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Factors Affecting Newborn Birth Weigth

Sri Winarsih[1], Esti Handayani[2], Ribkha Itha Idhayanti[3],Munayarokh[4]
winarsihhamid@yahoo.com

ABSTRACT

Background: Fetal growth in the womb influenced by environmental conditions such as exposure to pesticides, exposure to cigarette smoke influenced by the pregnancy haemoglobin level and maternal age during pregnancy. During pregnancymaternal weight gain must be adequate, according to gestational age. Research objectives to know the factors affecting Newborn Birth weight
Methods: Research design by cross sectional approach, for bivariate analysis using chi-square test on @ 5%, while for multivariate analysis using logistic regression
Results: there is no correlation between exposure to cigarette smoke and birth weight (p: 0.073.) There is relationship between the level of Haemoglobin and maternal age with the new born birth weight during pregnancy, weight gain during pregnancy with the baby's weight with a value of p <0.05. There is an influence of Hb level and maternal age during pregnancy on the birth weight of a newborn, but there is no joint effect on the weight of the newborn baby. Maternal age 6.723 more risky to cause abnormal new born birth weight
Conclusion: Maternal age 6.723 more risky to cause abnormal new born birth weight. Pregnant women get pregnant at normal Hb levels, avoid pregnancy on risky maternal age and maintain normal weight gain.

Keywords: haemoglobin level; maternal age; newborn birth weight.

[1,2,3,4] *Midwifery Study Program of Magelang, Poltekkes Kemenkes Semarang*
Jl. Perintis Kemerdekaan, Magelang, Indonesia
[1,2,3,4] *Handling Non Communicable Diseases, P2PTM, Pusat Unggulan Ipteks*

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Background. Pregnancy is something in life that can make a family happy. During pregnancy,there are naturally physical and mental changes. Mothers must be healthy and have adequate nutrition (normal weight) before pregnancy and after pregnancy. If the mother does not receive adequate nutrition during pregnancy, the baby will suffer from malnutrition (Bartini, 2018).

Cigarettes contain toxins, including tar, nicotine and carbon monoxide in cigarettes smoked by pregnant women as passive smokers, the levels will be three times higher than active smokers which can eventually cause premature and low birth weight babies (Safitri & Syahrul, 2015).

Normal haemoglobin levels are related to good nutrition for pregnant women(Anam, 2019). The lower the haemoglobin level, the less maternal blood supply to the fetus will be, which in the end the growth of the fetus in the womb will be affected which causes the baby's birth weight to be low (Amareta, 2016). Maternal age during pregnancy will affect the growth of the fetus in the womb because pregnant women are too young because the size of the pelvis is still not normal which has an impact on the environment for less fetal growth and at the age of pregnant women too old physiologically women have experienced a degenerative phase including reproductive organs to produce an environment unfavourable fetal growth for the fetus which in the end also causes low birth weight (Komariah & Nugroho, 2020).

The normal weight gain of pregnant women is correlated with the birth weight of the baby. This can indicate that normal weight gain during pregnancy indicates that maternal

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nutrition is met by the nutritional needs of pregnant women (Subaim & Ariyanti, 2021).

Based on recent study conducted in the Secang I Public Health Center, Magelang Regency, it was found that from 9 deliveries, 3 of them experienced normal weight gain but gave birth to babies who had less than normal weight. Characteristics of Secang Village is an agricultural area, especially rice farmers who in their agricultural processing use pesticides to deal with agricultural pests and women also take part in handling agricultural processing in their area. In Secang district, it can also be seen that there are still many people who smoke cigarettes as part of their daily routine, the smoke of which can also be inhaled by people who are around smokers, including pregnant women.

Methods. The type of research method is Correlation Analytic with cross sectional approach, while sampling technique using purposive sample

Analize used Chi Square with error value 5% to determine the relationship between independent and dependent. Multivariate analysis used Logistic regression to determine effect of independent variable to dependent variabel.

Result and Discussion.

The relationship between exposure of cigarette smoke exposure and newborn birth weight.

It is known that from the 30 respondents who were exposed to cigarette smoke, More than half of respondent which is 17 (34 %) experiences normal newborn weight. Hypothesis testing is done using the Pearson Chi-square test where the p-value is 0.073 and the x2 value is 3.221. The p-value is greater than 0.05, meaning H0 is accepted while Ha is rejected , so it can be concluded that there is no relationship between cigarette smoke exposure and newborn birth weight. This result is not in line with research on the relationship between exposure to cigarette smoke and birth weight status with p: 0.049 which states that there is a relationship between exposure to cigarette smoke and the incidence of LBW (Samsinar & Nurhasanah, 2020)

Meanwhile, another study conducted by Sirahudin et al had the effect of exposure to cigarette smoke on the weight of the baby born with the result of p: 0.000 (Sirahuddin et al., 2011). Nicotine content which causes an increase in blood pressure activates platelets with the result that platelets adhere to the walls of blood vessels. CO (Carbon Monoxide) causes constriction of blood vessels, blood pressure rises and blood vessels can tear.The combination of nicotine and CO and other toxins in cigarette smoke will cause damage to the endothelial vessel walls, facilitating blood clots to damage peripheral blood vessels (P2PTM Kemenkes RI, 2018). In studies, passive smokers who were exposed to tobacco smoke for ten minutes were exposed to two to five times more acetone levels than active smokers (Astuti et al., 2016) Similarly, passive smokers can be exposed to an abundance of benzene substances ten times higher than active smokers. Passive smokers are also exposed to an abundance of gas monoxide by two and a half to five times higher (P2PTM Kemenkes RI, 2018)

The relationship between Hb levels and newborn birth weight

The relationship between Hb levels and the weight of newborns can be seen that from 19 respondents who are in the category of abnormal Hb levels, more who give birth to abnormal weight babies, namely as many as 10 (20%) of 31 (62%) respondents who are in the category of Hb levels The majority of normal babies, namely as many as 25 (50%) gave birth to babies with normal newborn weight.

Hypothesis testing is done by using the Pearson Chi-square test where the p-value is 0.033 and the X2 value is 4.563. The p-value which is smaller than 0.05 means accepting Ha, rejecting Ho, so it can be concluded that there is a relationship between Hb levels during pregnancy and newborn weight. These

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results are in accordance with research conducted by Sagung Adi S. Mahayana et al entitled Risk Factors Affecting the Incidence of LBW at DrM.Djamil Hospital Padang with the result that there was a significant relationship between Anaemia and the incidence of premature and dysmatured LBW with a p-value of 0.00 (Mahayana et al., 2015).

If the mother is an Anaemic condition, it will certainly affect the growth of the fetus in the womb, including the weight of the fetus. The more normal the haemoglobin level of pregnant women, the better for the growth of the fetus in the womb (Bartini, 2018).Effects of Anaemia on pregnancy and fetus: Effects of Anaemia on pregnancy include: abortion, premature delivery, inhibition of fetal growth and development in the womb, easy infection, threat of cord decompensation (Hb <11gr%), hydatidiform mole, hyperemesis gravidarum, antepartum and amniotic bleeding. premature rupture. Dangers to the fetus include abortion, intrauterine death, high prematurity, high birth weight, low birth weight, birth with Anaemia, birth defects can occur, babies are susceptible to infection and perinatal death, and low intelligence (Hidayanti & Rahfiludin, 2020).

Relationship between maternal age and newborn birth weight

The relationship between maternal age during pregnancy and newborn's weight can be seen that of the 12 respondents in the risk age category who gave birth to abnormal baby weight, as many as 8 (16%) of the 38 (76%) respondents in the no-risk category the majority, namely as many as 30 (60%) gave birth to babies with normal newborn weight.

Hypothesis testing was carried out using the Pearson Chi-square test where the p-value was obtained at 0.010 and the value of X2 - the p-valuewas smaller than 0.05, meaning accepting Ha, refusing Ho, so it can be concluded that there is a relationship between maternal age during pregnancy with the weight of the newborn. This result is also in accordance with the research conducted by Helena entitled Factors related to the incidence of LBW in Soreang Hospital, Bandung Regency, which shows that there is a relationship between maternal age during pregnancy and the weight of newborns with p-value: 0.000(Helena et al., 2021)

In the period of healthy reproduction, it is known that the safe age for pregnancy and childbirth is 20-30 years. Maternal mortality in pregnant and childbirth women under the age of 20 years is 2–5 times higher than maternal deaths that occur at the age of 20–29 years. Maternal mortality increases again after the age of 30-35 years (Bartini, 2018). Pregnancy at a young age can cause problems, because at the age of adolescence the growth of the body is not perfect, especially the maturation of the growth of the pelvic cavity which is not yet perfect, psychology, socio-economics are not ready, and teenagers who are pregnant usually rarely or do not get prenatal services at all. before birth), which quite pays little attention to the importance of ANC (Antenatal Care). Teenage pregnancy aged < 20 years results in Anaemia during pregnancy, miscarriage, prematurity, high LBW (Low Birth Weight), high preeclampsia/eclampsia pregnancy complications, high operative delivery, high postpartum bleeding, and easy infection (Bartini, 2018).

The relationship between the pregnancy increasing weight with the weight of newborns

The relationship between pregnancy increasing weight and the birth weight of newborns can be seen that from the 41 respondents in the category of abnormal weight gain, more who gave birth to normal weight babies, namely 27 (54%) of 7 (100%) respondents in the category All of them were normal, namely, as many as 7 gave birth to babies with normal newborn weight.

Hypothesis testing was carried out using the Pearson Chi-square test where the p-value was obtained at 0.081 and the value of X2 - the p-value was greater than 0.05, meaning accepting Ho, refusing Ha, so it can be concluded that there is a relationship

between increasing body weight during pregnancy and newborn weight.

These results are supported with the research that conducted by Subaim, with the title Increase in Weight of Pregnant Women is related to Birth Weight of Babies which shows there is a relationship between theincrease in the weight of pregnant women with p-value: 0.001 (Subaim & Ariyanti, 2021)

These results are not supported with the research that conducted by Yuliana et al with the title The Relationship Between Weight Gain of Pregnant Women and Birth Weight of Babies in the working area of the Maronge Sumbawa Health Center which stated that there was no relationship between the weight gain of pregnant women and the birth weight of babies (Yuliana et al., 2021).

The dangers of excessive weight gain in pregnant women include macrosomia that are at risk of complicating childbirth, in the third trimester of pregnancy it is a dangerous sign of the possibility of preeclampsia and can be a symptom of diabetes mellitus in pregnant women. Meanwhile, the dangers of excessive weight loss include: the fetus is not developing, lack of nutrition and Anaemia so it becomes difficult during childbirth.

From the data above, it can be seen that the variables of Hb levels and age during pregnancy and the increase in weight during pregnancy state that there is a relationship with the weight of newborns because they have a p-value<0.05.

Based on the results of the study, it can be seen that from the 3 independent variables, only 2 variables have a p-value of 0.25, namely Hb levels of 0.018 and age of 0.006. While the Wald value of Hb levels is 5.621 and Age is 7.621, the two variables are then tested multivariate

Based on the results of statisticaltests, it can be seen that the two variables do not have the same effect on the weight of newborns. Only the variable of age during pregnancy has an influence on the weight of newborns with a p-value of 0.016 and an Exp-value (b) of 6.273 which indicates that respondents who are pregnant at the age of risk (< 20 years or > 35 years) have a tendency of 6.273 times greater to give birth. babies with abnormal birth weight.

The results are in accordance with the research conducted by Liza Salawati entitled Relationship of Age, Parity and Employment of Pregnant Women with LBW that mothers who gave birth < 20 years and > 35 years had the opportunity to give birth to LBW 10.7 times compared to mothers who gave birthto 20-35 years.

Conclusion and Suggestions. None of the 50 respondents experienced pesticide exposure. There is no relationship between exposure to cigarette smoke and the weight of newborns with p-value: 0.073. There is a relationship between Hb levels, age at pregnancy, weight gain with the birth weight of the baby.There is an effect of the age of the pregnant mother on the weight of the newborn, where the pregnant mother at the age of risk has a 6.723 times greater chance of giving birth to abnormal baby weight. For pregnant women, should avoid exposure to cigarette smoke during pregnancy, especially in one room with a period of more than 1 hour. Maintain Hb levels during pregnancy by following the advice from health workers. It is advisable to get pregnant at the age of a healthy reproductive range of 20-35 years. Maintain weight gain during pregnancy in the normal range. For health workers, Provide health education about materials that can affect the baby's weight in pregnant women.

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