 people, the cause was when I extended (his abnormality) 27%.

The progress of labor in the first phase of the active phase is the most tiring, heavy and most mothers begin to feel pain or pain because the uterine activity starts to be more active. In this phase, adequate contraction (power) is needed to start labor. First stage labor is the beginning of a true labor contraction, which is characterized by progressive cervical changes and ends with a complete opening (10 centimeters). This is known as the cervical opening stage (Varney, 2007).

The first stage of labor is divided into two phases, namely the latent phase and the active phase. The latent phase of labor begins at the beginning of the contraction which causes gradual thinning and opening of the cervix. The active phase of labor is the frequency and duration of uterine contractions generally increase. The cervix opens from 4 to 10 cm, usually with a speed of 1 cm or more per hour until the complete opening (10 cm), there is a decrease in the lowest part of the fetus (Asri and Cristine, 2012).

Many non-pharmacological methods have been done to speed up the opening of the cervix, because in addition to being more economical, more comfortable, it is also safer to use. Non-pharmacological methods that are often done such as a lot of walking, emptying the bladder, sitting on birth ball, stimulating the nipples, and consuming fruits that can stimulate the opening of the cervix are dates that contain high carbohydrates so that they can provide enough energy.

In Bengkulu in 2015 the incidence of prolonged labor in labor mothers was 41.4%. An initial survey conducted at the Mandiri Midwife Practice found that some mothers had consumed dates during pregnancy. Therefore researchers are interested in conducting this research. The purpose of this study was to determine the effectiveness of giving dates to the first stage of labor in primiparous mothers in the Bengkulu City Independent Practice Midwife in 2018.

Matherials and Methods

This research is a quantitative research, with the design of Quasi Experiment research with post test only control group design. The population used was pregnant women in the Bengkulu City Independent Practice Midwife in 2016. The required sample was calculated using the Lameshow formula totaling 28 primiparous pregnant women consisting of

14 people as the intervention group and 14 control groups. Sampling using purposive sampling technique. The intervention group was given tamr dates as much as 60 grams a day from 37 weeks' gestation until the mother gave birth, then the first stage of labor was evaluated using partograph. Comparative groups are advised to consume nutritious foods and assess the length of first stage of labor.

RESULTS

The results of univariate analysis were obtained from 14 respondents who were given dates to get the average length of labor at first stage for 662.14 minutes with a standard deviation of 86.441. The average length of labor at first stage for 14 respondents who were recommended to consume nutritious food was 780.00 minutes with a standard deviation of 53.673. The difference in the average length of delivery at the first stage given by dates and the length of delivery at the first time that was not given dates was 117.86 minutes.

Tabel 1 Average length of delivery at the first stage

Stage I	N	Min	Max	Mean	Σ Mean	SD
Given Dates	14	560	820	662,14	117,86	86,441
Not given dates	14	690	880	780,00		53,673

Bivariate analysis was carried out to determine the effectiveness of giving dates to the first stage of labor in primiparous mothers. Before conducting a bivariate analysis, the normality of the data was tested using Shapiro Wilk with the result of $p\text{-value} > 0.05$, which means that the data is normally distributed.

Statistical test using the Independent T-test with the results of $p\text{-value} = 0,000$, means that there is an effect of giving dates to the first stage of

labor in primiparous mothers in the Bengkulu Independent Practical Midwife

Tabel 2 Dates Effective Accelerates Labor In Primipara Mother

Varia bel	N	Mean	Σ Mean	SD	P value
Given Dates	14	662,14	117,86	86,441	0,000
Not Given Dates	14	780,00		53,673	

DISCUSSION

The results showed that there was an effect of giving dates to the first stage of labor in primiparous mothers in the city of Bengkulu. Where there were differences in length of time I was 117.86 minutes faster in mothers given dates. This shows that giving dates is effective in accelerating the first period of labor in primiparous mothers.

The results of this study are in line with research conducted by Rosyidah (2017) which shows that the first stage of labor of mothers who are given dates faster than mothers who are not given dates, is also in accordance with Galuh's (2015) research on the effect of dried dates (tamar) towards the progress of the labor process. In this study pregnant women who were given dates experienced a shorter period of labor compared to mothers who were not given dates.

In Al-Kuran Research, et al in Jordan University of Science and Technology (2011). The study was conducted on 69 pregnant women who were given six dates every day from four weeks before the estimated date of birth, the group of pregnant women who consumed dates at the end of their pregnancy, the latent phase was faster than the group of pregnant women who did not consume dates.

The results of this study are supported by the theory put forward by Rosita (2009) which states that mature dates contain substances similar to

oxytocin which encourage stretching of the uterus and increase uterine contractions. Dates have the advantage of containing various vitamins such as vitamin A and B complex, iron, nicotinic acid and fiber in sufficient quantities. In 60 grams of dried dates contain 30 IU of vitamin A, thiamine 0.054 mg, riboflavin 0.60 mcg, niacin 1,320 mg, vitamin B6 0,468 mg, pantothenic acid 0,115 mg, sodium 0,6 mg, fiber 1,38 g, potassium 399, 6 mg, and can supply 170.4 kcal of energy. The content of sugar, vitamin B1 and iron is very helpful to control the rate of movement of the uterus and increase the period of systole and help dilate the cervix.

CONCLUSION

Giving dates to primiparous pregnant women is effective to speed up the first stage of labor. It is recommended that pregnant women consume 60 grams of dates a day from 37 weeks' gestation until the mother gives birth.

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