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Risk Factors for Neonatal Death in Konawe Islands District

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ABSTRACT

Introduction: The prevalence of neonatal mortality rate of Konawe Islands Regency in 2019 was 22 per 1000 live births, in 2020 it was 26.2 per 1000 live births and experienced a significant increase in 2021 to 34.9 per 1000 live births (Konawe Islands Regency Health Office 2019-2021). The purpose of the study was to analyze the risk factors of Mothers, Infants, Work and Postpartum care for Neonatal deaths in the Konawe Islands Regency.

Method: This study used a Case Control Study approach. The population numbered 48 people. The Study Sample totaled 24 case samples and 24 control samples. The sample technique in this study is Simple Random Sampling. The data is processed using the Odds Ratio Test.

Result: The results showed that the gestational age or 7,286 LL value 2,034 and UL 26,102, parity OR 3,215 LL value 0.902 and UL value 11,460, disease history OR 6,000 LL value 1,711 and UL value 21,038, BMI OR 4,200 LL value 1,228 and UL value 14,365, against Neonatal deaths in the Konawe Islands Regency Area.

Conclusion: The conclusions in this study show that maternal factors, infant factors and postpartum care are risk factors while occupation is not a risk factor for neonatal mortality in the Konawe Islands Regency. It is expected for the Health Office and Health Center to always provide education in the form of counseling and counseling related to maternal and child health to reduce neonatal death cases.

Introduction

Health development is an integral and most important part of national development. The maintenance of baby health is a form of effort to create a healthy, smart, creative, and innovative future generation of young people. This is because the future of a nation and state lies in its younger generation. Health development aims to increase awareness, willingness, and ability to live a healthy life for everyone in order to realize the highest degree of public health, as an investment for human resource development whose 2020 Performance Accountability Report of the Ministry of Health of the Republic of Indonesia 13 is socially and economically productive. Health development has a central role as a foundation in improving the quality of human resources,

especially related to aspects of human resource development as *human capital*.[1]

Neonatal deaths in Southeast Sulawesi Province in 2020 amounted to 80 per 1000 live births consisting of Konawe Islands Regency 33 per 1000 live births, Kolaka Regency 28 per 1000 live births east kolaka regency 11 per 1000 live births and south Buton Regency 8 per 1000 live births. in 2021, there are 95 per 1000 live births consisting of Konawe Islands Regency 28 per 1000 live births, Bombana Regency 26 per 1000 live births, East Kolaka Regency 23 per 1000 live births and North Kolaka Regency 22 per 1000 live births.[2] The prevalence of neonatal mortality rate of Konawe Islands Regency in 2019 was 22 per 1000 live births, in 2020 it was 26.2 per 1000 live births and experienced a significant increase in 2021 to 34.9 per 1000 live births.[3]

LBW is a major factor inincreased mortality, morbidity, andneonatal disabilities. LBW has along-term impact on neontaus life in the future. The results showed that 12.3% of babies died from LBW. Infants who did not experience LBW were morein live babies >28 days by 91.2%compared to babies who died ≤ 28days. All babies died ≤ 28 days of LBW. The results of the analysis with Fisher's Exacttestobtaineda p value of 0.000 ($p < 0.05$)so that there was a significan trelationship between LBW and neonatal mortality events.The calculation of the odd ratio (OR) is notobtained or value so the OR for the LBW variable cannot be analyzed.[4]

Method

This type of research is quantitative research with observational methods. The design of this study uses a Case Control Study, namely to analyze the Risk Factor between independent variables and dependent variables retrospectively. This study used a Case Control Study approach. The study has been carried out for 30 days. The population numbered 24 samples. The Study Sample totaled 24 case samples and 24 control samples. The sample technique in this study is Simple Random Sampling. The data is processed using the Odds Ratio Test and logistic regression.

Result

Table 1 showed that out of 48 samples, 25 (52.1%) respondents were at risk while pregnant and 23 (47.9%) were not at risk. Of the 25 respondents who were at risk while pregnant, there were 18 (75.0%) respondents who experienced neonatal death and 7 (29.2%) respondents who did not experience neonatal death. Of the 23 respondents, there were 6 respondents (25.0%) and 9 (70.8%) who did not experience neonatal death. Based on the results of statistical tests using the odds ratio test, the OR value of 7,286 lower limit (LL) values of 2,034 and the Upper Limit (UL) value of 26,102 shows that age during pregnancy is at risk of 7 times neonatal death.

Table 2 showed that out of 48 samples, 32 (66.7%) respondents had risky parity and 16 (33%) were not at risk. Of the 32 (66.7%) respondents who had risk parity, there were 19 (79.2%) who experienced neonatal death and 13 (54.2%) who did not experience neonatal death. Based on the results of statistical tests using the odds ratio test, the OR value of 3.215 Lower limit (LL) value of 0.902 and the Upper Limit (UL) value of 11.460 shows that parity is at risk of 3 times the neonatal death.

Table 3 showed that out of 48 samples, there were 26 (54.2%) respondents who had a history of risky diseases and 22 (45.8%) were not at risk. Of the 26 respondents at risk, 18 (75.0%) experienced neonatal death and 8 (33.3%) did not experience neonatal death. Based on the results of statistical tests using the odds ratio test, the OR value of 6,000 Lower limit (LL) values of 1,711 and the Upper Limit (UL) value of 21,038 shows that the risk factor of the disease history is at 6 times the risk of neonatal death.

Table 4 showed that out of 48 samples, 28 (58.3%) respondents had a risky BMI and 20 (41.7%) were not at risk. Of the 28 respondents who had a risky BMI, there were 18 (75.0%) who experienced neonatal death and 10 (41.7%) who did not experience neonatal death). Of the 20 respondents who were not at risk, there were 6 (25.0%) who experienced neonatal death and 14 (58.3%) who did not experience neonatal death. Based on the results of statistical tests using the odds ratio test, the OR value of 4,200 Lower limit (LL) value of 1,228 and the Upper Limit (UL) value of 14,365 shows that the BMI risk factor is at 4 times the risk of neonatal death.

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Table 1.
Risk Factors for Maternal Age During Pregnancy to Neonatal Deaths in the Konawe Regency of the Archipelago

Age During Pregnancy	Neonatal Death				Sum		Statistical Test Result
	Case		Control				
	n	%	n	%	n	%	
Risk	18	75,0	7	29,2	25	52,1	OR = 7,286 LL = 2,034 UL = 26,102
Not Risk	6	25,0	9	70,8	23	47,9	
Sum	24	100	24	100	48	100	

Table 2.
Risk Factors Parity for Neonatal Deaths in the Konawe Regency of the Archipelago

Parity	Neonatal Death				Sum		Statistical Test Result
	Case		Control				
	n	%	n	%	n	%	
Risk	19	79,2	13	54,2	32	66,7	OR = 3,215 LL = 0,902 UL = 11,460
Not Risk	5	20,8	11	45,8	16	33,3	
Sum	24	100	24	100	48	100	

Table 3.
Risk Factors for a History of Disease to Neonatal Deaths in the Konawe Regency of the Archipelago

History of Desease	Neonatal Death				Sum		Statistical Test Result
	Case		Control				
	n	%	n	%	n	%	
Risk	18	75,0	8	33,3	26	54,2	OR = 6,000 LL = 1,711 UL = 21,038
Not Risk	6	25,0	16	66,7	22	45,8	
Sum	24	100	24	100	48	100	

Table 4.
Body mass index risk factors for neonatal deaths in the Konawe Regency of the archipelago

BMI	Neonatal Death				Sum		Statistical Test Result
	Case		Control				
	n	%	n	%	n	%	
Risk	18	75,0	10	41,7	28	58,3	OR = 4,200 LL = 1,228 UL = 14,365
Not Risk	6	25,0	14	58,3	20	41,7	
Sum	24	100	24	100	48	100	

Discussion

This research shows that pregnancy for women with a young age or old age is a condition that can pose a risk of complications and maternal death. At the age of 20-35 years is a safe period for childbirth with the lowest risk of maternal pain and death. At the age of <20 years of immature reproductive apparatus, that is, the size of the uterus has not reached the normal size for pregnancy. As a result, pregnant women at that age are at risk of experiencing diseases in pregnancy. At the age of >35 years or >35 years, maternal health has declined as a result of which pregnant women at that age have a greater chance of having

a disabled child, prolonged childbirth and bleeding.[5]

The results showed that based on the results of the distribution of questionnaires and interviews, the results were obtained that the majority of respondents who had experienced neonatal death or infant death < 28 days, namely mothers with an age group of < 20 years and > 35 years where the diumur was very risky for pregnancy because it was too young and too old which could affect the process of understanding the egg. Parity is the number of live births a mother has gone through, both single babies and twins. During pregnancy, the mother's uterus is stretched by the presence of a fetus, if the amount of parity is small, the uterine muscles are still strong and the strength of straining has not decreased so that the risk of complications of childbirth and old partus that can affect the mother and fetus can be reduced. Meanwhile, if the mother gives birth too often, the uterus will be weaker. Mothers who have given birth to three or more children will tend to experience disturbances during pregnancy, childbirth and puerperium Parity is the number of children that a mother has ever born either alive or dead. Parity is the main determinant to assess the condition of the pregnant mother and the fetus she contains during pregnancy until delivery arrives, so it can be concluded that parity is closely related to disturbances during childbirth that have been experienced in past births which result in the death of the baby after birth.[6]

Too much parity can be the cause of the emergence of problems, especially related to health. The occurrence of pregnancy accompanied by continuous childbirth results in the erosion of blood vessels in the uterine wall accompanied by a loss of tissue elasticity due to stretching during pregnancy to delivery. Damage to body tissues allows the emergence of abnormalities in the mother's womb that will greatly affect the codition of the location of the fetus or placenta in the mother which can interfere with the growth of the fetus. The disruption of fetal growth in the mother's womb makes the mother give birth to an unhealthy baby.[7]

A history of anemia in the mother can be at risk of death in the baby being born. Low LBW causes unfavorable conditions in growth, development and viability as an adult. Research shows that human quality is largely determined by the quality of the fetus while in the womb. Explained that the continuation of babies with LBW will have an impact on the long term of their lives so that children will experience growth and development disorders. Research shows that the proportion of respondents who have a history of LBW births is quite large. Based on the observations of researchers in the field by means of interviews and observations, this can be caused by many factors, including inadequate nutritional intake during pregnancy, the nutritional status of the mother during pregnancy, low socioeconomic status of the family, too close pregnancy distance and comorbidities in pregnant women such as hypertension, pre-eclampsia and eclampsia.[8]

The mother's history of illness during pregnancy is a risk factor associated with infant mortality. The results of statistical tests showed that out of 48 samples, there were 26 (54.2%) respondents who had a history of risky diseases and 22 (45.8%) were not at risk. Of the 26 respondents at risk, 18 (75.0%) experienced neonatal death and 8 (33.3%) did not experience neonatal death. Based on the results of statistical tests using *the odds ratio* test, the OR value of 6,000 Lower limit (LL) values of 1,711 and the Upear Limit (UL) value of 21,038 shows that the risk factor of the disease history is at 6 times the risk of neonatal death. This suggests that the majority of mothers have a history of anemia, and precllampsia, putting them at risk of neonatal death.[9]

This study showed that the relationship between the nutritional status of the mother and birth weight in the survival of the child, which is consistent is 1) the size of the mother's body, namely the height and weight of the mother before pregnancy; and 2) weight gain, which is a certain amount of weight gain of the mother during her pregnancy. The results of previous studies also concluded that there are only two indicators of the nutritional status of mothers that consistently show a positive relationship with the baby's weight, namely pre-pregnancy weight and weight gain during pregnancy. The nutritional status of the mother is the main intrauterine environmental factor in fetal development. The greater the weight gain of the mother, the better the anthropometry size of the baby being born (weight, body length, head circumference). Maternal nutrition in the pre-

pregnancy period plays an important role so that the nutritional status of pregnant women needs great attention. The status of chronic lack of energy (SEZ) before pregnancy affects the growth of the fetus and is a consideration for the achievement of weight gain during pregnancy.Based on the results of interviews and BMI measurements in pregnant women, it shows that the majority of respondents who are sampled are respondents who have a thin BMI and obesity, this is influenced by several factors such as socioeconomics and nutritional status of respondents. The efforts made to prevent neonatal deaths due to BMI are expected for pregnant women to regulate their diet in accordance with nutritious food for the growth and development of the fetus during pregnancy, so that the fetus can grow and develop perfectly healthy.[10]

Conclusion

Research shows that the mother's age during pregnancy, Parity, Disease History, and maternal BMI are risk factors for Neonatal death in the Konawe Islands Regency.

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