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Nutritional Status and Weight of Pregnant Women to Birth Weight (BBL) to Early Detection of Stunting

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ABSTRACT

One of the factors that influence fetal growth during pregnancy includes the mother's nutritional status at the beginning of pregnancy and the mother's weight gain during pregnancy and delivery, such as; stunted fetal growth (PJT). Low birth weight (LBW), small, short, thin, low immune system, and risk of death. The purpose of this study was to determine the relationship between nutritional status and body weight of pregnant women on birth weight (LBW) in the context of early detection of stunting in the working area of Penimbung, West Lombok, NTB. This type of research is Cohort survey with a prospective approach, sampling 30 respondents using total sampling technique. Data collection using observation sheet instrument. The results of the chi-square test showed that the nutritional status was obtained. $p\text{-value} = 0.538 > 0.05$, and the maternal body weight obtained $p\text{-value} = 0.474 > 0.05$, it means that the results of the analysis of all data, both nutritional status and weight, did not show a significant value. $P\text{-value} > 0.05$. Recommendations that can be given are optimizing activities related to basic interventions such as antenatal care screening, measuring nutritional status, calculating BMI regularly, and monitoring maternal weight gain from early pregnancy to delivery.

Keywords: Nutritional Status, Mother's Weight, Birth weight, Stunting

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BACKGROUND

According to the Ministry of Health (Kemenkes), stunting is a toddler with a Z-score less than $-2SD$ /standard deviation (stunted) and less than $-3SD$ (severely stunted) (Kementerian Kesehatan RI, 2018). Stunting, namely malnutrition during the toddler years, resulting in imperfect growth in the next period. Malnutrition begins when the baby is in the womb and the early days after the baby is born, however, the condition of stunting begins to appear after the baby is two years old. Standard standards set by the WHO-MGRS (Multicentre Growth Reference Study) stunted and severely stunted, namely children under five with body length (PB/U) or height (TB/U) according to their age, then compared with the WHO-MGRS standard.

Stunting is an irreversible outcome; most of the stunting incidence is caused by inadequate nutrition and repeated bouts of infection during the first 1,000 days of life (HPK). The 1,000 HPK period, which includes 270 days of gestation and 730 days from birth to 2 years of age, has a permanent and uncorrected effect on physical, mental, and intellectual growth (Taneja et al., 2020).

Risk factors for stunting include pregnant women's nutritional status on their fetuses' growth and development, where nutritional problems must consider since they are still in the womb. One group that is prone to nutritional problems is in pregnant women. It would be fatal not only to the mother but also to the fetus in her womb. Maternal nutritional status during pregnancy greatly influences maternal health and predicts pregnancy outcomes for mothers and newborns' nutritional status (Infodatin Kemenkes RI, 2019).

Maternal nutritional status in early pregnancy and body weight during pregnancy plays a vital role in fetal growth because the fetus responds to the mother's diet and mother's food stores from the beginning of pregnancy, and this will contribute to the health status of the child (after birth) to adulthood. During pregnancy, body weight is influenced by sociodemography, anthropometry, physiology, health conditions, psychology, and behavior. These factors affect the balance of energy or nutritional intake, namely fulfilling energy needs and specific nutrients for pregnant women that support mothers' and children's health. According to (Sholikah et al., 2017), inadequate macronutrient intake can lead to children's growth problems.

The parameter to determine pregnant women's nutritional status is the anthropometric indicator of the mother's upper arm circumference (LILA). Chronic Energy Deficiency (KEK) is usually caused by insufficient energy and protein intake in pregnant women. If a pregnant woman has an upper arm circumference (LILA) $<23.5\text{cm}$ or $<90\%$, she will be at risk for developing KEK. Pregnant women who experience KEK are at risk of giving birth to low birth weight babies (LBW), and then if not treated as well as possible, they are at risk of experiencing stunting. Chronic energy deficiency (KEK) is a condition caused by an imbalance in nutritional intake between energy and protein. The nutrients the body needs are not fulfilled (Kementerian Kesehatan RI, 2018). According to research (Zaif et al., 2017), said if there is a lack of nutritional status in early life, it will have an impact on the next life, such as stunted fetal growth (CHD), low birth weight (LBW), small, short, thin, endurance low and the risk of death.

In 2017, 55% of stunted children came from Asia, and a third (39%) were in Africa. The largest proportion came from South Asia 58.7%, Southeast Asia 14.9%, East Asia, 4.8%, West Asia 4.2%, and Central Asia 0.9%. The most considerable prevalence of stunting in the Southeast Asia region, namely Timor Leste 50.2%, India 38.4%, Indonesia 36.4%, Bangladesh 36.1%, Nepal 35.8%, Bhutan 33.6%, Myanmar 29.2%, North Korea 27.9%, Maldives 20.3%, Sri Lanka 17.3%, and Thailand 10.5%. In the Asian region, 8.8 million

children under five suffer from nutritional problems where their height is below the aged standard. Stunting is at the threshold that has been set by WHO at 20% (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018).

Millions of Indonesian children suffer from underdevelopment. The Indonesian Ministry of Health shows that West Nusa Tenggara Province ranks the 7th highest national stunting prevalence, namely 33.49%, with a target of reducing the stunting rate in 2019 by around 28% for very short and short toddlers. Profile data of the West Lombok District Health Office, the prevalence of stunting in West Lombok Regency in 2018 is the 2nd lowest with a percentage of 33.61%, the target of reducing the stunting rate in West Nusa Tenggara Province in 2019 is around 35%, while the percentage of stunting prevalence in West Lombok Regency in 2016 to be precise in the Penimbung area around 27.75% and 2018 it experienced a decrease of around 10.25%.

Based on the data above, Penimbung is used as a research area because it has two stunting village loci. One of them in the Penimbung and Mambalan areas, Gunung Sari sub-district, West Lombok Regency, has 101 toddlers aged 6-59 months who suffer from stunting (Dinkes NTB, 2018).

The results of a survey conducted by researchers found that the measurement of TB / U was carried out twice a year in February and August every month for vitamin A. The percentage of TB / U data in February in the Penimbung area was 0% high, 0% normal, short 83.9%, concise 16.1% and in August 2019 data obtained from high TB / U 1.2%, normal 28%, short 46.3%, concise 24.4%. It can conclude that the relationship between nutritional status and weight of pregnant women on birth weight (BBL) in the working area of Puskesmas Penimbung, West Lombok, NTB has a very significant effect on the incidence of stunting. Based on the results of a preliminary study conducted by researchers, there is data for 2018, with a percentage of 33.61% (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018).

Based on the data and the chronology of the above problems, efforts that can make are early detection of stunting by observing the nutritional status and weight of pregnant women against baby birth weight to reduce stunting in the working area Puskesmas Penimbung. So that researchers are interested in researching the Relationship between Nutritional Status and Weight of Pregnant Women on Birth Weight (BBL) in the Framework of Early Detection of Stunting in the Work Area of Pusat Kesehatan Masyarakat Penimbung, West Lombok, NTB.

METHODS

This study investigates the nutritional status and weight of pregnant women against birth weight (LBW) in the framework of early detection of stunting, aiming to overcome the increase in stunting or early detection of stunting. This research type is a Cohort Study or Cohort Survey with a prospective (longitudinal) approach (Sugiyono, 2015). This research was conducted in the Work Area of the Puskesmas Penimbung, West Lombok Regency, and has obtained official permission from the Puskesmas and related institutions. The population in this study was 30 pregnant women who were entering their third trimester in November 2019. Sampling was 30 respondents using a total sampling technique.

Data collection using observation sheet instruments by observing the nutritional status and weight of pregnant women every two weeks, the first ANC examination, identifying body weight before pregnancy, Upper Arm Circumference (LILA), Body Mass Index (BMI) to see a relationship to bodyweight born (BBL).

This study will compare the subjects' proportion with a positive effect between the subject group studied with positive risk factors and the subject group with negative risk factors (control group). Processing this observation data was analyzed using SPSS with the Kai-square test analysis (Sugiyono, 2015).

RESULTS

The results of the research in table 1 regarding the distribution of the characteristics of the third trimester pregnant women respondents in the Work Area of the Puskesmas Penimbung, West Lombok Regency, NTB in 2020 showed 30 respondents of the third trimester pregnant women in the Work Area of the West Lombok Puskesmas Penimbung, it is known that the ages of the mothers are mostly between 20-35 years, namely as many as 21 people (70.0%), the highest level of education was secondary education around 23 people (76.7%), most of the mothers did not work with a number of around 28 people (93.3%), the most gravid was multigravida around 19 people (63.3%) , the highest parity history was multiparous around 19 people (63.3%), mothers without a history of abortion were 24 people (80.0%), mothers weighing > 45 kg were about 21 people (70.0%), mothers with height > 145 cm about 27 people (90.0%), mothers with BMI with obesity category were around 12 people (40.0%), mothers with ALL normal category were 19 people (63.3%), mothers with no weight gain essays <12.7 and > 13.4 were about 25 people (83.3%), and mothers with full-term gestational age were about 20 people (66.7%)

The results of the research in table 2 are based on nutritional status, the weight of pregnant women in the third trimester, and distribution of the birth weight of babies in the Work Area of the Puskesmas Penimbung, West Lombok Regency, NTB in 2020, showing that 30 respondents of pregnant women in the third trimester with the highest nutritional status category were normal as many as 19 people (63.3%), the highest category of maternal weight was obesity as many as 12 people (40.0%), and babies with normal birth weight between 2500 to 4000 grams were 28 people (93.3%).

The results of the research in table 3 regarding the analysis of the nutritional status and weight of pregnant women in the third trimester with LBW in the Work Area of the Penimbung Health Center, West Lombok Regency, NTB in 2020, it is known that two respondents (10.5%) with normal nutritional status gave birth to low birth weight babies. The results of statistical tests obtained $p\text{-value} = 0.538 > 0.05$, it can be concluded that there is no significant relationship between maternal nutritional status and birth weight. The maternal body weight analysis showed one respondent (8.3%) with obese body weight giving birth to low birth weight babies. The results of statistical tests obtained $p\text{-value} = 0.474 > 0.05$, it can be concluded that there is no significant relationship between maternal body weight and birth weight. It can be supposed that all $p\text{-value}$ shows > 0.05 , meaning that there is no meaningful relationship between nutritional status and maternal body weight on birth weight. This could also imply that the mother's nutritional status and weight did not correlate with birth weight.

Table 1: Distribution of characteristics of third-trimester pregnant women respondents in the working area of the Penimbung Community Health Center, West Lombok Regency, NTB, 2020

Respondent Characteristics	Criteria	Frequency	Percentage(%)
Mother's age	Normal (20-35 years)	21	70.0
	High risk (<20 years and > 35 years)	9	30.0

Mother's education level	Basic education	6	20.0
	Middle education	23	76.7
	Higher education	1	3.3
Mother's job	Does not work	28	93.3
	Work	2	6.7
History of gravida	Primigravida	11	36.7
	Multigravida	19	63.3
Parity history	Primipara	11	36.7
	Multiparous	19	63.3
History of abortion	Have no history of abortion	24	80.0
	Have a history of abortion	6	20.0
Maternal weight before pregnancy	Normal (> 45 kg)	21	70.0
	High risk (<45 kg)	9	30.0
Mother's height	Normal (> 145 cm)	27	90.0
	High risk (<145 cm)	3	30.0
Body Mass Index (BMI)	Obesity > 27	12	40.0
	Overweight 25.1-27	7	23.3
	Normal 18.5-25	11	36.7
Upper arm circumference	110-120% overweight	1	3.3
	Normal 90-110%	19	63.3
	Underweight <90%	10	33.3
Average maternal weight gain	Not suitable <12.7 and >13.4 kg	25	83.3
	Fits 12.7-13.4 kg	5	16.7
Gestational age	Fewer months (<37 weeks)	10	33.3
	Enough months (37-42 weeks)	20	66.7

Table 2: Distribution of Respondents Based on Nutritional Status, Body Weight of Pregnant Women in Trimester III, and Distribution of Birth Weight for Babies in the Work Area of Pusat Kesehatan Masyarakat Penimbung, West Lombok Regency, NTB in 2020

Respondent Characteristics	Criteria	Frequency	Percentage(%)
Maternal nutritional status	110-120% overweight	1	3.3
	Normal 90-110%	19	63.3
	Underweight <90%	10	33.3
Mother's weight	Obesity > 27	12	40.0
	Overweight 25.1-27	7	23.3
	Normal 18.5-25	11	36.7
Baby's birth weight	Low <2500 gr	2	6.7
	Normal 2500-4000 gr	28	93.3

Table 3: Bivariate Analysis of Nutritional Status and Body Weight of Third Trimester Pregnant Women with Birth Weight in the Work Area of the Penimbung Health Center, West Lombok Regency, NTB in 2020

	Birth Weight (BBL)				Total		P-Value
	Low		Normal		N	%	
	N	%	N	%			
Maternal nutritional status							
a. Overweight	0	0.0	1	100.0	1	100.0	0.538
b. Normal	2	10.5	17	89.5	19	100.0	
c. Underweight	0	0.0	10	100.0	10	100.0	
Mother's weight							
a. Obesity	1	8.3	11	91.7	12	100.0	0.474
b. Overweight	1	14.3	6	85.7	7	100.0	
c. Normal	0	0.0	11	100.0	11	100.0	

DISCUSSION

Mother's Nutritional Status

The measure of success in fulfilling nutrition for pregnant women is nutritional status. Nutritional intake determines the health of pregnant women and the fetus they are carrying. During pregnancy, nutritional needs will increase by 15% when compared with the requirements of normal women As much as 40% of the food consumed by pregnant women. will be used for fetal growth, and the remaining 60% used for the mother's development. Based on the results of research from 30 respondents of third-trimester pregnant women in the working area of the Pusat Kesehatan Masyarakat Penimbung, West Lombok, it is known that the largest category is normal as many as 19 people (63.3%).

Based on Erika's research (Prawita et al., 2017) in Vietnam, it was found that pregnant women's nutritional status, among others, is directly affected by food intake and disease, especially infectious diseases. Other factors include economic constraints that can interfere with the fulfillment of early nutrition and pregnancy In other words, the mother means that she cannot afford good quality food. This will also affect related to food products and even food sanitation.

Mothers with low to secondary education will also directly influence. the nutritional. status of pregnant women. The wealth of information a person has depends on the level of education. Therefore, a person's education level is closely related to the knowledge he has. A person's knowledge is a form of mindset towards something; in this case, a perspective related to nutritional status. Based on the results of research from 30 respondents of third-trimester pregnant women in the working area of the Pusat Kesehatan Masyarakat Penimbung, West Lombok, it is known that there are 23 mothers with secondary education (76.7%). These results are in line with research conducted by(Kusuma et al., 2019) that nutritional intake of pregnant women is related to fetal well-being; in this case, adequate nutritional intake plays a vital role in fetal growth. A mother's understanding of nutritional intake and nutritional status during pregnancy is very influential; this can also be assessed from the mother's education level in obtaining information.

The parameter of the nutritional status of pregnant women is LILA in the mother. Insufficient energy and protein intake in pregnant women can cause Chronic Energy Deficiency (KEK). But mothers with normal LILA may give birth to babies with low birth weight. Based on the results of research from 30 respondents of third-trimester pregnant

women in the working area of the Puskesmas Penimbung, West Lombok, it was found that there were 19 mothers with normal LLA (63.3%). According to research (Zaif et al., 2017), if there is a lack of nutritional status in early life, it will impact the next life.

For the fetus to develop optimally, it needs to be fulfilled with complete nutrition in vitamins, minerals, calcium, carbohydrates, fats, proteins, and minerals in growth and development. Therefore, during the pregnancy process, a pregnant woman needs to consume healthy and balanced nutritional quality. Various nutrients consumed will directly impact the mother's fetus's health and development during pregnancy.

Mother's Weight

Maternal weight before pregnancy and weight gain during pregnancy is less (underweight) or more (overweight) than normal will make pregnancy a risk (low risk). Underweight or overweight mothers (fat to obese) are at risk of stunting fetal growth, reducing food supply to the fetus, and will be fatal to the fetus, even at the risk of giving birth to babies with low birth weight. Maternal weight can also affect the delivery process (Sari, 2015).

The results of the research in table 2 regarding the distribution of respondents based on nutritional status, weight of pregnant women in the third trimester, and distribution of birth weight of babies in the Work Area of the Puskesmas Penimbung, West Lombok Regency, NTB, in 2020 showed 30 respondents of pregnant women in the third trimester in the Work Area of the Puskesmas Penimbung Lombok In the West, it is known that the most nutritional status categories are normal as many as 19 people (63.3%), the most maternal weight category is obesity as many as 12 people (40.0%), and babies with average normal birth weight between 2500 to 4000 grams are 28 people (93.3%)

The prospective mother's bodyweight affects the nutritional status, where the bodyweight of the future mother must be in the range of 45-65 kg. If less than 45 kg, the bodyweight should be increased first to reach 45 kg before pregnancy (Sari, 2015). Based on the research results from 30 respondents of third-trimester pregnant women in the working area of the Puskesmas Penimbung, West Lombok, it is known that mothers weighing > 45 kg are around 21 people (70.0%). According to research conducted by (Afifah, 2016), mothers with a pregnancy weight between 45-65 kg will affect the adequacy of nutrition that should be consumed.

The weight of pregnant women must also be adequate, increasing according to gestational age. Weight gain normally, produces normal children. Based on the research results from 30 respondents of third-trimester pregnant women in the working area of the Puskesmas Penimbung, West Lombok, know that there were 25 mothers with inappropriate weight gain (83.3%). Research conducted by (Afifah, 2016). states that pregnant women's nutritional adequacy can be measured by weight gain during pregnancy. Even changes in nutritional status and weight that are not suitable will cause various complications for the fetus.

The nutritional status of pregnant women, which is closely related to the mother's weight before pregnancy, dramatically affects the fetus's growth in the womb. Nutritional status determines the ideal body weight for the mother during pregnancy. Based on the research results from 30 respondents of third-trimester pregnant women in the working area of the Puskesmas Penimbung, West Lombok, it knows that 12 mothers with a BMI > 27 obesity category (40.0%). Based on research conducted by (Arini et al., 2020), useful BMI shows optimal nutritional fulfillment. Optimal nutrition will help accelerate fetal growth and development, and vice versa; if the BMI exceeds normal, it will risk inhibiting fetal growth.

Birth Weight (BBL)

Normal newborns are babies born with birth weights between 2500-4000 grams at 37-42 weeks of gestation (Rahmadi, 2016). If the pregnancy lasts for 40 weeks, then the fetus at term has a sign of term-born at 38 to 42 weeks of gestation (Trihono et al., 2015). The results of 30 respondents of third-trimester pregnant women in the Working Area of the Puskesmas Penimbung, West Lombok, show that the highest history of gestational age is 20 full-term babies (66.7%). A study conducted by (Woldehanna & Gebremedhin, 2015) in Ethiopia found that mothers with gestational age <37 weeks had an 18.5 times higher risk of giving birth to LBW.

Prematurity is the most common cause of Low Birth Weight (LBW). Babies born with a gestational age of fewer than 37 weeks are at risk of experiencing LBW due to several factors: growth that is not harmonious and harmonious due to retro placenta circulation disorders and chronic malnutrition/nutrition (Rahmadi, 2016). The shorter the gestational age, the less perfect the fetus's growth will be, both the reproductive and respiratory organs, therefore it has difficulty living outside the mother's uterus.

Another internal factor is the mother's age. Maternal age also affects nutritional status. Judging from the public's belief, someone who is more mature does not believe the immature person. This is as a result of experience and mental maturity (Khoiriah et al., 2015). The 30 respondents of third-trimester pregnant women in the Work Area of the Puskesmas Penimbung, West Lombok, show that the average maternal age ranges from 20-35 years as many as 21 people (70.0%). In accordance with research conducted by (Kusuma et al., 2019), it is said that maternal age <20 years tends not to have maturity in maturity so that generally, pregnant women of this age are not deep enough to receive information and take decisions because they cannot think scientifically. Likewise, mothers aged > 35 years will have a difficult perceptive power to receive information well. They also have a difficult mindset to change in accepting new information and trusting more in previous experiences.

Maternal nutritional status is a major intrauterine environmental factor in fetal development. Improving the optimal nutritional status of pregnant women guarantees optimal fetal development and reduces chronic disease risk in adulthood. External factors that affect birth weight are cleanliness and health of the place of residence, antenatal care. Knowledge is influenced by the level of mother's education, where the low level of education will affect the mother's knowledge of caring for her baby and the socio-economic conditions. Normal babies born to mothers with high educational levels and socio-economic status have greater body weight, length, head circumference, and chest circumference than babies of mothers of low socio-economic status.

Maternal Nutritional Status with Birth Weight (BBL)

The analysis of the relationship between The nutritional status of the mother and birth weight showed that there were two respondents (10.5%) with normal nutritional status giving birth to low birth weight babies. The results of statistical tests obtained. $p\text{-value} = 0.538 > 0.05$, it can be concluded that there is no significant relationship between maternal nutritional status and birth weight. This can also imply that the nutritional status of the mother does not correlate with birth weight.

This research is in line with (Jayanti et al., 2017) at Bangetayu Health Center that there is no relationship between nutritional status and the incidence of low. birth weight and is not a risk factor. This can be seen in the $p\text{-value}$ of 0.084. This is because birth weight is influenced not only by the mother's nutritional status, but the most common cause of LBW is premature birth or problems in gestational age. The results of 30 respondents of third-

trimester pregnant women in the Work Area of the Pusat Kesehatan Masyarakat Penimbung, West Lombok, show that the highest history of gestational age is 20 full-term babies (66.7%), while for preterm babies, ten people (33.3%).

According to Elisabeth BH, quoted from (Nursalam, 2013), the elder enough, the level of maturity and strength of a person will be more mature in thinking and working. In terms of public trust, someone who is more mature does not trust someone who is not yet ripe. This will be as a result of experience and mental maturity (Nursalam, 2013). The 30 respondents of third-trimester pregnant women in the Work Area of the Puskesmas Penimbung, West Lombok, show that mothers' average age ranges from 20-35.

Maternal age at pregnancy is one factor that significantly influences pregnancy, the fetus's health in the womb, and the smoothness of the birth process. The ideal age for pregnancy is between 20-35 years. Meanwhile, peak fertility occurs at the age of 20-29 years. The chance of pregnancy at the age of 20-29 years is 95%, after entering the age of 30 years, the chance of getting pregnant decreases by 90%, at the age of 40 years, the mother's chance of getting pregnant is 40%, and after the age of 40, the chance of getting pregnant is only 10%.

Meanwhile, pregnancies that occur at the age of fewer than 20 years and more than 35 years will cause problems. At a relatively young age, less than 20 years, the reproductive organs are immature for pregnancy (the endometrium is not yet perfect), especially the uterus that is not ready to be burdened during pregnancy or malnutrition during pregnancy.

As with pregnancies at the age of fewer than 20, pregnancies at the age of 35 also have a high risk. In line with the increasing age of pregnant women, the function of body organs decreases. The uterus of a woman aged 35 years is different from when she was 20 years old. Pregnant women over 35 years of age, will be a problem because, with increasing age, there will be a decrease in organ function, namely through the aging process. The existence of pregnancy makes a mother need extra energy for her life and the life of the fetus she is carrying.

Apart from maternal age, parity is a risk factor. It is known that 30 respondents of third-trimester pregnant women in the Puskesmas Penimbung, West Lombok work area know that the highest history of parity is multiparous, around 19 people (63.3%), while for primiparous, it is 11 people (36.7%). This is because the incidence of Low Birth Weight (LBW) can also be seen from the first parity (primipara) and more than four births (grand multipara). Low Birth Weight (LBW) incidence is more common in mothers who have high parity than mothers. Which has low parity; this is because the new placenta theory is trying to find a place other than the previous placenta marks; this is because the relationship between pregnancy distances is too close (Zaif et al., 2017). Also, at high parity, there is scar tissue due to previous pregnancy and childbirth. The placental attachment is inadequate, which causes the distribution of nutrients from mother to fetus is inhibited (Sari, 2015).

In general, LBW incidence and perinatal mortality increase with increasing maternal parity, especially if equality is more than three. The parity that is too high will disrupt the uterus, especially in blood vessel function. Repeated pregnancy will cause damage to the uterine blood wall. This will affect nutrition to the fetus in subsequent pregnancies; besides, it can cause uterine atony. This can lead to growth disorders, giving birth to babies with LBW (Pinontoan & Tombokan, 2015).

This study is also in line with research (Murliyanti et al., 2015), which states that most LBW factors are gestational age, maternal age, and parity history.

Maternal Weight with Birth Weight (BBL)

The analysis of the relationship between maternal weight and birth weight shows that there is one respondent (8.3%) with obese body weight giving birth to low birth weight babies. The results of statistical tests obtained $p\text{-value} = 0.474 > 0.05$, it can be concluded that there is no significant relationship between maternal body weight and birth weight. This may imply that maternal weight does not correlate with birth weight.

This study's results are in line with research conducted by (Fajrina, 2012) that there is no significant relationship between maternal weight and birth weight, which can be seen at a $p\text{-value}$ of 0.400.

Based on several studies, it can be concluded that the mother's weight does not correlate with birth weight. Still, pregnant women's nutritional status before and during pregnancy significantly affects the baby's weight to be born. The results of 30 respondents in the third trimester of pregnant women in the West Lombok Pusat Kesehatan Masyarakat Penimbung work area, it is known that the largest category is underweight as many as 16 people (53.3%), while the normal category is 12 people (40.0%), and the overweight category is two people (6.7%).

All the nutrients are necessary for fetal growth in the food consumed by the mother. The food consumed by the mother will be stored regularly and continuously used as glycogen, protein, and excess as fat. This is useful for meeting energy needs, maternal needs for pregnancy, and fetal growth (Sari, 2015).

Nutritional deficiencies in women during the reproductive period can affect the mother's health both before pregnancy, pregnancy, and pregnancy. In the period before pregnancy can result in low body weight and reduced fat reserves. During pregnancy, it can result in a reduced duration of pregnancy and lower weight gain. And in the period after pregnancy can result in reduced production of breast milk (ASI) (Sayuri, P., y Fujimori, 2012).

Disturbed maternal food intake will affect storage and energy requirements for both the mother and the developing fetus. In addition to increased deposits, maternal weight gain during pregnancy is also caused by the uterus's growth and its contents (Sayuri, P., y Fujimori, 2012).

The weight of pregnant women is not only influenced by physiological changes of the mother but also by other characteristics and biological factors (placental metabolism). The placenta functions as an endocrine organ and an intermediate substance for the mother and fetus. Homeostatic changes can change the placenta's structure and function, which impacts the condition of fetal growth. The placenta can affect the mother's metabolic system due to changes in the insulin hormone and the inflammatory system, resulting in weight gain for pregnant women (Sari, 2015)

In Indonesia, the standard weight gain for pregnant women is around 9-12 kg (Kementerian Kesehatan RI Badan Penelitian dan Pengembangan, 2018); Research (Abeyseena & Jayawardana, 2011) in Gampaha Sri Lanka shows that the majority (45.5%) of mothers who experienced a BMI overweight before pregnancy experienced average normal weight gain during pregnancy. The expected weight gain in the first trimester is a 2-4 kg increase; in the second trimester, there is an increase of 0.4 kg per week; in the third trimester, there is an increase of 0.5 kg or less per week.

Changes in body weight that are not suitable will have an impact on the fetus. An increase in $\text{BMI} \geq 25\%$ during pregnancy will increase the risk of having a large baby, namely a baby with a birth weight of more than 4000 grams. Likewise, improper weight gain will also affect growth in the fetus. Maternal weight gain is very influential in the first

trimester because, at this time, the fetus grows fast and needs nutrition. The study of 30 respondents of third-trimester pregnant women in the Working Area of the Puskesmas Penimbung, West Lombok, found four mothers with obesity category (13.3%), one woman with the overweight category (3.3%), mothers with normal categories were 18 people (60.0%), and mothers with underweight categories were seven people (23.3%). Babies with growth disorders, such as babies with low birth weight, have a high risk of death.

CONCLUSION

Based on the results of research on the relationship between nutritional status and body weight of pregnant women to low birth weight (LBW) in the framework of early detection of stunting in the working area of the Pusat Kesehatan Masyarakat Penimbung, West Lombok, NTB, it can prove that based on the chi-square statistical test results obtained $p\text{-value} = 0.538 > 0.05$ in nutritional status $P\text{-value} = 0.474 > 0.05$ for maternal body weight, all $p\text{-value}$ shows > 0.05 , meaning that there is no relationship between nutritional status and maternal weight to birth weight. Most factors that influence low birth weight incidence include early pregnancy nutritional status, maternal age, parity history, and gestational age or generation.

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