Relationship of Characteristics of Baby's Mother with the Low Birth Weight in Regional General Hospital in Sorong

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Abstract

The mortality rate of low birth weight is part of a reflection of the public health status. Low birth weight babies are born with birth weight less than 2,500 grams regardless of pregnancy. The aim of research to determine the relationship characteristic of mothers of infants with LBW. This type of research is observational analytic with cross sectional design. Collecting data through observation sheet on record medic mothers who gave birth in hospitals 2014, in Sorong, West Papua Province in July-August 2015. The results reveal no relationship nutritional status of mothers with LBW (p = 0.000 and 9.54 RP). No relationship of anemia in mothers with LBW (p = 0.000 and 9.20 RP), no relationship of pregnancy range with LBW births (p = 0.000 and 5.01 RP), no maternal employment status relationship with the incidence of low birth weight (p = 0.001 and RP 3.22), there is a relationship with the mother's education level LBW (p = 0.005 and 2.82 RP), no correlation between age mothers with LBW (p = 0.011 and 2.51 RP) and the biggest risk factors based on the RP is factor of maternal nutritional status (p = 0.000 and 9.54 RP).

Keywords: Anemia mother; low birth weight; nutritional status.

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1. Introduction

Human resource development cannot be separated from health efforts, particularly efforts to improve maternal health and baby. Therefore human resource development must start early, ie, when the fetus is still in the womb and in infancy. Thus, the health of newborn babies less than 1 month (Neonatal) is very important because it will determine whether our future generations in a healthy state and quality and able to face the challenges of globalization [1]. Health development as an integral part of national development, which seeks to achieve national development goals through efforts in the field of health by improving public health, so that the realization of complete Indonesian man healthy, intelligent and productive [2]. Improving human resources to enable more people to be able to fight actively in development that can be implemented in various fields to achieve a healthy, prosperous, just and prosperous and able to live independently.

The main steps to save infants of low birth weight (LBW) in order to grow and develop properly is early detection with low birth weight (LBW) at birth were followed by efforts to further action on target [1]. Babies born in the below normal weight problems, is still a problem to be considered in the health world. Need serious attention in the treatment of babies born with weight below normal due to have a risk of suffering from respiratory infections, infections of heart disease, as well as other infectious diseases, and will pay for nurses and treatment is more expensive compared to infants of normal weight [3].

In an effort to improve the health, development center region of health degrees of mothers and children regency levels is a strategic area because it has service units effective as a hospital as a special reference, science and technology a number of health centers and staff as the health care spearheads in the community and the Department of Health as an administrator in the district health efforts [4].

Based on data from the World Resources Institute in Indonesia maternal deaths to date reached 390 life birth. Partus 100,000 premature birth is the most important cause of neonatal mortality incidence 7% of all births. National percentage of low birth-weight infants (<2500 grams) was 11.5% and the 17 provinces have percentage of low birth weight infants above the national percentage is in Yogyakarta, West Java, South Sumatra, Banten, Bangka, Belitung, West Nusa Tenggara, Nusa East, West Kalimantan, Central Kalimantan, South Kalimantan, Central Sulawesi, South Sulawesi, Maluku and North Maluku, Papua and West Papua [6].

2. Materials and Methods

This type of research is descriptive analytic study design cross sectional conducted at the General Hospital of Sorong, West Papua Province which was conducted in July-August 2015.Sampel in this study is the status of the mother is eligible to be sampled in the research sampling. It used simple random sampling random sampling (random) is simple to draw members of the population (lottery technique) or sweepstakes technique [7]. Base on the formula it was found that the number of samples to be used in research was 93 respondents.

3. Results

3.1 Univariate Analysis

a. Distribution by Age

Based on the results, the distribution by age of mothers, can be seen in the table below:

Table 1: Frequency Distribution of Age women giving birth in hospitals Sorong 2014

No	Age	N	%
1	High risks	21	22,6
2	Non high risks	72	77,4
	Total	93	100

Based on table 1, it can be seen that the maternal age with high risks was 21 people (22.6%) and non high risks maternal age was 72 (77.4%).

b. Distribution Based Distance Pregnancy

Based on the results by distance Pregnancy distribution, can be seen in the table below:

Table 2: Distribution of Pregnancy range for women giving birth in hospitals Sorong 2014

No	Pregnancy range	n	%
1	High risks	36	38,7
2	Non High risks	57	61,3
	Total	93	100

Based on table 2, it can be seen that the pregnancy range for women who high risks was 36 people (38.7%) and non high risks was 57 people (61.3%).

c. Distribution Based on Mother Nutritional Status

Based on the results, the distribution is based on the nutritional status of mother, can be seen in the table below:

Table 3: Distribution of Mother Nutritional Status who give birth in hospitals Sorong 2014

No	**Mother nutritional status**	n	%
1	Chronic energy deficiency	33	35,5
2	Non Chronic energy deficiency	60	64,5
	Total	93	100

Based on table 3, it can be seen that the mother's nutritional status of Chronic energy deficiency was 33 (33.5%) and non Chronic energy deficiency of was people (64.5%).

d. Distribution by Education Level

Based on the results, the distribution based on the mother's educational level, can be seen in the table below:

Table 4: Distribution of Education Level Mothers who gave birth in hospitals Sorong 2014

No	Education Level	n	%
1	Low	37	39,8
2	High	56	60,2
	Total	93	100

Based on table 4, it can be seen that mothers with high levels of law education level was 37 people (39.8%) and high education level was 56 (60.2%).

e.Distribution Based Job Status

Based on the results, the distribution based on the mother's employment status, can be seen in the table below:

Table 5: Frequency Distribution of Employment Status mothers who gave birth in hospitals Sorong 2014

No	Employment Status	n	%
1	Employed	33	35,5
2	Non employed	60	64,5
	Total	93	100

Based on table 5, it can be seen that a mother who employed was 33 (35.5%) and a mother who does not employed was 60 people (64.5%).

f. Distribution Based Capital Anemia in Mother

Based on the results, based on the distribution of anemia in the mother, can be seen in the table below:

Table 6: Frequency distribution of anemia in mothers who gave birth in hospitals Sorong 2014

No	Anemia	*n*	%
1	Anemia	34	36,6
2	Non Anemia	59	63,4
	Total	93	100

Based on table 6, it can be seen that the mother during pregnancy with Hb Anemia totaled 34 persons (36.6%)

and Hb mother during pregnancy is not Anemia was 59 (63.4%).

g. Based on the distribution of low birth weight

Based on the results, based on the distribution of low birth weight, can be seen in the table below:

Table 7: Frequency distribution of low birth weight infants born in hospitals Sorong 2014

No	low birth weight	*n*	%
1	low birth weight	25	26,9
2	Non low birth weight	68	73,1
Total		93	100

Based on table 7, it is known that babies born with LBW was 25 infants (26.9%) and totaled 68 Not LBW infants (73.1%).

2. Bivariate Analysis

a. Relationship Between Age Mothers with Genesis low birth weight (LBW)

Table 8: The relationship between Age of Mothers with low birth weight incidence in hospitals Sorong

Age	low birth weight				Total		P Value	RP
	< 2500 gram		≥ 2500 gram					
	n	%	*n*	%	*n*	%		
High risks	11	52,4	10	47,6	21	100	0,011	2,51
Non High risks	15	20,8	57	79,2	72	100		
Total	26	28,0	67	72,0	93	100		

Based on table 8, note that from 21 mothers who have high risks age was 11 (52.4%) with low birth weight < 2500 g and 10 mothers (47.6%) of low birth weight ≥ 2500 g. While the mother age 72 Non high risks was 15. The mother (20.8%) with low birth weight <2500 g and 57 (79.2%) of low birth weight ≥ 2500 g. The test results with chi square statistic in the table above, show that the value of p = 0.011 (p <0.05) means that there is a significant relationship between mother's age with the incidence of low birth weight. While calculating the prevalence ratio values obtained 2,51 (RP> 1). This means women with high risk of age factors were 2.51 times greater on the incidence of low birth weight < 2500 g compared to mothers aged non high risks.

b. Relationship Between Distance Pregnancy with Genesis low birth weight (LBW)

Table 9, note that of the 36 women who had a high risks range pregnancy 19 people was (52.8%) with low birth weight <2500 g and 17 (47.2%) of low birth weight ≥ 2500 g. While the 57 mothers with range pregnancy Non

high risks was 6 (10.5%) with low birth weight < 2500 g and 51 (89.5%) of low birth weight ≥ 2500 g.

The test results with chi square statistic in the table above, note that the value of p = 0.000 (p <0.05) means that there is a significant correlation between the incidence of range pregnancy with low birth weight. While calculating the prevalence ratio values obtained 5.01 (RP> 1). This means women with range pregnancy with high risks of 5.01 times greater on the incidence of low birth weight <2500 g compared to women with pregnancy spacing non high risks.

Table 9: The relationship between range Pregnancy with low birth weight incidence in hospitals Sorong

Parity / pregnancy Range	low birth weight				Total		P Value	RP
	< 2500 gr		≥ 2500 gr					
n	*n*	%	*n*	%	*n*	%		
High risks	19	52,8	17	47,2	36	100	0,000	5,01
Non high risks	6	10,5	51	89,5	57	100		
Total	25	26,9	68	73,1	93	100		

c. Relationship Between Nutritional Status Genesis Capital with low birth weight (LBW)

Table 10: The relationship between the Mothers Nutritional Status with low birth weight incidence in hospitals Sorong

Mothers Nutritional Status	low birth weight				Total		P Value	RP
	< 2500 gr		≥ 2500 gr					
	n	%	*n*	%	*n*	%		
KEK	21	63,6	12	36,4	33	100	0,000	9,54
Non KEK	4	6,7	56	93,3	60	100		
Total	25	26,9	68	73,1	93	100		

According to the table, note that of the 33 mothers of the nutritional status of KEK 21 people (63.6%) with low birth weight <2500 g and 12 (36.4%) of low birth weight ≥ 2500 g. While the 60 mothers who have no nutritional status of KEK 4 (6.7%) with low birth weight <2500 g and 56 (93.3%) of low birth weight ≥ 2500 g. The test results with chi square statistic in the table above, note that the value of p = 0.000 (p <0.05) means that there is a significant relationship between maternal nutrition with the incidence of low birth weight.

While calculating the prevalence ratio values obtained, 9.54 (RP> 1). This means that the nutritional status of mothers with risk factors KEK has 9.54 times greater on the incidence of low birth weight <2500 g compared to

mothers who have no nutritional status of SEZ.

d. Relationship Between Education Level Genesis Capital with low birth weight (LBW)

Table 11: The relationship between level of education Mothers with low birth weight incidence in hospitals Sorong

Education level	low birth weight				Total		P value	RP
	< 2500 gr		≥ 2500 gr					
	n	*%*	*n*	*%*	*n*	*%*		
Low	16	44,4	20	55,6	36	100	0,005	2,82
High	9	15,8	48	84,2	57	100		
Total	25	26,9	68	73,1	93	100		

According to the table, note that of the 36 mothers with education rendah16 people (44.4%)

with low birth weight <2500 g and 20 people (55.6%) of low birth weight ≥ 2500 g. While the 57 mothers who have high education level 9 (15.8%) with low birth weight <2500 g and 48 people (84.2%) of low birth weight ≥ 2500 g.

The test results with chi square statistic in the table above, note that the value of p = 0.005 (p <0.05) means that there is a significant correlation between maternal education level with the incidence of low birth weight. While calculating the prevalence ratio values obtained 2,82 (RP> 1). This means that the capital levels of low education of 2.82 times greater risk of the incidence of low birth weight <2500 g compared to women with higher education.

e. Relationship Between Job Status Genesis Capital with low birth weight (LBW)

Table 12: The relationship between the Job Status Mothers with low birth weight incidence in hospitals Sorong

Employment status	low birth weight				Total		P value	RP
	< 2500 gr		≥ 2500 gr					
	n	*%*	*n*	*%*	*n*	*%*		
Employed	16	48,5	17	51,5	33	100	0,001	3,22
Non employed	9	15,0	51	85,0	60	100		
Total	25	26,9	68	73,1	93	100		

According to the table, note that of the 33 mothers who have the status of a job working 16 people (48.5%) with low birth weight <2500 g and 17 (51.5%) of low birth weight ≥ 2500 g. While the 60 mothers who have the status of a job is not working 9 (15.0%) with low birth weight <2500 g and 51 (85.0%) of low birth weight ≥ 2500 g. The test results with chi square statistic in the table above, note that the value of p = 0.001 (p <0.05) means that there is a significant relationship between maternal employment status with the incidence of low birth weight.

While calculating the prevalence ratio values obtained 3,22 (RP> 1). This means the mother who has the status of a job working with risk factors of 3.22 times greater on the incidence of low birth weight <2500 g than women with employment status does not work.

f. Relationship Between Anemia incidence with low birth weight (LBW)

Table 13: The relationship between the incidence of anemia in the mother with low birth weight in hospitals Sorong

Anemia	low birth weight				Total		P Value	RP
	< 2500 gr		≥ 2500 gr					
	n	*%*	*n*	*%*	*n*	*%*		
Anemia	21	61,8	13	38,2	34	100	0,000	9,20
Non Anemia	4	6,8	55	93,2	59	100		
Total	25	26,9	68	73,1	93	100		

According to the table, note that of the 34 mothers who experience anemia as 21 people (61.8%) with low birth weight <2500 g and 13 people (38.2%) of low birth weight ≥ 2500 g.

While the 59 women who did not Anemia 4 (6.8%) with low birth weight <2500 g and 55 (93.2%) of low birth weight ≥ 2500 g. The test results with chi square statistic in the table above, note that the value of p = 0.000 (p <0.05) means that there is a significant correlation between the incidence of anemia in mothers with low birth weight. While calculating the prevalence ratio values obtained 9.20 (RP> 1). This means that women who experienced Anemia has a risks factor of 9.20 times greater risk of the incidence of low birth weight <2500 g compared with mothers who did not Anemia.

4.   Discussion

4.1. Relationship of Mother's Age with the low birth weight incidence

Based on the results of the study showed no significant relationship between mother's age with the incidence of low birth weight (LBW). It is based on the analysis results obtained chi-square test p-value = 0.011 (p <0.05). The results are consistent with research by [8], which states there is a correlation with maternal age LBW period

January to December 2014 at the Hospital of Arc of Love GMIM Manado, using the chi-square test with p = 0.002. Gestation who are at risk is <20 years and> 35 years. Pregnant women aged less than 20 years, the reproductive organs do not grow optimally so that the contractions become less intense, while at the age of over 35 years has been a decline in the function of reproductive organs such as the depletion of the wall so that the contractions become weaker [9]. According to [10] Mother's age <20 years and> 35 years, including in vulnerable pregnant with high risk pregnancies. Pregnant women under the age of 20 years are at risk of having a baby with low birth weight. Due to the reproductive organs such as the uterus at that age is not mature enough to bear the burden of pregnancy and possible complications such as accidental poisoning or pre-eclampsia pregnancy and placenta previa which can cause bleeding during labor than that at this age usually because the mother is not ready psychologically and physically.

Risk pregnancy maternal age > 35 because at that age the decreased ability of the reproductive organs that can lead to bleeding during delivery and pre-eclampsia. Influence of age on declining fertility rates there is a relationship such as reduced frequency of ovulation or lead to problems such as endometriosis disease that inhibits the uterus to remove the egg through the fallopian tubes that affect the process of conception.

4.2. Distance Relationship Genesis Pregnancy with low birth weight (LBW)

Based on the results of the study showed no significant correlation between the incidence of pregnancy spacing with low birth weight (LBW). It is based on the analysis results obtained chi-square test p-value = 0.000 (p <0.05). Birth spacing is too close very influential on the health of the mother and the baby so it can increase the risk of miscarriage, stillbirth or low birth weight. Pregnancy too close or not allow enough time for the mother's body to improve physical disorders due to pregnancy, childbirth or breastfeeding future past.

4.3. The relationship with Genesis Capital Nutritional Status low birth weight (LBW)

Based on the results of the study showed no significant correlation between maternal nutritional status with the incidence of low birth weight (LBW). Based on the analysis results obtained chi-square test p-value = 0.000 (p <0.05). The results are consistent with research ISMI which states there is a relationship of nutritional status to the value RP = 7.9 in Health centre of East and North Singkawang. KEK condition in pregnant women describe the unmet demand for energy, while pregnancy require additional energy and other substances due to increased energy metabolism. Energy shortages are chronic cause pregnant women do not have a reserve of nutrients adequate to supply the needs of the physiology of pregnancy the hormonal changes and increased blood volume for fetal growth, so that the supply of nutrients to the fetus reduced as a result of growth and developmental retardation and born with low weight [11].

Disadvantages intake of certain nutrients indispensable to the differentiation of the fetus in the first trimester of fetal life can lead to the formation of organs perfectly, even cannot the fetus growth to occur especially in the last trimester of pregnancy, then the lack of nutrient intake during this period may hamper growth. The impact of fetal growth retardation of the infant will be born with weight and body length of less than normal [11]

4.4. Relationship between Education Level with low birth weight

Based on the results of the study showed no significant correlation between maternal education level with the incidence of low birth weight (LBW). The analysis results obtained chi-square test p-value = 0.005 (p <0.05). The results are consistent with studies by [12] which states there is a relationship with the mother's education level LBW in the working area of health centre of Ligung UPTD Majalengka in 2009 (p = 0.000). One risk factor for LBW namely maternal education levels are low. This can occur because of low education will affect the acceptance and understanding of health information, especially about the knowledge elements of the required nutrients the fetus during pregnancy.

The higher the education level of pregnant women it is assumed that the better the reception level information about the nutritional needs of the fetus, including the understanding in check into the health care facility.

4.5. Relationship Status Capital Works with Genesis low birth weight (LBW)

Based on the results of the study showed no significant relationship between maternal employment status with the incidence of low birth weight (LBW). It is based on the analysis results obtained chi-square test p = 0.001 (p <0.05). Job is the kind of day-to-day activities are carried out to generate income [7, 13]. For their women workers are housewives difficult to slip away from the family environment. Women have a heavier burden and obstacles than their male counterparts. In the sense of a woman must first overcome a family affair, husband, children and matters relating to domestic affairs. This situation led to the pregnant mother will be timed so consumed her health affairs during pregnancy less [14,15,16].

4.6. Relationship with Genesis Anemia Maternal low birth weight (LBW)

Based on the results of the study showed no significant correlation between the incidence of anemia in mothers with low birth weight (LBW). It is based on the analysis results obtained chi-square test p-value = 0.000 (p <0.05). Iron Deficiency Anemia occurs due to insufficient iron nutrients are absorbed from food daily to the formation of red blood cells, causing an imbalance between income and expenditure of iron in the body. This can cause oxygen delivery to the tissues is reduced which will reduce tissue metabolism so that fetal growth is inhibited, and result in low birth weight infants.

5. Conclusion

Based on the results of research on the relationship characteristics of mothers of infants with an incidence of low birth weight in the General Hospital of Sorong, West Papua Province, can be summed up as follows: There is a relationship mother's age with the incidence of low birth weight (LBW) in hospitals Sorong, West Papua Province (p RP = 0.011 and 2.51), there is a correlation between the incidence of range birth with low birth weight (LBW) in hospitals Sorong, West Papua Province (p = 0.000 and 5.01 RP), no relation to the incidence of maternal nutritional status with low birth weight (LBW) in hospitals Sorong, West Papua Province (p = 0.000 and 9.54 RP), there is a correlation between the incidence of maternal education level with low birth weight (LBW) in hospitals Sorong, West Papua Province (p = 2.82 0,005dan RP) , there is a correlation between incidence of maternal employment status with low birth weight (LBW) in hospitals Sorong, West Papua Province (p = 0.001 and 3.22 RP), there is a correlation between the incidence of anemia in mothers with low

birth weight (LBW) in Sorong Provincial Hospital West Papua (p = 0.000 and 9.20 RP) and based on the prevalence ratio (RP), the biggest risk factor is the factor of maternal nutritional status with (p = 0.000 and 9.54 RP)

6. Suggestions

For Hospital: Further increase in term of services, especially in the delivery room, perinatalogy and record a good medic, adding human resources, add supporting infrastructure such as buildings, medical equipment . For the Department of Health: periodically supervision to the work units to improve the quality of service, more focused on improving nutrition of pregnant women with PMT and the implement of health promotion.

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