

## THE EFFECT OF PROVISIONING MICRONUTRIENTS FOR PREGNANT WOMEN UP TO BREASTFEEDING TO PREVENT POSTPARTUM BLUES IN BALIKPAPAN CITY

Grace Carol Sipasulta\*, Ni Nyoman Murti, Novi Pasiriani, Nina Mardiana

Politeknik Kesehatan Kalimantan Timur

\*Corresponding Author: gracecst63@gmail.com

**Abstract:** *The groups most susceptible to micronutrient deficiencies are pregnant women, breastfeeding mothers and children under 5 years of age. This is because they need vitamins and minerals in greater quantities than the other groups. In addition, this group is also very susceptible to the adverse effects of micronutrient deficiencies. Lack of micronutrients can increase the risk of infectious diseases, death from diarrhoea, measles, malaria and the lungs, including the risk of developing blues. The analytical observational method used a retrospective cohort design. The purpose of this design is to know the effect of micronutrient feeding to pregnant women with the incidence of postpartum blues. Balikpapan City has health centres' in 6 sub-districts, represented by 10 health centres' through simple random sampling. The sample of each health centre is a quota of 20 mothers. Analysis using the frequency distribution to calculate the frequency or number and percentage of the measured aspects. Test the hypothesis proposed in this study using the Manova test and Multivariate using Multivariate Linear Regression. Micronutrients are needed by pregnant women, there are 44.5% of mothers who do not routinely take drugs obtained during ANC, Micronutrient Intake is Not Fulfilled during Postpartum as many as 92 mothers (46.0%). Multivariate test. Wilks' Lambda Sig. The income obtained can be spent so that it is petrified to prevent the risk of postpartum blues. Families need to be involved in preventing postpartum, in order to detect the risk of postpartum by reminding them to take medication regularly.*

**Keywords:** *micronutrients, pregnant women, postpartum blues*

### INTRODUCTION

WHO estimates that 5.6 million women and infants died in 2015 due to complications in pregnancy, childbirth and in the first month of life including 303,000 maternal deaths, 2.7 million new-born deaths and 2.6 million stillbirths. Most of these deaths occur on the day of birth, most of which are preventable. Research shows that up to 3 million lives of women and babies will be saved each year with high-quality care coverage around the time of birth and new-born care (WHO, 2017)

Psychological conditions that are not good since pregnancy can make it difficult during childbirth, making the psychological condition of the mother worse after giving birth. Psychosocial nursing care such as support during pregnancy and delivery difficulties can relax the mother and make her emotional condition more stable, help her coping efforts can be achieved so that she does not experience emotional problems after giving birth.

A change that appears in a person's life, including psychological matters or the existence of social relationships that have the influence of reciprocal relationships linking them with mental problems that occur in society. With the existence of a social change and also social turmoil in the community, it will include mental health as well as mental health, with psychosocial also being able to build emotional from the patient and also behaviour that can be seen in everyday life as illustrated by the behaviours of 13 psychosocial aspects in nursing.

International Statistical Classification of diseases and Related Health Problems (ICD -10; WHO, 2007 in Gondo, 2012). The DSM IV-TR categorizes Postpartum Depression as a disorder experienced as major depression due to postpartum and there are signs that depressive symptoms occur within 1 week postpartum. According to the ICD-10, DPP is a mild mental disorder that occurs within 6 weeks of delivery. However, the results of several studies show that the postpartum incidence rate of DPP is more than 1 month.

The Healthy Indonesia Program is one of the programs from the 5th Nawa Cita agenda, namely Improving the Quality of Indonesian Human Life, implemented by upholding three main pillars, including the application of the healthy paradigm, strengthening health services, and implementing the national health insurance (JKN). Strengthening health services is carried out through strategies to increase access to health services, optimize referral systems, and improve quality using a continuum of care approach and health risk-based interventions (Ministry of Health, 2016)

Surat Edaran no HK.03.03/MENKES/68/2016 concerning Vitamin A capsule month, a condition of insufficient vitamin A storage in the body, lack of intake of foods containing vitamin A and inhibition of absorption and formation of vitamins in the body due to metabolic disorders. The condition of deficiency or inhibition of

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vitamin A absorption that lasts a long time causes various health problems which have an impact on increasing the risk of morbidity and mortality in children under five. Vitamin A red capsules will also be given to postpartum mothers every day after giving birth until the forty-second day.

Pregnant and lactating mothers should not only pay attention to the food they eat, but also their nutrition, because nutrition is different from food, where nutrition is what is contained in the food. These nutrients consist of two major groups, namely macronutrients and micronutrients. Mothers need and should recognize the following differences between the two (Anggrainim 2017).

Breastfeeding mothers who lack micronutrients can cause reduced levels of vitamins and minerals in breast milk, which makes the baby's growth and development not run optimally. Pregnant and lactating mothers are required to meet their daily micronutrient needs. Pregnant and lactating women can take micronutrient supplements. Studies show that micronutrient supplementation or Multiple Micronutrients Supplementation (MMS) in pregnant women can reduce the risk of premature birth and/or low birth weight babies. It is this awareness of the importance of micronutrients that requires pregnant and lactating mothers to continue to pay attention to the food and drinks that enter their bodies. Remember, a healthy baby starts from a healthy mother so it's not easy to get blues after birth.

The postpartum blues, also known as the maternity blues, are temporary post-partum sadness. Postpartum depression that occurs during the puerperium, where women who experience this sometimes do not realize that they are experiencing it is a disease. Postpartum psychosis, in a condition like this there is very heavy mental pressure because it can last up to a year and can also always relapse every post-delivery mental disorder ([www.artiklekedokteran.com](http://www.artiklekedokteran.com)).

The prevalence of postpartum depression in the city of Denpasar using the EPDS scoring as many as 9 mothers (20.5%). A total of 4 mothers (9.1%) needed extra monitoring. The risk factors obtained in this study were a history of low maternal education, primiparity, age, having a history of child deaths and unwanted pregnancies. Conclusion: The prevalence of postpartum depression in Denpasar city based on the EPDS score is 20.5% (Dira & Wahyuni. 2016).

Research conducted by Girsang (2013) found that the average difference in depression between the intervention postpartum mothers and the untreated postpartum mothers was 0.15, the standard deviation was 0.724, with a t of 3.56, and a p value of 0.003. There are differences in postpartum depression in mothers who receive cognitive behavioural treatment therapy interventions and those who do not. These findings require the application of health education, especially through cognitive behavior therapy by providing information about the prevention of postpartum depression during pregnancy check-ups in the first, second, and third trimesters and after three days of giving birth to prevent and overcome postpartum depression.

For pregnant and lactating mothers, every food intake consumed is life for the foetus and baby. Families in this case need to help pay attention nutritional needs of pregnant and lactating women more carefully for development and the health of the baby and prevent the mother from the risk of postpartum blues. By carrying out family functions and independence, it can be seen from the natural emotional changes in the closeness of emotional relationships between individuals, behavioural independence, namely the ability to make decisions without depending on others and do it responsibly.

The results of Community Service for Sipasulta, Nurhayati, Hazanah & Diergantara, 2018 and 2019 at PKM Muara Rapak were given psychosocial health education and screening for pregnant women in the 3rd trimester. It was found that 20 pregnant women using the ANQR form were at risk of developing postpartum blues after giving birth, so that there are still pregnant women who are not happy during the pregnancy process, have poor psychological conditions, can worsen the condition from pregnancy until the delivery process. compared to other groups. In addition, this group is also very susceptible to the adverse effects of micronutrient deficiencies.

Although only needed by the body in very small amounts, micronutrients are needed by the body. Micronutrient deficiencies can increase the risk of infectious diseases, death from diarrhoea, measles, malaria and the lungs, including the risk of developing blues. WHO notes that more than 2000 million people in the world suffer from vitamin and mineral deficiencies, especially vitamin A, iodine, iron and zinc.

Nutrition plays a key role in the severity and duration of depression. Deficiency of some micronutrients adversely affects the brain, can exacerbate mental disorders. Pay attention to diet, supplementation according to brain chemicals or neurotransmitters from chemical precursors such as amino acids, proteins and other micronutrients, vitamins and minerals, understand how lack of these nutrients causes changes in brain chemical patterns and the production of neurotransmitters leads to mental illness such as depression (Sasie, 2017).

Families in this case need to help and pay attention to the nutritional needs of pregnant and lactating mothers more carefully for the development and health of the baby and prevent the mother from the risk of postpartum blues. For pregnant and lactating mothers, every food intake consumed is life for the foetus and baby. By carrying out family functions and achieving emotional independence, close emotional relationships between individuals and independent behaviour, an ability to make decisions without depending on others and do it responsibly.

Mothers may become more sensitive during the perinatal period. Identification of the psychosocial needs of mothers is needed to support them in increasing care during pregnancy, during ante-natal care in health care facilities, both independent and government. The Edinburgh Postnatal Depression Scale (EPDS) and Ante-Natal Risk Questionnaire (ANRQ) are recommended for every pregnant woman to have a pregnancy check-up to complete, to capture pregnant women who may experience psychosocial disorders during pregnancy and postpartum. (Government of South Australia, 2014)

## MATERIALS AND METHODS

This research is analytic observational using retrospective cohort design. This design is intended to determine the effect of giving micronutrients to pregnant women to breastfeeding to prevent the occurrence of postpartum blues in Balikpapan City. Researchers want to know the effect of giving pregnant women micronutrients with the incidence of postpartum blues, type I error that is tolerated is 5% and research power is 80%.

Based on the literature review, it is estimated that the prevalence of postpartum blues with pregnant women consuming micronutrients is 20% (P2) while the prevalence of postpartum blues in pregnant women who do not consume micronutrients is 40% (P1).

Then a hypothesis is made that there is an effect between the provision of micronutrients to pregnant women to prevent the occurrence of postpartum blues (two sides). Then the calculation procedure for the Hypothesis test for two population proportion (two-sided test).

The hypotheses are:

- 1)  $H_0$ : There is no effect between the provision of micronutrients to pregnant women to prevent the occurrence of postpartum blues (two-sided); and
- 2)  $H_a$ : There is an effect between the provision of micronutrients to pregnant women to prevent the occurrence of postpartum blues (two sides).

The population was pregnant women check for ANC in Balikpapan City during January to December 2020. The sample of this study was taken based on the Consecutive sample, which was done by selecting all pregnant women who met and met the criteria, until the desired number of samples was reached (Dharma, 2011).

The inclusion criteria for the sample included pregnant women in the third trimester, willing to be respondents, able to speak Indonesian well, able to read and write. Exclusion criteria for pregnant women who cannot write and have problems with consciousness.

Hypothesis test for a relative risk, as follows:

$$n = \frac{\left\{ z_{1-\alpha/2} \sqrt{P_0(1-P_0)} + z_{1-\beta} \sqrt{P_a(1-P_a)} \right\}^2}{(P_a - P_0)^2}$$

$n$  = minimum sample size/

$Z(1-\alpha)/2$  = value of standard normal distribution (table Z) at certain /

$Z(1-\beta)$  = value of standard normal distribution (table /) at certain

$P_0$  = proportion in population

$P$  = estimated proportion in the population

$P - P_0$  = estimated difference between the proportion under study and the proportion in Population

This level of significance (%) is the same as type I error 5%, enter Power of the test (%) 80. Then first fill in Anticipated probability of disease among unexposed (P2) of 0.1 then enter RR on anticipated relative risk (RRa) equal to 2.5 being the decimal separator is a dot. Then automatically P1 will be counted and the minimum sample size for each group is 100 people. If the ratio of the number of

unexposed to exposed groups is 1:1, then the estimated minimum total sample size is 200 people. Balikpapan City has health centres in 6 sub-districts, represented by 10 health canthers through simple random sampling. The sample of each Puskesmas with a quota of 20 mothers.

As a partner, this research was conducted at 10 Puskesmas in the city of Balikpapan in August to November 2021.

## RESULTS AND DISCUSSION

### Mother Characteristics

#### *Mother's Age*

**Table 1.** Maternal Age

	Frequency	Percent	Valid Percent
Mother's age 20-35 years	162	81	81
Mother's age < 20 years	12	6	6
Mother age > 35 years	26	13	13
TOTAL:	200	100	100

The data above is mostly mothers aged 20-35 years 162 mothers (81.0%)

#### *Mother's Education*

**Table 2.** Maternal Education

	Frequency	Percent	Valid Percent
College	23	11.5	11.5
High School	75	37.5	37.5
Middle School	80	40.0	40.0
Elementary School	22	11.0	11.0
Total:	200	100.0	100.0

From the data above, mothers with a junior high school education of 80 mothers (40%) and high school mothers of 70 mothers (40%).

#### *Mother's Job*

**Table 3.** Mother's Job

	Frequency	Percent	Valid Percent
Mother who doesn't work	147	73.5	73.5
Working Mom	53	26.5	26.5
Total:	200	100.0	100.0

From the data above, there are more mothers who do not work, amounting to 147 people (75.5%) of those who work by

#### *Number of Aterm Births*

**Table 4.** Number of Mothers Giving Aterm Birth

	Frequency	Percent	Valid Percent
Mother Gives Once Aterm Birth	118	59.0	59.0
Mothers Give Birth to Babies 2 Times To 5	82	41.0	41.0
TOTAL:	200	100.0	100.0

From the data above, the number of mothers who gave once a term birth baby was 147 mothers (59.0%)

### **Family Income**

**Table 5.** Family Income

	Frequency	Percent	Valid Percent
> IDR 3,500,000/month	59	29.5	29.5
IDR 2,500,000 – IDR 3,500,000/month,	115	57.5	57.5
> Rp 1.500.000 – < Rp 2.500.000	26	13.0	13.0
TOTAL:	200	100.0	100.0

From the data above, the highest family income is IDR 2,500,000 – IDR 3,500,000 / month, is 115 mothers (57.5%)

### **Husband and Family Support**

**Table 6.** Husband and Family Support

	Frequency	Percent	Valid Percent
Get Husband and Family Support	179	89.5	89.5
Not Getting Husband and Family Support	21	10.5	10.5
TOTAL:	200	100.0	100.0

From the data above, 179 mothers (89.5%) received support from their husbands and families

### **Mother Knows the Consumption of Nutrition and Medicine**

**Table 7.** Mother Knows the Consumption of Nutrition and Medicine

	Frequency	Percent	Valid Percent
Get Husband and Family Support	179	89.5	89.5
Not Getting Husband and Family Support	21	10.5	10.5
TOTAL:	200	100.0	100.0

From the data above, mothers who consumed Complete Nutrients and Drugs were 112 mothers (56%)

### **Description of Micronutrient Effect**

#### **Postpartum Mothers Experience Depression/Postpartum Blues**

**Table 8.** Postpartum Mothers Experience Depression/Postpartum Blues

	Frequency	Percent	Valid Percent
Impossible Depression	115	57.5	57.5
Depression Maybe	40	20.0	20.0
Chances of Depression Are Quite High	18	9.0	9.0
Possible Depression	27	13.5	13.5
TOTAL	200	100.0	100.0

#### **Pregnant women Risk to Get Postpartum Blues**

**Table 9.** Pregnant women Risk to get Postpartum Blues

	Frequency	Percent	Valid Percent
No Risk	63	31.5	31.5

Medium Risk	40	20.0	20.0
Moderate Symptoms	82	41.0	41.0
High Risk	15	7.5	7.5
TOTAL:	200	100,0	100,0

From the data above, the most moderate symptoms are 80 mothers (41%)

**Micronutrients Drugs Given During ANC**

**Table 10.** Micronutrients Drugs given during ANC

	Frequency	Percent	Valid Percent
Fulfilled Micronutrient Intake	108	54	54
Micronutrient Intake Is Not Fulfilled	92	46	46
TOTAL:	200	100	100

From the data above, postpartum mothers whose drug intake was fulfilled were 108 mothers (54%).

**Hypothesis Test**

**Manova Terms**

**Table 11.** Box's Test of Equality of Covariance Matrices<sup>a</sup>

<b>Box's M</b>	<b>2.143</b>
F	710.000
df1	3
df2	28512720.000
Sig.	.546

Testing the null hypothesis that the observed covariance matrix of the dependent variable is the same across groups.

From the data above Sig .546 > 0.05 meets the Box requirements, then it can be continued for the Manova test. The data above Sig .546 > 0.05 meets the Box requirements, then it can be continued for the Manova test

**Homogeneity**

**Table 12.** Homogeneity Test

	F	df1	df2	Sig.
Postpartum Risk	2.957	1	398	.086
Micronutrients_pregnancy	1.272	1	398	.260

The data above describes all homogeneous variables, all data Sig. > 0.05 both Postpartum Risk and Pregnancy Micronutrients.

**Multivariate Test**

**Table 13.** Multivariate Test

Effect	VALUE	F	Hypothesis df	Error df	Sig.
Intercept Pillai's Trace	.955	4250.143b	2.000	397.000	.000
Wilks' Lambda	.045	4250.143b	2.000	397.000	.000
Hotelling's Trace	21.411	4250.143b	2.000	397.000	.000

	Roy's Largest Root	21.411	4250.143b	2.000	397.000	.000
Class	Pillai's Trace	.429	149.370b	2.000	397.000	.000
	Wilks' Lambda	.571	149.370b	2.000	397.000	.000
	Hotelling's Trace	.752	149.370b	2.000	397.000	.000
	Roy's Largest Root	.752	149.370b	2.000	397.000	.000
	Pillai's Trace	.955	4250.143b	2.000	397.000	.000

The data above shows Sig 0.000 < 0.05, meaning that all variables influence each other.

### Manova Test

**Table 14.** Tests of Between-Subjects Effects

Source	Dependent Variable	Type III Time of Square	df	Mean Square	F	Sig.
Corrected Model	Resiko_Postpartumblues	7439.063a	1	7439.063	279.081	.000
	Mikronutrien_Intrvnifae	77.440b	1	77.440	33.408	.000
Intercept	Resiko_Postpartumblues	38947.023	1	38947.023	1461.122	.000
	Mikronutrien_Intrvnifae	17424.000	1	17424.000	7516.857	.000
Kelas	Resiko_Postpartumblues	7439.063	1	7439.063	279.081	.000
	Mikronutrien_Hamilnifae	77.440	1	77.440	33.408	.000
Error	Resiko_Postpartumblues	10608.915	398	26.656		
	Mikronutrien_Intrvnifae	922.560	398	2.318		
	Resiko_Postpartumblues	56995.000	400			
Total	Mikronutrien_Intrvnifae	18424.000	400			
	Resiko_Postpartumblues	18047.978	399			
Corrected Total	Mikronutrien_Intrvnifae	1000.000	399			

a. R Square = .412 (Adjusted R Squared = .411)

b. R Square = .077 (Adjusted R Squared = .075)

From the data above at Risk\_Pospartum Blues Sig 0.000 < 0.05 then Ho is rejected. There is an effect of giving micronutrients to pregnant women to prevent the occurrence of postpartum blues.

In Micronutrient\_Pregnancy Sig 0.000 < 0.05 So Ho is rejected. There is an effect of the ability to consume micronutrients for pregnant women to prevent the occurrence of postpartum blues (two sides on the Multivariate test Sig 0.000 < 0.05, so Ho is rejected. There is an effect simultaneously providing micronutrients with the ability to consume micronutrients pregnant women can prevent the occurrence of postpartum blues (two sides).

**Multivariate Linear Regression Test**  
**Model Summary**

**Table 15.** Table Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.368a	.135	.099	4.217	1.655

- a. Predictors: (Constant), Micronutrients Drugs given during postpartum, Mother taking nutrition and drugs during ANC, Mother's occupation, Maternal age at postpartum, Number of births at term, Family income, Last formal education Graduating, Husband and family support.
- b. Dependent Variable: Mother Natural Depression/Postpartum Blues

From the data above describes R .368 and R Square .135. Durbin Watson's value of 1.655 because it is located between D Upper and 4- D Upper, fulfils the assumption that there is no residual.

**Anova Test**

**Table 16.** ANOVA a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	530.626	8	66.328	3.731	.000b
	Residual	3395.854	191	17.779		
TOTAL:						

- a. Dependent Variable: Mother Natural Depression/Postpartum Blues

From the data above shows Sig 0.000 <0.05 describes all independent variables affecting the dependent variable.

**Linear Regression Test Results**

**Table 17.** Coefficients<sup>a</sup>

	Coefficients		Coefficients			Statistic	
	B	Std. Error	Beta		Tolerance	VIF	
(Constant)	4.464	2.872		1.554	.122		
Mother's Age at Postpartum	-1.478	.728	-.143	-2.030	.044	.906	1.104
Last formal education – Graduated	.570	.409	.108	1.395	.165	.761	1.315
Mother's Job	-1.457	.736	-.145	-1.978	.049	.841	1.188
Number Aterm Births	-.158	.638	-.018	-.248	.804	.904	1.107
Family Income	.103	.520	.015	.198	.843	.828	1.208
Husband and Family Support	2.366	1.115	.164	2.121	.035	.760	1.315
Mother Consuming Nutrition and Medicine During ANC	1.105	.506	.169	2.183	.030	.760	1.316

The data above illustrates that Sig is not all > 0.05, which affects Mother's Age, Mother's Occupation, Husband and Family Support and Mother's Knowledge of Consuming Micronutrient Drugs and complete nutrition. There is no tolerance < 10 so there is no correlation between the variables with R .368, then the relationship is low so it can only use Linear Logistics regression.



**Describes the provision of micronutrients for pregnant women to breastfeeding to prevent postpartum blues in Balikpapan City.**

Micronutrient intake was met in 111 mothers (55.5%) and was not met in 89 mothers (44.5%) from a total of 200 pregnant women. This is because the micronutrients that will be consumed are given when the mother checks her pregnancy during routine ANC to determine the condition of the mother and the development of the growth and development of her foetus.

A mother must really pay attention to food intake during pregnancy and breastfeeding, to ensure that her nutritional needs are continuously met, not only macronutrients such as carbohydrates, proteins and fats, micronutrients such as vitamins and minerals should not go unnoticed (KlikDokter Editorial Team. 2017).

The nutrition received by pregnant women must be sufficient, because if the nutrition is lacking there will be many complications that may occur during pregnancy and will have an impact on the health of the foetus in the womb.

Nutrition plays a key role in the severity and duration of depression. Deficiency of some micronutrients adversely affects the brain, can exacerbate mental disorders. Paying attention to diet, supplementation according to brain chemicals or neurotransmitters from chemical precursors such as amino acids, proteins and other micronutrients, vitamins and minerals, understanding how lack of these nutrients causes changes in brain chemical patterns and the production of neurotransmitters that lead to mental illnesses such as depression (Sasie, 2017).

Micronutrients are needed by pregnant women. There are 44.5% of mothers who do not routinely take drugs obtained during ANC. It is necessary to cooperate with pregnant women and health workers so that the drugs obtained can be spent so as to help prevent the risk of postpartum blues.

**Proving That by Giving Micronutrients To Pregnant Women To Breastfeeding Prevents Postpartum Blues In Balikpapan City.**

From a total of 200 postpartum mothers, 108 people (54%) met the micronutrient intake and 92 (46%) did not. In this condition, after returning from the Inpatient Room after giving birth, the mother was given medicine. After the drug runs out, the postpartum mother does not take anymore and when the postpartum mother does a PNC examination and looks tired and weak, an Hb examination is carried out and if the Hb is below 11 g%, the mother will be given blood-added medicine and according government program 2-tablet of vitamin A are also given.

During the perinatal period the mother may become more sensitive. Identification of the psychosocial needs of mothers is needed to support them in increasing care during pregnancy during Ante Natal Care (ANC) in health care facilities, both independent and government. The Edinburgh Postnatal Depression Scale (EPDS) and the Ante Natal Risk Questionnaire (ANRQ) are recommended for every pregnant woman to have a pregnancy check-up to complete, to capture pregnant women who may experience psychosocial disorders during pregnancy and postpartum. (Government of South Australia, 2014)

The effectiveness of the EPDS and BDI scales did not differ in predicting maternal postpartum depression during hospitalization. Both scales have the same ability when detecting the risk of postpartum depression in mothers (Latifah & Hartati. 2006).

Kurniati (2019), showed that the mean zinc level in mothers from non-smoking families was higher than those from smokers' families 13.61+4.86 g/dl; while mothers from smoking families have a mean zinc level of 10.01+6.43 g/dl, has a not strong correlation  $r = 0.063$  but zinc levels in mothers from smoking families is 10.02 g/dl lower than non-smokers families who drawing high enough so that it can interfere with the condition of the postpartum mother, can be a factor in the occurrence of postpartum blues.

Baby Blues is not until the mother loses the ability to care for her child or carry out daily activities but if it is not overcome, it can progress to postpartum depression, where the mother loses appetite and has difficulty sleeping or even overdoes it, loses interest in doing daily activities. Mothers often lose the ability to take care of their babies. (Yustitia. A. 2018)

Pregnant women with their own problems so that during pregnancy in order to detect the risk of postpartum blues, every pregnant woman is screened to find out her psychosocial condition, where

every mother cannot / is difficult to express it to health workers. In addition to the need for micronutrients during pregnancy, it is necessary to be aware that pregnant women are also avoided from unhealthy environments such as cigarette smoke.

### **Analysing the Effect of Micronutrient Giving to Pregnant and Breastfeeding Mothers to prevent postpartum blues in Balikpapan City.**

The results of the Multivariate Wilks' Lambda Siq test  $.000 < 0.05$  illustrates the micronutrients taken by pregnant women to the drugs given during the ANC examination have an effect on pregnant women, the risk of postpartum blues and postpartum mothers who experience postpartum blues.

Syari, Serudji and Mariati (2015) getting intake of macronutrient nutrients (energy, carbohydrates, fat and protein) which have less risk for giving birth to babies with low birth weight, can also affect the mother. Although only needed by the body in very small amounts, micronutrients are needed by the body. Micronutrient deficiencies can increase the risk of infectious diseases, death from diarrhoea, measles, malaria and the lungs, including the risk for blues. WHO notes that more than 2000 million people in the world suffer from vitamin and mineral deficiencies, especially vitamin A, iodine, iron and zinc.

The results of Manova illustrate that consuming micronutrient drugs since ANC, there is a difference in the mother's risk of developing postpartum blues with the knowledge that the mother and mother experience postpartum depression. Both Siq  $0.000 < 0.05$ .

Wahyuni and Lismawati (2015), obtained the overall level of knowledge of postpartum mothers about postpartum blues, the majority of them were less knowledgeable (50%).

It is hoped that local health workers can provide the best service to postpartum mothers, besides that the active role of every postpartum mother is very necessary to know about the postpartum blues, have good knowledge about the postpartum blues. Sipasulta, Nurhayati (2016) using the ANQR form found that there is a risk of postpartum blues in pregnant women, so it is recommended to be screened for pregnant women in trimesters I-III, so that it can be detected.

During the 2018 community service, education for pregnant women about postpartum blues and 2019 screening for pregnant women using the ANQR form, found 6 out of 20 pregnant women (30%) who experienced the risk of postpartum blues after giving birth. This causes pregnant women to still be unhappy during their pregnancy, have poor psychological conditions, can worsen conditions from pregnancy to delivery.

Girsang (2013) found that the average difference in depression in postpartum mothers who intervened with those who did not was 0.15. These findings require the application of health education, especially through cognitive behaviour therapy by providing information about the prevention of postpartum depression during pregnancy check-ups starting in the first, second, and third trimesters and three days after giving birth, to prevent and overcome postpartum depression.

The test results show Siq  $0.000 < 0.05$ , illustrating that all Independent variables affect the Dependent variable but not all have a relationship, not all Siq  $< 0.05$ , which affects Maternal Age, Mother's Occupation, Husband and Family Support and Mother's Knowledge of Consuming Micronutrient Drugs and complete nutrition. There is no tolerance  $< 10$  so there is no correlation between variables.

In this case, the family needs to help pay more attention to the nutritional needs of pregnant and/or breastfeeding mothers, for the sake of the development and health of the baby, and to prevent the risk of postpartum blues to the mother. For pregnant and lactating mothers, every food intake consumed is life for the foetus and baby. By carrying out family functions, emotional independence, close emotional relationships between individuals and behavioural independence will be achieved so that they are able to make decisions responsibly and not depend on others.

It should be noted that the baby blues are usually only experienced for a few days and can last up to 2 weeks at most. Meanwhile, PPD symptoms are experienced for at least 1 month and can last up to 1 year. Postpartum blues generally appear from 2 - 3 days after giving birth. While PPD usually appears in the second or third month after delivery (Yustitia. A, 2018).

Postpartum blues can be prevented by paying attention to the condition of the mother since pregnancy, both micronutrient adequacy through drugs given during ANC as well as nutritional adequacy during pregnancy, from those that affect maternal age, mother's occupation, husband and

family support and mother's knowledge of consumption of micronutrient drugs and complete nutrition, will be able to reduce the risk of postpartum blues during childbirth.

## **CONCLUSION**

Micronutrients are needed by pregnant women, because there are 44.5% of mothers who do not routinely take drugs obtained during ANC. Families need to be involved to prevent the occurrence of postpartum blues in order to detect the risk of postpartum blues by reminding them to take medication regularly.

Postpartum blues can be prevented by paying attention to the condition of the mother since pregnancy, both the adequacy of micronutrients through drugs given during ANC, nutritional adequacy during pregnancy, the risk for postpartum blues during childbirth is less likely.

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