Factors Related of Asphyxia in Newborn in The Working Area of The Buho Buho Health Center in 2021

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Article Info
Article History
Submitted:2022-01-28
Accepted: 2022-03-17
Published:2022-03-31
Keywords: Asphyxia, Newborns, related Factors

Abstract
The World Health Organization (WHO) in 2018 noted that asphyxia is the second leading cause of neonatal death after prematurity, WHO estimates that every year there are 3% (3.6 million) babies experiencing asphyxia from 120 million newborns, an estimated nearly 1 million this baby died. In 2020, the causes of neonatal death in Indonesia include asphyxia (27.4%), infection (3.4%), congenital abnormalities (11.4%), neonatal tetanus (0.3%), and others (22%). 5%). The purpose of this study was to determine the factors associated with the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021.This research uses a descriptive analitic method with a cross sectional approach. The population in this study was 68 people and the sampling technique was purposive sampling, namely 50 mothers who gave birth to babies with asphyxia and non-asphyxia events who entered the research criteria for maternal age, parity, gestational age, and prolonged labor. Analysis of the data used is univariate analysis and bivariate analysis using the chi-square formula.The results showed that the variables related to the incidence of asphyxia were prolonged labor with p-value 0.003 < 0.05, and variables that were not related to maternal age p-value 0.273 > 0.05, parity p-value 0.139 > 0.05, and gestational age p-value 0.118> 0.05.There is a relationship between prolonged labor and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021.

Introduction

Based on records from the World Health Organization (WHO), asphyxia is the second leading cause of neonatal death after premature. 1,000,000 babies. (WHO.2018) Of the 28,158 deaths of children under the age of 5 years, 72% or 20,266 deaths occurred in the neonatal period, 2020 data reported to the Directorate of Family Health through the Health Command of the Ministry of Health. Of the total reported neonatal deaths, 72% or 20,266 deaths) occurred between 0-28 days of age. While 19.1% (5,386 deaths) occurred at the age of 29 days-11 months, and 9.9% (2,506 deaths) occurred at the age of 12-59 months. In 2020, the most common cause of neonatal death is low birth weight (LBW). Several other causes of neonatal death were neonatal asphyxia (27.4%), infection (3.4%), congenital abnormalities (11.4%), neonatal tetanus (0.3%) and others (22.5%). (Indonesia Health Profile. Year 2020)

Neonatal asphyxia is the inability to breathe spontaneously after the baby is

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The 1st International Conference on Health, Faculty of Health
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born. Asphyxia can occur during pregnancy, during childbirth, or immediately after the baby is born. Several risk factors that can increase the risk of asphyxia include maternal (antepartum and intrapartum) and fetal (prenatal or postnatal) factors. These risk factors need to be identified to increase preparedness in the event of asphyxia in newborns. (WHO.2018).

The risk factors for neonatal asphyxia are divided into several groups of factors, there are 3 risk factors including maternal factors, fetal factors, and labor factors. Maternal factors are maternal age, occupation, parity, antepartum bleeding, hypertension in pregnancy and anemia during pregnancy. The factors of delivery are the place of delivery (fasyankes or non-fasyankes), birth attendants (nakes or non-nakes), method of delivery, and time of delivery. The baby factors include premature babies, gestational age of the mother less months or past months and also low birth weight babies. (Widiani et al, 2016)

From a preliminary study conducted by researchers, it was found that labor data in 2020 was 73 deliveries, 18 of them experienced asphyxia at birth, from 18 babies who experienced asphyxia Lack of control and attention from parents, children were often left at home without parental supervision, mostly work as a farmer and stay in the garden for quite a long time, once a week parents go home to make cases of pregnancy out of wedlock by teenagers who are still in school quite high, from 73 deliveries 13 of them are < 20 years old and 6 babies born to mothers aged <20 years old has asphyxia. The high parity due to the lack of awareness of the couple to take part in family planning after giving birth has also caused some mothers to have been pregnant 4 times, from 15 mothers with parity 4 times who gave birth in 2020 there were 5 babies born with asphyxia. The importance of ultrasound in pregnant women as a diagnostic support, to detect early if there are disturbances or problems in the mother and fetus is still ignored by some pregnant women. The lack of awareness of pregnant women to do ultrasound as a pregnancy supporting examination is still a taboo for pregnant women, some are afraid and think that if an ultrasound is carried out it will have an impact on their baby because they are exposed to radiation. Although health workers have provided health education, have approached pregnant women and their families, there are still some pregnant women who believe in this. Low human resources and obedient to the beliefs of old people make it difficult for them to accept explanations and recommendations from health workers. Some pregnant women who have passed the interpretation of childbirth also deliberately do not check their pregnancy for fear of being referred to the hospital. They choose not to go home and sleep in their garden, the pregnant woman will only return home if she feels contractions about to give birth and come to the health center when it is in the active phase so they do not have time to be referred considering the distance from the Health center to the hospital is quite far. From this, 10 mothers gave birth with the interpretation of post-month delivery, there were 4 mothers who gave birth with babies who had asphyxia. In addition to knowing the health condition of the mother, ultrasound is also useful for knowing the baby's condition, one of which is to know the position of the baby and the presence of entanglement in the umbilical cord, from 3 maternity mothers who gave birth with a long 2nd stage of labor, all gave birth with babies who had umbilical cord entanglement and asphyxia. This study has a purpose, namely, to find out what are "Factors related to the incidence of asphyxia in newborns in the working area of Buho Buho Health Center".

Method

The research method used in this research is descriptive analytic with a cross-sectional approach to find out the relationship between variables. The

variables in this study are the independent variables in the form of factors related to the incidence of asphyxia, namely: maternal age, parity, gestational age, and prolonged labor, while the dependent variable is the incidence of asphyxia, then these variables are collected in a moment and simultaneously. In this study, secondary data was used in this case the labor register and the status of the newborn from the patient. The research was carried out in the working area of the Buho Buho Health Center, East Morotai District, Morotai Island Regency. The population in this study were all babies born in the working area of the Buho Buho Health Center from January to December 2021, totaling 68 babies. Samples were taken using a purposive sampling technique, namely all infants who experienced asphyxia shortly after birth and infants who did not experience asphyxia shortly after birth based on the criteria for maternal age, parity, gestational age, and prolonged labor which were included in the inclusion criteria as many as 50 infants from the month of January - December 2021 in the working area of the Buho Buho Health Center. Inclusion criteria, all babies born in the working area of the Buho Buho Health Center who are included in the criteria for maternal age, parity, gestational age, and prolonged labor who have asphyxia or do not experience asphyxia at birth. Exclusion criteria, all babies registered in the register of the cohort of mothers who were not born in the working area of the Buho Buho Health Center and all babies whose mothers were referred and gave birth at the hospital. Univariate analysis was conducted to determine the frequency distribution of each variable studied. In univariate analysis, analysis was carried out on the independent variables, namely maternal age, parity, gestational age, and prolonged labor and analysis on the dependent variable, namely the incidence of asphyxia in newborns. Bivariate analysis was used to determine related or not related there was a relationship between the independent/independent variable (mother's age, parity, gestational age, and prolonged labor) and the dependent/dependent variable (asphyxia incidence in newborns). The analysis was carried out using a computer with a chi square test using SPSS IBM 2.4, namely the value of = 0.05 % with the conclusion that if the p value is less than 0.05 % then H0 is rejected, indicating that there is a relationship between the independent variable and the dependent variable, and if the value is p value is more than 0.05 % then H0 is accepted indicating there is no relationship between the independent variable and the dependent variable.

Results and Discussion

Table 1 Frequency distribution of maternal age, parity, gestational age, prolonged labor and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021

Variable	Frequency N=50	Presentation (100%)
Mother's age		
1. High risk (mother's age <20 years and >35 years)	20	40 %
2. Low risk (mother's age between 20 to 35 years)	30	60 %
parity		
1. Primi para	27	54 %
2. Multi para	13	26 %
3. Grande multi para	10	20 %
Gestational Age		
1. High risk	16	32 %

less than 36 weeks & more than 42 weeks		
2. Low risk 37-41 weeks	34	68 %
Long labor		
1. Long labor	13	26 %
2. No long labor	37	74 %
Asphyxia		
1. Asphyxia	33	66 %
2. No Asphyxia	17	34 %

Table 2 The relationship between maternal age and the incidence of newborn asphyxia in the working area of the Buho Buho Health Center in 2021.

Mother Age	Asphyxia				Total		*p- value*
	Asphyxia		Not asphyxia				
	N	%	N	%	N	%	
<20 & >35 years	15	30%	5	10%	20	40%	0,273
20-35 years	18	36%	12	24%	30	60%	
Total	33	66%	17	34%	50	100%	

Table 3 The relationship between maternal parity and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021

Parity	Asphyxia				Total		*p- value*
	Asphyxia		Not Asphyxia				
	N	%	N	%	N	%	0,139
Primipara	15	30 %	12	24 %	27	54 %	
Multipara	9	18 %	4	8 %	13	26 %	
Grande multipara	9	18%	1	2%	10	20 %	
Total	33	66 %	17	34 %	50	100 %	

Table 4 The relationship between gestational age and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021

Maternal Age	Asphyxia				Total		*p value*
	Asphyxia		Not Asphyxia				
	N	%	N	%	N	%	
High risk 28-36 & ≥42 weeks	13	26 %	3	6%	16	32 %	0,118
Low Risk 37-41 weeks	20	40 %	14	28 %	34	68 %	
Total	33	66 %	17	34%	50	100%	

Table 5 The relationship between prolonged labor and the incidence of asphyxia in newborns in the working area of the Buho Buho Public Health Center

Long Labor	Asphyxia				Total		*P value*
	Asphyxia		Not Asphyxia				
	N	%	N	%	N	%	
Long Labor	13	26 %	0	0 %	13	26 %	0,00 3
No Long Labor	20	40 %	17	34 %	37	74 %	
Total	33	66 %	17	34%	50	100%	

Discussion

Neonatal asphyxia is a condition in which newborns have problems with gas exchange and oxygen transport, so that the baby lacks oxygen supply and has difficulty removing carbon dioxide. (Sondakh, 2013). Neonatal asphyxia is a condition in which babies cannot breathe spontaneously and regularly after birth. The cause of this is the occurrence of hypoxia in the fetus in the uterus. This hypoxia is related to factors that arise during childbirth, or immediately after the baby is born (Prawirohardjo, Sarwono, 2012). Medical service standards for pediatrics, Indonesian Pediatric Association (IDAI 2004), Neonatal asphyxia is the failure of a baby to breathe spontaneously and regularly at birth or shortly after birth which is characterized by hypoxemia, hypercarbia, and acidosis.

Neonatal asphyxia begins when the baby is deprived of oxygen due to impaired oxygen flow from the placenta to the fetus during pregnancy, childbirth, or immediately after birth due to failure of adaptation in the transition period. During acute hypoxia, blood tends to flow to vital organs such as the brain stem and heart, compared to the cerebrum, choroid plexus, white matter, adrenal glands, skin, musculoskeletal tissue, organs of the thoracic and abdominal cavities such as the lungs, liver, kidneys, and the gastrointestinal tract. These changes and redistribution of blood flow are caused by a decrease in vascular resistance of the brain and heart vessels and an increase in peripheral vascular resistance. (Kepmenkes RI Number Hk.01.07/Menkes/214/2019)

Moderate and severe asphyxia, the respiratory effort is not visible so that the baby is in the second period of apnea, and bradycardia and decreased blood pressure are also found. At the initial level, it causes respiratory acidosis, if the disturbance continues, anaerobic metabolism occurs in the form of body glycogen glycolysis, so that the body's glycogen in the liver and heart is reduced. The loss of glycogen that occurs in the cardiovascular causes impaired heart function. In the lungs, there is inadequate filling of air in the alveoli, causing pulmonary vascular resistance, while in the brain, brain cell damage occurs which can cause death or sequelae in the next life of the baby. (sukesi, 2016).

According to Vidia and Pongki (2016: 364) the classification of asphyxia consists of: Normal or non-asphyxiated infants: APGAR score of 8-10, normal infants do not require resuscitation and controlled oxygen administration. Mild Asphyxia: APGAR score 6-7, the baby is considered healthy, and does not require special measures, does not require oxygen and resuscitation measures. Moderate Asphyxia: APGAR score of 4-

5 on physical examination will show a heart rate of more than 100 beats/minute, muscle tone is not good or good, cyanosis, irritability reflexes are absent and require resuscitation and oxygen administration until the baby can breathe normally. Severe asphyxia: APGAR score 0-3, requiring immediate active resuscitation and controlled oxygen administration, because it is always accompanied by acidosis, it is necessary to give natricus dikalbonas 7.5% with a dose of 2.4 ml/kg body weight, and 40% glucose solution. - 2 ml / kg body weight, given through the umbilical vein. On physical examination found heart rate less than 100 beats/minute, poor muscle tone, severe cyanosis, and sometimes pale, absent irritability reflexes.

Management in the delivery room, carried out with resuscitation, resuscitation preparation consists of team formation and preparation, room and equipment preparation. Neonatal resuscitation is a continuous flow of action, starting with evaluating, making decisions, and taking resuscitation actions. Approximately 10% of the 120 million newborns require assistance to initiate breathing and only 1% of infants require further resuscitation. Resuscitation is carried out if the baby is not breathing spontaneously and adequately at birth by assessing the clinical component of the baby.

Based on research conducted by Gane, et al (2013) with the title Antenatal and Intrapartum Risk factors for perinatal asphyxia. This study was conducted at a hospital in India in 2011-2012 by taking secondary data, namely antepartum and intrapartum risk in 100 asphyxiated infants and 100 non-asphyxiated infants. The results showed that the type of delivery, primigravida parity, antenatal visits, hypertension in pregnancy, anemia, maternal age less than 20 years, meconium amniotic fluid affected the incidence of asphyxia and mothers who had primigravida status increased 2 times the risk of babies experiencing asphyxia. (Gane, et al (2013).

Factors associated with newborn asphyxia include: Maternal factors; a. mother's age. The causes of maternal death from reproductive factors include maternal age or maternal age. In the period of healthy reproduction, it is known that the safe age for pregnancy and childbirth is 20 to 30 years. Maternal mortality in pregnant women and giving birth at the age of under 20 years was 2 to 5 times higher than maternal deaths that occurred at the age of 20 to 29 years. Maternal mortality increases again after the age of 30 to 35 years (Prawirohardjo, 2012a). This situation predisposes to bleeding, placenta previa, placental abruption, uterine rupture which can end in asphyxia of the newborn; b. High parity allows for complications in pregnancy and delivery which can cause disruption of O2 transport from mother to fetus which will cause asphyxia which can be assessed from the APGAR Score in the first minute after birth (Manuba, 2010). In addition, pregnancy and childbirth at risk are the first child and fifth child or more because in the first child the stiffness of the muscles or a stiff cervix provides much greater resistance and can prolong labor, while in the fourth child or more there is a decline in flexibility (elasticity). tissue that has been repeatedly stretched due to pregnancy, so that the contractions produced will also be less and consequently can prolong the labor process. Fetal factors, gestational age, duration of pregnancy from ovulation to parturition is approximately 280 days (40 weeks), and not more than 300 days (43 weeks). Pregnancy 40 weeks is called a pregnancy term (term). Pregnancy more than 42 weeks is called a postmature pregnancy. Pregnancy between 28 to 36 weeks is called preterm pregnancy. This last pregnancy will affect the viability (survival) of the baby born, because babies who are too young have a bad prognosis (Prawirohardjo, 2012a). The lower the gestation period and the smaller the baby, the higher the

morbidity and mortality. The lower the birth weight of the baby, the higher the possibility of asphyxia and respiratory distress syndrome (Prawirohardjo, 2012a).

Preterm pregnancy is a pregnancy under 37 weeks of gestation with an estimated fetal weight of less than 2,500 grams, the risk of preterm delivery is the high perinatal mortality rate caused by hyalin membrane disease, and the complications encountered include the incidence of neonatal asphyxia. Which is caused by the intake of oxygen and food or inadequate nutrition from the placenta to the fetus in pregnancy (Wiknjasastro, 2010). Premature babies with lung conditions that are not ready and as an effective gas exchange organ, this is a factor in the occurrence of asphyxia (Prawirohardjo, 2012a). In infants born preterm (less months) the organs of the body are immature, this causes the respiratory system, especially the baby's lungs, to not work optimally, surfactant is still lacking so there is a possibility that the lungs have developmental disorders, the respiratory muscles are still weak so that the cries of premature babies sound weak and moaning as a result the baby can experience asphyxia. Babies born prematurely have a risk of respiratory distress 3 times greater. (Manuaba, 2010). Post-term pregnancy is a pregnancy that lasts 294 days or more than 42 weeks. The incidence of post-term pregnancy is approximately 10% varying between 3.5-14%. Concerns in dealing with post-term pregnancy are the increased risk of death, and post-term perinatal mortality can be 3 times compared to term pregnancy. Post-term pregnancies have occurred in 30% before delivery, 55% in labor and 15% post-natally. The main causes of perinatal death are hypoxia and meconium aspiration (Wiknjasastro, 2010).

Labor factor, prolonged labor is labor that lasts more than 24 hours in primi, and more than 18 hours in multi. Uterine contractions are one of the causes of prolonged labor. The unstable nature of contractions causes the oxygen supply to be not optimal, but it also increases the risk of intracranial bleeding causing asphyxia. Long parturition will cause infection, exhaustion, dehydration in the mother. In prolonged labor, postpartum hemorrhage can also occur which can cause maternal death. In the fetus, infection, injury and asphyxia will occur which can increase infant mortality (Siti Candra, et al. 2012). The long second stage of labor starts from the complete dilatation until the expulsion of the entire fetus occurs. The long second stage of labor is the second stage that lasts more than 2 hours in primi and more than 1 hour in multiparas. The diagnosis of the old second stage is characterized by clinical signs and symptoms of complete cervical dilatation, the mother wants to push but there is no progress in spending the head (Wiknjosastro, 2010; 112).

The explanation in table 1 shows that the age of the mother with a high risk of 40% and the age of the mother with a low risk of 60%. Maternal parity with primipara 54%, multipara 26%, and grande multipara 20%. The gestational age of the mother with low risk is 68% and the gestational age of high risk is 32%. Mothers with long labor 26% and not long labor 74%. The incidence of asphyxia 66% had asphyxia and 34% did not experience aphixia.

Explanation in table 2 is the age of the mother at high risk whose baby is asphyxia at birth 30%, and 10% is not asphyxia at birth. For low-risk mothers aged 20-35 years, 36% of their babies were asphyxiated and 24% were not asphyxiated at birth. The results of the chi square test using SPSS obtained a p value of 0.273> 0.05 so there is no relationship between maternal age and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021. The reason for maternal death in mothers is due to reproductive elements, namely the age of the mother at the time of birth. pregnant. That the age of the

mother during pregnancy and childbirth is safe and healthy is the age range of 20 years to 35 years. The occurrence of death in pregnant women and childbirth when under the age of 20 years is 2 to 5 times more risky than maternal death at the age of 20 to 29 years. Then maternal mortality increases again when the mother is 30 to 35 years old or older (Prawirohardjo.S.2012). This incident is a predisposing factor for antepartum, intra-partum, and postpartum hemorrhage, placenta previa, placental abruption, uterine rupture and possibly ending with asphyxia of the newborn.

The explanation in Table 3 parity of primiparous mothers found that babies were asphyxiated at birth as much as 30% and babies who were not asphyxiated at birth were 24%, multiparous mothers found babies who were asphyxia at birth as many as 18% and babies who were not asphyxia at birth as many as 8%, mothers In grandemultipara, 18% asphyxiated infants and 2% non-asphyxiated infants were found. Based on the results of the chis-quare test with SPSS, a p value of 0.139>0.005 was obtained. The conclusion is that there is no relationship between maternal parity and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021. A large parity is likely to cause complications during pregnancy and during the process. delivery, so that it can disrupt the circulation of oxygen from the mother to the fetus while in the womb so that it can cause asphyxia in newborns (Manuba, 2010). Primiparous mothers have a greater risk during pregnancy or childbirth, in primiparous mothers there is muscle stiffness or a stiff cervix that puts pressure on the baby's head and ends up increasing the length of delivery time and as a result, asphyxia occurs in the baby. Mothers with 4 or more children are at high risk due to the deterioration of tissue elasticity which is repeatedly stretched due to pregnancy, so that during labor uterine contractions will also be reduced and inadequate, resulting in a longer labor process and may increase the risk of asphyxia in the baby at birth.

The explanation in Table 4 shows that mothers with high-risk gestational age, babies who were asphyxia at birth were 26% and babies who were not asphyxiated 6%. Meanwhile, mothers with low-risk gestational age, babies who were asphyxia at birth were 40% and babies who were not asphyxiated at birth were around 28%. The results of the chi square test using SPSS p value 0.118> 0.05, which means that there is no relationship between gestational age and the incidence of newborn asphyxia in the working area of the Buho Buho Health Center in 2021. Pregnancy starts from ovulation until delivery ± about 280 days or 40 weeks, no more than about 390 days or 43 weeks. 40 weeks pregnant means pregnancy at term (maturity). Pregnant more than 42 weeks means pregnancy past the month (post mature). Pregnant between 28 to 36 weeks means pregnancy is less months (premature). Premature or preterm pregnancy affects the viability (survival) of babies born, babies whose gestational age is too early have poor projections. The shorter the gestation period and the smaller the baby, the higher the morbidity and mortality. The less the birth weight of the baby, the higher the possibility of asphyxia and respiratory disorders (Prawirohardjo, 2012).

Explanation in table 5 Mothers with prolonged labor, 26% of babies were asphyxiated at birth and 0% who were not asphyxia. Meanwhile, in mothers who did not give birth for a long time, 40% of infants were asphyxiated at birth and 34% of infants were not asphyxiated at birth. The results of the square test with SPSS obtained a value of p value 0.003 <0.05, which means that there is a relationship between prolonged labor and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021. In line with research conducted by Widiani et al (2016) prolonged labor increased the risk

of asphyxia in infants with a value (AOR=16,327; 95% CI: 1,37-28,70). In addition, it is also in line with the research conducted by Erlita Chandra, DKK (2010), in Erlita DKK's research, the results of the Odds Ratio analysis were 2.498, namely babies born to mothers with long labor at risk of 2,497 times asphyxia at birth than those who did not experience prolonged labor. Then this study is also in line with Nurfina's research. 2016 from the results of the chi square statistical calculation, the p value of 0.0001 <0.005 means that there is a relationship between prolonged labor and the incidence of newborn asphyxia at Bahteramaas Hospital, Central Sulawesi Province. Prolonged labor in primiparas lasted more than 24 hours and in multiparas lasted more than 118 hours. In the delivery of the first child, the time increases by 5 to 6 hours from the delivery of the second child or more. Prolonged labor can cause complications for both mother and baby, in addition to increasing maternal and infant mortality. The danger of prolonged labor, namely the fetus, causes higher morbidity and mortality. In addition, the longer the labor process results in asphyxia in the baby at birth the causes include cerebral trauma caused by pressure on the fetal head, injuries due to actions with forceps, namely difficult extraction and rotation, ruptured membranes too long before the birth of the baby which can cause the amniotic fluid becomes infected and carries a lung infection to the fetus. (Rustam Mochtar.2012)

One of the causes of prolonged labor is weak or inadequate uterine contractions. Weak and inadequate contractions cause insufficient oxygen to the fetus and can increase the risk of intracranial bleeding resulting in asphyxia. Labor that is too long can lead to dehydration, infection, and exhaustion in the mother, which can also result in postpartum bleeding. Can cause head injury, infection, and asphyxia which can increase infant mortality. (Siti Candra DKK. 2012). Prolonged labor causes the mother to run out of energy, dehydration so that the blood flow that carries oxygen to the fetus is reduced as a result the baby born has asphyxia. (Gane. 2013).

Of the 4 factors studied, there were 3 factors that were not related to the incidence of asphyxia in newborns, namely maternal age, parity and gestational age, and there was 1 factor related to the incidence of asphyxia in newborns, namely prolonged labor. From these unrelated factors, it can be concluded that there may be other factors related to the incidence of asphyxia in the working area of the Buho-Buho Health Center, the factors associated with the incidence of asphyxia include maternal factors: low socioeconomic, multiple pregnancy, infection during pregnancy, hypertension in pregnancy, anemia, diabetes mellitus, antepartum bleeding history of previous infant mortality; labor factors: use of anesthetics or opiates, difficult and traumatic delivery, meconium in the membranes, premature rupture of membranes, oxytocin induction, compression of the central taii, umbilical cord prolapse, birth trauma; Fetal factors: malpresentation (breech, shoulder dystocia), prematurity, low birth weight (LBW) baby, stunted fetal growth (IPM), congenital anomalies, intrauterine pneumonia, severe meconium aspiration, airway obstruction at birth, congenital abnormalities. For this reason, it is necessary to do further research by adding factors related to asphyxia other than maternal age, parity, gestational age, and prolonged labor.

Conclusion and Suggestion

Based on the discussion of the results of the research on factors related to the incidence of newborn asphyxia in the working area of the Buho Buho Health Center in 2021, the following conclusions can be drawn:

The age of the mother with high risk (under 20 years and above 35 years) is 40% and the age of the mother with low risk (age 20-35 years) is 60%. For the results of maternal parity with 54%

primipara, 26% multipara, and 20% grande multipara. On the frequency of gestational age, the gestational age of mothers with low risk (37-41 weeks) was 68% and the gestational age of high risk (≤ 36 weeks & 42 weeks) was 32%. In prolonged labor, the results were mothers with a frequency of long labor as much as 26% and a frequency of not having prolonged labor as much as 74%. Then for the incidence of asphyxia, 66% had asphyxia and 34% did not experience .asphixia.

In maternal age, there is no relationship between maternal age and the incidence of newborn asphyxia in the working area of the Buho Buho Health Center in 2021

In parity, there is no relationship between parity and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021

In terms of gestational age, there is no relationship between gestational age and the incidence of newborn asphyxia in the working area of the Buho Buho Health Center in 2021

In prolonged labor, there is a relationship between prolonged labor and the incidence of asphyxia in newborns in the working area of the Buho Buho Health Center in 2021

Researchers hope that the results of this study can be used as input for other students, besides that it can increase knowledge about factors related to the incidence of asphyxia in infants. As a result of asphyxia is very risky for the survival of the baby in the future, For students to understand more about what are the factors that cause asphyxia in newborns and can conduct research on other factors related to the incidence of asphyxia in the future . This research can provide input, advice, and information for the Buho Buho Public Health Center, especially for health care workers who are related to mothers and babies, namely midwives. It is hoped that health workers, especially midwives, can be fast, responsive, thorough, and correct in handling asphyxia. Prevention and treatment of asphyxia in infants can be done early in pregnancy, regular ANC examinations for pregnant women and ultrasound examinations also need to be performed on pregnant women, so that the possible risk of asphyxia can be handled appropriately. This research can be used as a reference and comparison for future research on asphyxia. Researchers hope that the results of this study can be a reference for pregnant women to be more alert if pregnancy is included in the criteria for risk factors for causing asphyxia in infants. If pregnant women are included in the criteria for risk factors for asphyxia in infants, they should carry out routine pregnancy checks by midwives and obstetricians. In addition, laboratory examinations and ultrasound are very important for pregnant women, when there are problems in pregnancy, the risk of an emergency can be prevented and handled appropriately and correctly.

Acknowledgment

Thank you to all those who have helped in the completion of this research article. Thanks also to the resource persons so that this research can run smoothly and be completed on time.

Referece

Almeida, N.K.O., Almeida, R.M.V.R., Pedreira, C.E. (2015). Adverse perinatal outcomes for advanced maternalage: a cross-sectional study of Brazilian births. Jornal de Pediatria, vol. 9, no. 3, hlm. 1 – 6, doi : 10.1016/j.jped.2014.12.002 [di askses 2/11/2021].

Atika, Vidia dan Pongki Jaya. (2016). *Asuhan kebidanan pada Neonatus, Bayi, Balita dan Anak Pra Sekolah*. Jakarta : Trans Info Media.

Badan Pusat Statistik. (2018). *Survei Demografi dan Kesehatan Indonesia (SDKI)* Badan Pusat Statistik: Jakarta.

Chapman, V dan Charles, C. (2013*). Persalinan dan Kelahiran Asuhan Kebidanan*. Jakarta : EGC.

Dewi. (2016).*Asuhan Kebidanan Neonatus Bayi Dan Anak Balita*. Jakarta : Salemba Medika.

Dorland. (2010). *Kamus Kedokteran Dorland edisi 31*. Jakarta : EGC

Gane. Antenatal and Intrapartum Risk Factors for Perinatal Asphyxia : A case control study. Curr Pediatric Res 2013; 17 Edition 2 [Di akses 2/11/2021]

Herawati, Amalia,R, Sari,D.A., *Hubungan Kehamilan Postterm, Partus Lama Dan Air Ketuban Bercampur Mekonium Dengan Kejadian Asfiksia Neonatus Di Rs Pusri Palembang Tahun 2018* (di akses 3/11/2021 jam 02.00 WIT)

JNPK-KR. (2016). *Buku Acuan Pelatihan Klinik Asuhan Persalinan Normal Asuhan Esensial, Pencegahan dan Penanggulangan Segera Komplikasi Persalinan dan Bayi Baru Lahir*. Jakarta.

Kementrian Kesehatan RI .(2010). *Buku Saku Pelayanan Kesehatan Neonatal Esensial.* Jakarta: Bakti Husada.

Kementrian Kesehatan RI. (2008). *Pencegahan dan Penatalaksanaan Asfiksia Neonatus.* Jakarta.

Keputusan Menteri Kesehatan Republik Indonesia Nomor Hk.01.07/Menkes/214/2019 Tentang Pedoman Nasional Pelayanan Kedokteran Tata Laksana Asfiksia

Kristiyanasari, W.(2010). *Asuhan Keperawatan Neonatus dan Anak*. Yogyakarta : Nuha Medika.

Manuaba, I. B. G. (2010). *Ilmu Kebidanan, Penyakit Kandungan, dan KB edisi 2*. Jakarta: Yayasan Bina Pustaka.

Marie Tando, naomy. (2018). *Asuhan Kebidanan Neonatus, Bayi dan Anak Balita.* Jakarta: EGC.

Marmi., dan Rahardjo, K. (2012). *Asuhan Neonatus, Bayi, Balita, dan Anak Pra Sekolah*. Yogyakarta : Pustaka Pelajar.

Masturoh Imas, Anggita T. Nauri, (2018). *Metodologi Penelitian Kesehatan.* Pusdik SDMK Kemenkes RI.

Mochtar, R, (2012). *Sinopsis Obstetrik Fisiologi*. Jakarta : EGC

Notoatmodjo, Soekidjo. (2010). *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.

Prawirohardjo, S. (2012). Ilmu Kebidanan. Jakarta : P.T Bina Pustaka Sarwono Prawirohardjo.

Prawirohardjo, Sarwono. (2018). *Buku Acuan Nasional Pelayanan Kesehatan Maternal dan Neonatal. 1st ed.* cetakan kelima Abdul Bari Saifuddin, editor. Jakarta: PT Bina Pustaka Sarwono Prawirohardjo.

Profil Kesehatan Indonsia. (2020). *Profil Kesehatan Indonesia*.

Profil Puskesmas Buho Buho Tahun 2020

Rohsiswatmo Risnawati, Rundjan Lily. (2014). Buku Resusitasi Neonatus IDAI. Jakarta: Ikatan Dokter Anak Indonesia.

Rukiyah Ai Y. (2013). *Asuhan Neonatus Bayi dan Anak Balita edisi Revisi*. Jakarta : Trans Info Media.

Sondakh, J. (2013). *Asuhan Kebidanan Persalinan & Bayi Baru Lahir*. (S.Carolina, Ed.). Jakarta: Erlangga

Sukesi A, Astuti Setiyani E. Praktikum Asuhan Kebidanan Neonatus, Bayi, Balita dan Anak Prsekolah. Jakarta: Pusdik SDM Kesehatan;2016. 245p.http://bppsdmk.kemkes.go.id/pusdiksdmk/wpcontent/uploads/2017/0/Praktikum-Asuhan-Kebidanan-Neonatus. (Di akses pada 30 Oktober 2021)

Tri budiarti, dkk. (2011). *Buku Ajar Neonatus, Bayi dan Balita* Jakarta: CV.Trans Info Media

W.B. Siti Candra, Meirani R., Khasanah U., Hubungan Antara Partus Lama Dengan Kejadian Perdarahan Postpartum Dini Di Kamar Bersalin Rumah Sakit Umum Dr. Saiful Anwar Malang 2012, (di akses 3/11/2021 jam 23.00 WIT)

Wahyuni Sari.(2011). *Asuhan Neonatus, Bayi dan Balita Penuntun Belajar Praktik Klinik.* Jakarta: EGC

WHO. (2018). *World Health Statistic 2018*. Genewa: WHO

Widiani, N. N. A., Kurniati, D. P. Y., & Windiani, I. G. A. T. (2016). Faktor Risiko Ibu dan Bayi Terhadap Kejadian Asfiksia Neonatus di Bali. *Public Health and Preventive Medicine Archive*, *4*(2), 95.https://doi.org/10.15562/phpma.v4i2.64

Winkjosastro.(2010). *Ilmu Kebidanan*. Jakarta : P.T Bina Pustaka Sarwono Prawirohardjo;

Wirakusumah, F. F. (2011). *Obstetri Fisiologi : Ilmu Kesehatan Reproduksi Edisi 2*. Jakarta : EGC