

THE RELATIONSHIP BETWEEN LOW BIRTH WEIGHT AND THE INCIDENCE OF ASPHYXIA AT KRAMAT JATI HOSPITAL YEAR 2023

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Abstract

Because the global infant mortality rate serves as a benchmark for a country's health, infant mortality remains a serious problem. Based on existing statistics, Africa has the highest incidence of newborn deaths, namely 39.6%, followed by Asia at 39.4%. to determine the relationship between low birth weight and the frequency of asphyxia at Kramat Jati District Hospital in 2023. This research is quantitative and uses case control methodology and correlation methods. The sample in this study consisted of 312 respondents, 156 of whom were LBW newborns and 156 of whom suffered from asphyxia. Kramat Jati Regional Hospital's medical record files were used as a research tool in this study. Univariate and bivariate data analysis was used. Research findings showed that 156 (or 50%) respondents were underweight at birth. 156 people, or 50% of the sample, reported suffering from asphyxia. With a p value of 0.003, the results of bivariate analysis show that there is a relationship between low body weight and the occurrence of hypoxia at Kramat Jati Regional Hospital. By further honing skills and abilities in providing client health services, nurses can prevent pregnancies with low birth weight babies by monitoring and providing prenatal care. They can also treat neonates and detect complications of pregnancy and childbirth early, because this is one of the factors that causes newborns to experience asphyxia.

Keywords: Low Birth Weight, Neonatal Asphyxia, Neonates

Introduction

Because the global infant mortality rate serves as a measure of a country's health, infant mortality is still a serious problem. UNICEF data for 2021 shows that Africa (around 39.6%) and Asia (39.4%) have the highest newborn mortality rates. The infant mortality rate in Indonesia ranks fifth out of ten countries in the Southeast Asian Region (Association of Southeast Asian Nations / ASEAN) when compared to other countries in the region. (Viva Budy Kusnandar, 2022).

The 2017 Indonesian Health Demographic Survey (IDHS) reported that 6.2% of births in Indonesia were low birth weight (BBLR). Based on the DKI Jakarta Health Profile (2018), the prevalence of BBLR infants in the Thousand Islands is 3.8%, Central Jakarta is 1.5%, and North Jakarta is 1.4%. Asphyxia is the second leading cause of death in Indonesia after babies with low birth weight (BBLR), which is 27% of newborn deaths. (2019, Aminah). Based on the findings of the initial examination through interviews with nurses, of the ten BBLR newborns, four of them suffered from asphyxia, and six did not. Thus, the relationship between low birth weight and the frequency of asphyxia at RSUD Kramat Jati in 2023 is a research project that interests researchers. to determine the relationship between low birth weight and the frequency of asphyxia at RSUD Kramat Jati in 2023.

Research Methods

Because researchers only observe and do not handle the things studied, this study is classified as quantitative observational research. Quantitative research using case control methodology is being conducted here. In case control, the dependent variable is measured first by the researcher. (Rinaldi and Bagya, 2017). In this study the independent variable was BBLR and the dependent variable was the incidence of asphyxia. The study population was 1,025 babies born at RSUD Kramat Jati between January and December 2023. The authors of this study collected samples using direct random sampling techniques or sampling techniques that do not have a certain systematics. (Rinaldi and Bagya, 2017).

Samples with odd sequence numbers are taken as part of the sampling process. Random techniques reduce the chances of improper sample selection. There are 256 cases of BBLR newborns in the world. 156 babies were included in the study based on the Slovin formula. The control was 209 newborns who had asphyxia in 2023, both low birth weight and non-birth weight. Since there had to be a one to one control sample in the study, 156 respondents became the control sample. 312 respondents became the sample size of the study, 156 of which were BBLR newborns, while the remaining 156 experienced asphyxia. The medical record file of Kramat Jati Hospital in 2023 is the research tool used. Editing, coding, entering data, and verifying that data has been entered correctly are stages of data processing. Univariate and bivariate data analysis was used in this study.

Result

Based on the findings of a 2023 study with a sample of 312 respondents entitled "The Relationship of Low Birth Weight with Asphyxia Events at Kramat Jati Hospital".

Table 5.1 Frequency Distribution of BBLR Events at RSUD Kramat Jati (n=312)

Kejadian BBLR	Frekuensi (n)	Presentase (%)
Tidak BBLR	156	50
BBLR	156	50
Total	312	100

(Source: Secondary Data 2023)

According to the results of univariate analysis, from 312 respondents, 156 (50%) respondents did not experience low birthweight and as many as 156 (50%) respondents experienced low birthweight. These results can be concluded that the number of respondents who experience low weight is the same as the number of respondents who do not experience low birthweight.

Table 5.2 Frequency distribution of Asphyxia events at RSUD Kramat Jati (n=312)

Kejadian BBLR	Kejadian asfiksia				Total	
	Tidak asfiksia		Asfiksia			
	N	%	N	%	N	%
BBLR	76	48,7	80	51,3	156	100
Total	76	48,7	80	51,3	156	100

(Source: Secondary Data 2023)

Based on the results of univariate analysis, it was obtained from 312 respondents, as many as 156 (50%) respondents did not experience asphyxia and as many as 156 (50%) respondents experienced

asphyxia. From the results of the study, it can be concluded that the number of respondents who experience asphyxia is the same as the number of respondents who do not experience asphyxia.

Table 5.3 Overview of BBLR events with asphyxia events

Kejadian BBLR	Kejadian asfiksia				Total		<i>P value</i>	OR	95% CI
	Tidak asfiksia		Asfiksia		N	%			
	N	%	N	%					
Tidak BBLR	80	51,3	76	48,7	156	100	0,003	1,1	(0,75-1,5)
BBLR	76	48,7	80	51,3	156	100			
Total	156	50	156	50	312	100			

(Source: Secondary Data 2023)

Based on Table 5.3 shows that of the 156 BBLR obtained 80 (51.3%) respondents experienced asphyxia, while those who experienced low weight and did not experience asphyxia as many as 76 (48.7%) respondents. These results can be concluded that the majority of respondents who experience low birth weight also experience asphyxia. Based on the results of research from 156 respondents, it showed that BBLR respondents who experienced asphyxia had the highest percentage (51.3%), compared to respondents who were not BBLR with asphyxia with a percentage (48.7%)

Table 5.4 The relationship between low birth weight and the incidence of asphyxia at Kramat Jati Hospital in 2023

Kejadian BBLR	Kejadian asfiksia				Total	
	Tidak asfiksia		Asfiksia			
	N	%	N	%	N	%
BBLR	76	48,7	80	51,3	156	100
Total	76	48,7	80	51,3	156	100

(Source: Statistical Data Processing Results, 2023)

Based on bivariate analysis shows that the p value is 0.003 (p value < 0.05), it can be concluded that there is a relationship between low birth weight and the incidence of asphyxia at Kramat Jati Hospital. With an OR value of 1.1 (CI 0.75-1.5), which means that babies born without low birth weight have a 1.1 times greater chance of not experiencing asphyxia compared to babies who experience low birth weight.

Discussion

Research conducted at RSUD Kramat Jati regarding the frequency distribution of low birth weight (BBLR) events showed that 156 (50%) respondents were BBLR babies, while 156 (50%) were not BBLR babies. Regardless of gestational age, a baby is considered low birth weight (BBLR) if he weighs less than 2500 grams at birth. In addition, BBLR babies have a greater chance of dying than babies with normal birth weight. Fitriyah and Hartiningrum, 2019).

This study is in line with Fitria's (2018) research which examined the relationship between the prevalence of newborn asphyxia at Lasinrang Hospital, Pinrang Regency and live birth weight babies (BBLR). Research findings show a considerable correlation between the prevalence of newborn

asphyxia at Lasinrang Hospital, Pinrang Regency and BBLR neonates. As researchers suspect, asphyxia may be affected by low birth weight. One of the things that affect the risk of asphyxiated babies is low birth weight. Due to immature organ function, low birth weight can affect the possibility of asphyxia. Based on research examining the frequency distribution of asphyxia events at RSUD Kramat Jati, it showed that infants who were not asphyxiated were 156 (50%) respondents, and those who experienced asphyxia as many as 156 (50%) respondents.

Asphyxia, according to the World Health Organization, is the inability of a newborn to breathe on its own regularly. A baby condition called perinatal asphyxia is characterized by metabolic acidosis, hypoxia, and hypercapnia. (Irwanto, 2017 in Coal & Fauziah, 2020). Asphyxia is a disorder in which newborns experience irregular and spontaneous respiratory failure soon after birth. This causes the baby to be unable to eliminate carbonic acid from the body, which can lower oxygen levels and increase carbon dioxide levels. (Khoiriah and Pratiwi, 2019).

Research on "The Relationship of BBLR with Asphyxia Events at Syekh Yusuf Hospital, Gowa Regency" has been conducted by Aulia et al. (2019). With significance figures (Sig: 0.000, <0.05), the findings of this study show a substantial correlation between low birth weight and the incidence of asphyxia. It can be concluded that in Syekh Yusuf Hospital there is a relationship between BBLR and the incidence of asphyxia. Asphyxia, according to researchers, is the inability of a newborn or infant soon after birth to initiate and maintain spontaneous and regular breathing. Based on the results of research on the relationship between low body weight and the incidence of asphyxia at RSUD Kramat Jati showed that of the 156 respondents born not low weight, the majority experienced asphyxia, namely 76 (48.7%) respondents, and 80 (51.3,7%) had no asphyxia. The data showed that of the 156 respondents who had low birth weight, 80 (51.3%) of them had asphyxia, while the remaining 76 (48.7%) did not have asphyxia. The results of bivariate analysis showed that there was a relationship between the incidence of hypoxia at Kramat Jati Hospital and low body weight, with a p value of 0.003 (p value < 0.05). With an odds ratio (OR) of 1.1 (0.75-1.5), respondents who were not born with low birth weight were 1.1 times more likely not to experience asphyxia.

Because BBLR organ systems are still developing, they are more susceptible to infections and simple problems such as stunted growth, blindness, hearing loss, and chronic lung disease. Low birth weight babies often develop asphyxia due to several short-term problems they face, such as hypothermia, fluid and electrolyte imbalance, hyperbilirubinemia, ductus arteriosus patent, bleeding infections, and respiratory disorders such as asphyxia because their lungs are not fully developed and therefore not strong enough to function. Due to a number of respiratory system declines, such as reduced number of functioning alveolus, lack of surfactant, reduced respiratory system lumen, increased possibility of collapse and obstruction of the respiratory tract, immature and easily damaged lung capillaries, and weak breathing. With muscles that often cause apnea, asphyxia, and respiratory distress syndrome, BBLR is more likely to have difficulty transitioning.

Conclusion

The relationship between low birth weight and the incidence of asphyxia at Kramat Jati Hospital in 2023 was examined using a sample of 312 respondents and medical record file data. The results showed that out of 156 BBLR, 80 (51.3%) respondents experienced asphyxia, while 76 (48.7%) respondents experienced low birth weight but did not experience asphyxia. Based on these findings, it can be said that most respondents who reported experiencing low birth weight also reported experiencing asphyxia. As per the hypothesis of academics, low birth weight may have an impact on asphyxia. Low birth weight is one of the factors that affect the risk of hypoxia in infants. Due to immature organ function, low birth weight can affect the possibility of asphyxia. The study's findings

included univariate and bivariate analyses. A p-value of 0.003 shows a relationship between low body weight and shortness of breath at RSUD Kramat Jati.

Suggestion

It is expected that health workers should further develop skills and capacity in providing health services to their customers, so health workers, especially nurses, will be able to diagnose as early as possible pregnancy and childbirth problems which are one of the predisposing factors to infant asphyxia. It is expected that they will be more vigilant during labor, nurses must be ready to provide breathing assistance (resuscitation) if needed when assisting labor.

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