MIKAILALSYS
Journal of Multidisciplinary Sciences

e-ISSN : 2987-2286
p-ISSN : 2987-3924

Index: Harvard, Boston, Sydney, Copernicus, Sinta 4, Scilit, Semantic, Google, etc

https://doi.org/10.58578/mikailalsys.v4i3.11779

The Relationship between Gestational Age, Birth Weight, and Mode of Delivery with the Incidence of Neonatal Jaundice at Bunda Hospital, Palembang City in 2026

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Article Info:

Submitted:	Revised:	Accepted:	Published:
Jul 3, 2026	Jul 31, 2026	Aug 12, 2026	Aug 17, 2026

Abstract

Neonatal jaundice is a common condition characterized by yellow discoloration of the skin, mucous membranes, and sclera resulting from elevated blood bilirubin levels and may cause complications if not appropriately managed. This study examined the relationships between gestational age, birth weight, mode of delivery, and neonatal jaundice at Bunda Hospital, Palembang City, in 2026. A quantitative cross-sectional design was employed using medical-record data from 93 neonates. Data were analyzed using univariate statistics and bivariate Chi-square tests at a significance level of $\alpha = .05$. Of the 93 neonates, 16 (17.2%) had neonatal jaundice, whereas 77 (82.8%) did not. Twenty-two neonates (23.7%) were born preterm, and 71 (76.3%) were born at term. Similarly, 22 neonates (23.7%) had low birth weight, while 71 (76.3%) had normal birth weight. Regarding mode of delivery, 37 neonates (39.8%) were recorded as having normal deliveries, and 56 (60.2%) were delivered by cesarean section. Bivariate analysis demonstrated significant associations between neonatal jaundice and gestational age ($p < .001$; OR = 32.741), birth weight ($p < .001$; OR = 60.375), and mode of delivery ($p = .014$; OR = 0.171). These findings

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indicate that gestational age, birth weight, and mode of delivery are significantly associated with neonatal jaundice among neonates treated at Bunda Hospital. The findings may support the early identification and closer clinical monitoring of neonates with characteristics associated with jaundice.

Keywords: Birth Weight; Gestational Age; Mode of Delivery; Neonatal Jaundice; Newborn Health

INTRODUCTION

Neonates are infants aged 0-28 days after birth and belong to a group that is highly vulnerable to health problems (Solihah, 2020). The neonatal period is the infant's initial adaptation phase to the extrauterine environment, marked by changes in respiratory, circulatory, metabolic, and immune function (Sulilahayati et al., 2022). Various health problems can occur during this period, such as asphyxia, infection, hypothermia, low birth weight, and neonatal jaundice. These conditions remain a cause of rising newborn morbidity and mortality in many developing countries, including Indonesia (Idayanti et al., 2022).

Neonatal jaundice is a clinical condition in newborns characterized by a yellowish discoloration of the skin, mucous membranes, and ocular sclera due to an increase in blood bilirubin levels (Edward et al., 2022; Nur, 2023). This condition generally appears between the second and seventh day after birth. Neonatal jaundice may be physiological or pathological, depending on the bilirubin level, the timing of symptom onset, and the infant's condition (Armatheina et al., 2023). Increasing bilirubin that is not promptly treated can cause serious complications such as kernicterus and permanent neurological damage. Neonatal jaundice is frequently found in premature infants and in infants with impaired metabolic adaptation after birth (Badiatur et al., 2024).

According to World Health Organization (WHO) data, in 2023 there were 1,937 cases of neonatal jaundice out of 7,845 total births. In 2024, 2,115 cases of neonatal jaundice were found out of 8,173 births, while in 2025, 2,389 cases were recorded out of 8,529 births (WHO, 2025). These data indicate a yearly increase in the incidence of neonatal jaundice among neonates (Anggraini & Ernawati, 2026).

According to data from the Ministry of Health of the Republic of Indonesia, in 2023 there were 1,483 cases of neonatal jaundice out of 6,517 total births. In 2024, 1,726 cases

were found out of 6,931 births (KEMENKES, 2024). This increase shows that neonatal jaundice remains common among newborns in Indonesia.

According to data from the South Sumatra Provincial Health Office, in 2023 there were 691 cases of neonatal jaundice out of 3,275 total births. In 2024, 748 cases were found out of 3,489 births, while in 2025, 829 cases were recorded out of 3,731 births (SUMSEL, 2024). This shows that neonatal jaundice remains a newborn health problem in the South Sumatra region.

According to medical record data from Bunda Hospital, Palembang, the number of births and cases of neonatal jaundice is still found every year. In 2023, there were 1,245 births with 8 cases of neonatal jaundice. In 2024, there were 1,185 births with 10 cases of neonatal jaundice. In 2025, the number of births increased to 1,361 infants with 16 cases of neonatal jaundice.

Neonatal jaundice that is not properly managed can cause various adverse effects on infants. Continuously rising bilirubin levels risk bilirubin entering brain tissue and causing acute bilirubin encephalopathy (Y. M. Nur et al., 2021). This condition can progress to kernicterus, characterized by hearing impairment, paralysis, developmental delay, and even death (Hasan et al., 2024). Infants with severe jaundice also require intensive care, such as phototherapy or exchange transfusion, which can prolong hospital stay. Another impact is increased family anxiety regarding the newborn's health condition (Pambudiningtyas et al., 2024).

The causes of neonatal jaundice consist of internal and external factors. Internal factors include gestational age, infant birth weight, immature liver function, blood group incompatibility, infection, and metabolic disorders (Zubaida et al., 2024). External factors may include insufficient breastfeeding frequency, delayed early breastfeeding initiation, mode of delivery, and suboptimal monitoring of neonatal health after delivery. These factors can increase bilirubin production or hinder the process of bilirubin excretion from the infant's body (Pratiwi et al., 2024; Yunita & Yunika, 2025).

Gestational age is one of the factors associated with the incidence of neonatal jaundice. Infants born prematurely have livers that are not yet fully developed, so the bilirubin conjugation process proceeds more slowly compared to term infants (Suantari et al., 2022). Immature liver function causes indirect bilirubin to rise more easily in the blood

circulation. Premature infants also have suboptimal sucking ability, resulting in reduced fluid intake and hindered bilirubin excretion through feces (Rosuliana et al., 2022).

A study conducted by Julianti (2023) titled "The Relationship Between Gestational Age and the Incidence of Neonatal Jaundice" showed a p-value of 0.000 < 0.05, indicating a significant relationship between gestational age and the incidence of neonatal jaundice. Another study by (Ratnasari & Handayani, 2023) titled "The Relationship Between Gestational Age and the Incidence of Neonatal Jaundice" also showed a p-value of 0.000 ($p<0.05$), indicating a relationship between gestational age and the incidence of neonatal jaundice.

Infant birth weight is also one of the factors that can influence the occurrence of neonatal jaundice. Infants with inappropriate birth weight tend to have suboptimal organ function, particularly liver function in metabolizing bilirubin. The breakdown of red blood cells in neonates occurs faster than in adults, producing higher amounts of bilirubin (Yuliawati & Astutik, 2018). This condition worsens further if the infant has low birth weight or experiences impaired adaptation after delivery. An unstable metabolic state causes bilirubin to accumulate more easily in the blood, resulting in signs of jaundice in newborns (Fitri, 2025).

A study conducted by Sari et al. (2025) titled "The Relationship Between Infant Birth Weight and Gestational Age with the Incidence of Neonatal Jaundice in Infants at RSUD H. Boejasin Pelaihari" showed a p-value of 0.000 < 0.05, indicating that birth weight was significantly associated with the incidence of neonatal jaundice. Another study by Dewi et al. (2026) titled "The Relationship Between Low Birth Weight (LBW) and the Incidence of Neonatal Jaundice at the Regional Hospital of West Nusa Tenggara Province" showed a p-value <0.001 with an OR of 3.59.

Mode of delivery is another factor that can influence the incidence of neonatal jaundice in newborns. Assisted deliveries such as cesarean section, vacuum extraction, and forceps extraction carry a higher risk of causing neonatal jaundice compared to vaginal delivery. In assisted deliveries, infants are at greater risk of birth trauma and delayed early breastfeeding, so the process of bilirubin metabolism and excretion becomes less optimal. This condition can increase blood bilirubin levels in newborns (Manila et al., 2022).

A study conducted by Diyanti et al. (2024) titled "Correlation Between Mode of Delivery and Neonatal Jaundice at RSUD dr. H. Moch. Ansari Saleh Banjarmasin" showed

a p-value of 0.000, indicating a significant relationship between mode of delivery and the incidence of neonatal jaundice. Another study by Khansha & Herwana (2025) titled "The Relationship Between Mode of Delivery and the Incidence of Neonatal Hyperbilirubinemia" showed a p-value of 0.522 ($p > 0.05$), indicating no significant relationship between mode of delivery and the incidence of neonatal hyperbilirubinemia.

A preliminary study conducted at the research site showed that newborns with signs of neonatal jaundice were still found during neonatal care. Interviews with healthcare workers indicated that most infants who experienced jaundice had a history of preterm gestational age, abnormal birth weight, and certain modes of delivery, such as cesarean section. This shows that gestational age, infant birth weight, and mode of delivery remain issues that need attention in neonatal health services.

This study offers novelty located in the research context and the integration of specifically tested variables in a location experiencing an upward trend in cases. The contextual novelty is demonstrated through the research locus at Bunda Hospital Palembang, where medical record data shows a consistent annual increase in neonatal jaundice cases, from 8 cases in 2023 to 16 cases in 2025. In terms of variables and the analytical model, this study provides a scholarly contribution by examining three main independent variables (gestational age, birth weight, and mode of delivery) both simultaneously and partially. This is important considering that certain variables, such as the mode of delivery, still show contradictory results (a research gap) in previous studies. This study employs an observational analytic framework with a cross-sectional design. The main theoretical foundation used rests on the concept of the physiological adaptation of newborns, where internal factors (liver function immaturity in premature and LBW infants) and external factors (birth trauma and delayed early initiation of breastfeeding in operative deliveries) become the pathophysiological foundation for bilirubin accumulation in the blood.

Concluding this introduction, the research is focused on evaluating the internal maternal-neonatal determinants and external clinical factors that most contribute to the problem of neonatal jaundice. In line with the urgency of the issue and the identified research gap, the objective of this study is to investigate and determine the simultaneous relationship between gestational age, baby's birth weight, and mode of delivery with the incidence of neonatal jaundice at Bunda Hospital, Palembang City, in 2026. Directionally, this study also aims to analyze the partial relationship of each of these variables to the incidence of neonatal

jaundice in order to identify which individual risk factors are the most crucial. Fulfilling these research objectives is expected to provide a practical foundation for health workers in optimizing the early detection and management of newborns, so that the risk of hyperbilirubinemia complications can be effectively prevented. Based on the foregoing, the authors were interested in conducting a study titled "The Relationship Between Gestational Age, Birth Weight, and Mode of Delivery with the Incidence of Neonatal Jaundice at Bunda Hospital, Palembang City, in 2026."

METHODS

This study is a quantitative study using an observational analytic approach to determine the relationship between gestational age, birth weight, and mode of delivery with the incidence of neonatal jaundice, without intervention (Anggreni, 2022). The design used was cross-sectional, in which all variables were collected at the same point in time.

This study was conducted from May to July 2026. The research location was Bunda Hospital, Palembang City.

The population in this study consisted of all newborns at Bunda Hospital, Palembang City, in 2025, totaling 1,361 infants. The sample in this study consisted of 93 respondents selected using inclusion and exclusion criteria (Creswell, 2016). The inclusion criteria included infants born and recorded at Bunda Hospital, Palembang, in 2025, who had complete data on gestational age, birth weight, and neonatal jaundice incidence, and who were treated in the perinatology or neonatal ward of Bunda Hospital, Palembang. The exclusion criteria were infants whose medical record data were incomplete or illegible, and infants recorded as referred to another hospital such that the research data were incomplete.

The data collection technique used was secondary data obtained from patient medical records at Bunda Hospital, Palembang, covering gestational age, birth weight, mode of delivery, and neonatal jaundice incidence. Data were obtained with permission from relevant parties because they are accurate and used to support the needs of the research. Data collection was carried out by recording the required information from medical record documents according to the predetermined research variables. Data processing in this study was carried out through several stages, namely editing, coding, data entry, cleaning, and tabulating (Nazir, 2009).

The data analysis technique used in this study consisted of univariate and bivariate analysis. Univariate analysis was conducted to determine the frequency distribution of each research variable, namely gestational age, birth weight, mode of delivery, and the incidence of neonatal jaundice. Data are presented in the form of frequency distribution and percentage tables to describe the characteristics of each research variable. Bivariate analysis, meanwhile, was conducted to determine the relationship between two variables, namely the independent and dependent variables (Sugiono, 2024).

Bivariate analysis in this study was used to test the relationship between gestational age, infant birth weight, and mode of delivery with the incidence of neonatal jaundice. The statistical test used was the Chi-Square (χ^2) test, because the variables used in this study were categorical in scale. This test aims to determine whether or not there is a significant relationship between these variables. The confidence level used in this study was 95%, with a significance value (α) of 0.05. A decision was made such that if the p-value ≤ 0.05, there is a significant relationship between the independent and dependent variables, and if the p-value > 0.05, there is no significant relationship between the independent and dependent variables (Anggraini et al., 2019; Sugiono, 2024).

RESULTS

Univariate Analysis

This analysis aims to determine the frequency distribution and percentage of the independent variables (gestational age, birth weight, and mode of delivery) and the dependent variable (neonatal jaundice).

Dependent Variable (Neonatal Jaundice)

In this study, the incidence of jaundice was classified into two categories: jaundice, if bilirubin level > 12 mg/dL, and no jaundice, if bilirubin level < 12 mg/dL. Details are shown in Table 1 below.

Table 1. Frequency Distribution and Percentage Based on the Incidence of Neonatal Jaundice at Bunda Hospital, Palembang City, 2026

Incidence of Jaundice	Frequency (f)	Percentage (%)
Jaundice	16	17.2
No Jaundice	77	82.8
Total	93	100

Based on Table 1, of the 93 respondents, 16 infants (17.2%) experienced jaundice and 77 infants (82.8%) did not experience jaundice.

Independent Variable (Gestational Age)

In this study, gestational age was classified into two categories: preterm, if the infant was born at a gestational age of less than 37 weeks (<37 weeks), and term, if the infant was born at a gestational age of 37–42 weeks. This classification was used to determine the distribution of gestational age among the study respondents. Details are shown in Table 2 below.

Table 2. Frequency Distribution and Percentage Based on Gestational Age at Bunda Hospital, Palembang City, 2026

Gestational Age	Frequency (f)	Percentage (%)
Preterm	22	23.7
Term	71	76.3
Total	93	100

Based on Table 2, of the 93 respondents, 22 infants (23.7%) were born preterm, and 71 infants (76.3%) were born at term.

Independent Variable (Birth Weight)

In this study, birth weight was classified into two categories: LBW (Low Birth Weight), if birth weight was less than 2,500 grams (<2,500 g), and normal, if birth weight was equal to or greater than 2,500 grams (≥2,500 g). This classification was used to determine the distribution of birth weight among the study respondents. Details are shown in Table 3 below.

Table 3. Frequency Distribution and Percentage Based on Birth Weight at Bunda Hospital, Palembang City, 2026

Birth Weight	Frequency (f)	Percentage (%)
LBW	22	23.7
Normal	71	76.3
Total	93	100

Based on Table 3, of the 93 respondents, 22 infants (23.7%) had low birth weight (LBW), and 71 infants (76.3%) had normal birth weight.

Independent Variable (Mode of Delivery)

In this study, mode of delivery was classified into two categories: normal, if delivery was performed vaginally without surgical intervention, and cesarean section (CS), if delivery was performed surgically. This classification was used to determine the distribution of mode of delivery among the study respondents. Details are shown in Table 4 below.

Table 4. Frequency Distribution and Percentage Based on Mode of Delivery at Bunda Hospital, Palembang City, 2026

Mode of Delivery	Frequency (f)	Percentage (%)
Normal	37	39.8
Cesarean Section	56	60.2
Total	93	100

Based on Table 4, of the 93 respondents, 37 infants (39.8%) were born by normal delivery, and 56 infants (60.2%) were born by cesarean section (CS).

Bivariate Analysis

Bivariate analysis was used to test the relationship between gestational age, birth weight, and mode of delivery with the incidence of neonatal jaundice. The statistical test used was the Chi-Square test (χ^2), because the variables used in this study are categorical in scale. This test aims to determine whether or not there is a significant relationship between the variables. The confidence level used in this study was 95% with a significance value (α) of 0.05.

Relationship Between Gestational Age and the Incidence of Neonatal Jaundice

Bivariate analysis was conducted to determine the relationship between the variable of gestational age and the incidence of neonatal jaundice. The results of the cross-tabulation between gestational age categories (preterm and term) among the 93 infant respondents at Bunda Hospital Palembang in 2026 can be seen in the following table 5. Below:

Table 5. Relationship Between Gestational Age and the Incidence of Neonatal Jaundice at Bunda Hospital, Palembang City, 2026

Gestational Age	Jaundice n	%	No Jaundice n	%	Total n	%	p-value	OR
E	13	14	9	9.7	22	23.7	0.000	32.741
Term	3	3.2	68	73.1	71	76.3		
Total	16		77		93	100		

Based on Table 5, of the 93 respondents, among 22 infants with preterm gestational age, 13 infants (14%) experienced jaundice and 9 infants (9.7%) did not, while among infants with term gestational age, 3 infants (3.2%) experienced jaundice and 68 infants (73.1%) did not. The Chi-Square test result showed a p-value = 0.000 (<0.05), so it can be concluded that there is a significant relationship between gestational age and the incidence of jaundice. The Odds Ratio (OR) value of 32.741 indicates that infants born with preterm gestational age have a 32.741 times greater risk of experiencing jaundice compared to infants born at term.

Relationship Between Birth Weight and the Incidence of Neonatal Jaundice

Bivariate analysis was conducted to determine the relationship between the variable of birth weight and the incidence of neonatal jaundice. The results of the cross-tabulation between birth weight categories (LBW and normal) among the 93 infant respondents at Bunda Hospital Palembang in 2026 can be seen in the following table 6. below:

Table 6. Relationship Between Birth Weight and the Incidence of Neonatal Jaundice at Bunda Hospital, Palembang City, 2026

Birth Weight	Jaundice n	%	No Jaundice n	%	Total n	%	p-value	OR
LBW	14	15.1	8	8.6	22	17.2	0.000	60.375
Normal	2	2.2	69	74.2	77	82.8		
Total	16		77		93	100		

Based on Table 6, of the 93 respondents, among 22 infants with low birth weight (LBW), 14 infants (15.1%) experienced jaundice and 8 infants (8.6%) did not, while among infants with normal birth weight, 2 infants (2.2%) experienced jaundice and 69 infants (74.2%) did not. The Chi-Square test result showed a p-value = 0.000 (<0.05), so it can be concluded that there is a significant relationship between birth weight and the incidence of jaundice. The Odds Ratio (OR) value of 60.375 indicates that infants with low birth weight (LBW) have a 60.375 times greater risk of experiencing jaundice compared to infants with normal birth weight.

Relationship Between Mode of Delivery and the Incidence of Neonatal Jaundice

Bivariate analysis was conducted to determine the relationship between the variable of mode of delivery and the incidence of neonatal jaundice. The results of the cross-tabulation between the mode of delivery categories (normal and cesarean section) among the

93 infant respondents at Bunda Hospital Palembang in 2026 can be seen in the following table 7. Below:

Table 7. Relationship Between Mode of Delivery and the Incidence of Neonatal Jaundice at Bunda Hospital, Palembang City, 2026

Mode of Delivery	Jaundice n	%	No Jaundice n	%	Total n	%	p-value	OR
Normal	2	2.2	35	37.6	37	39.8	0.014	0.171
Cesarean Section	14	15.1	42	45.2	56	60.2		
Total	16		77		93	100		

Based on Table 7, of the 93 respondents, among 37 infants born by normal delivery, 2 infants (2.2%) experienced jaundice and 35 infants (37.6%) did not, while among infants born by cesarean section (CS), 14 infants (15.1%) experienced jaundice and 42 infants (45.2%) did not. The Chi-Square test result showed a p-value = 0.014 (<0.05), so it can be concluded that there is a significant relationship between mode of delivery and the incidence of jaundice. The Odds Ratio (OR) value of 0.171 indicates that infants born by cesarean section have a 0.171 times risk of experiencing jaundice compared to infants born by normal delivery.

DISCUSSION

The findings of this study indicate that the variable of neonatal jaundice incidence was grouped into two categories, namely jaundice if the bilirubin level is >12 mg/dL and no jaundice if the bilirubin level is <12 mg/dL. The univariate analysis results showed that 16 babies (17.2%) experienced jaundice, and 77 babies (82.8%) did not experience jaundice. The findings of this study also state that babies born prematurely have a higher risk of experiencing jaundice because their liver function has not developed optimally, so the process of bilirubin metabolism and excretion does not run well. Furthermore, the breakdown of red blood cells in premature babies occurs faster, making it easier for bilirubin levels in the blood to increase.

These findings are in line with a study conducted by Sari et al., (2025) entitled "The Relationship Between Baby Weight and Gestational Age with the Incidence of Neonatal Jaundice in Babies at RSUD H. Boejasin Pelaihari", which showed that there is a relationship between baby weight and the incidence of neonatal jaundice with a p-value of 0.000 (<0.05). These findings are also consistent with research by Dewi et al. (2026) entitled "The

Relationship Between Low Birth Weight (LBW) and the Incidence of Neonatal Jaundice at RSUD Province of West Nusa Tenggara", which showed a significant relationship between LBW and the incidence of neonatal jaundice with a p-value of < 0.001 and an odds ratio of 3.59, indicating that babies with LBW have a higher risk of experiencing neonatal jaundice.

These findings are in line with a study Julianti (2023) entitled "The Relationship Between Gestational Age and the Incidence of Neonatal Jaundice", which showed a relationship between gestational age and the incidence of neonatal jaundice with a p-value of 0.000 (<0.05). Furthermore, these findings are also in line with research by Ratnasari & Handayani (2023) entitled "The Relationship of Gestational Age to the Incidence of Neonatal Jaundice", which also found that neonatal jaundice occurs more frequently in babies with premature gestational age compared to full-term babies with a p-value of 0.000 (<0.05), concluding that there is a significant relationship between gestational age and the incidence of neonatal jaundice.

The final finding of this study states that babies born via cesarean section have a higher risk of experiencing jaundice because the postnatal adaptation process and breastfeeding provision do not occur as quickly as in normal deliveries. Therefore, support from health workers is needed in implementing early initiation of breastfeeding and monitoring bilirubin levels in babies born via cesarean section to prevent complications caused by neonatal jaundice.

These findings are in line with research conducted by Diyanti et al. (2024) entitled "Correlation of Mode of Delivery with Neonatal Jaundice at RSUD dr. H. Moch. Ansari Saleh Banjarmasin", which showed Chi-square test results with a p-value of 0.000 (<0.05), meaning there is a significant relationship between the mode of delivery and the incidence of neonatal jaundice. In interventional deliveries, the incidence of jaundice was found to be 44.7%, whereas in vaginal deliveries it was 31.8%. These findings are also in line with research conducted by Khansha & Herwana (2025) entitled "The Relationship Between Mode of Delivery and the Incidence of Neonatal Hyperbilirubinemia", which showed analysis results with a p-value of 0.522 (p > 0.05), meaning there is no significant relationship between the mode of delivery and the incidence of neonatal hyperbilirubinemia. Nevertheless, the study indicated that the majority of babies who experienced hyperbilirubinemia were born via cesarean section.

The findings contribute to the development of the theoretical concept of neonatal physiological adaptation within the context of newborn health and hyperbilirubinemia. Practically, the results may serve as a basis for healthcare practitioners and the management of Bunda Hospital Palembang in designing optimal early detection protocols and targeted monitoring strategies that are relevant to highly vulnerable newborns, particularly those with a history of premature gestational age, low birth weight (LBW), and cesarean section delivery. Furthermore, these evidence-based findings can assist health workers in providing better education to parents regarding the risk factors of neonatal jaundice.

This study is limited by its cross-sectional design, reliance on secondary medical record data, and restricted geographical coverage focusing solely on a single institution (Bunda Hospital Palembang) with a sample of 93 respondents. Furthermore, utilizing secondary data means the study is bound by the availability and completeness of the hospital's medical records. These limitations may affect the generalizability of the findings to a broader population or different types of healthcare facilities. Future studies are encouraged to expand the sample across multiple hospitals to increase generalizability, apply a longitudinal design to better observe the onset and progression of jaundice, or integrate qualitative methods to explore external factors such as maternal breastfeeding frequency and early initiation of breastfeeding to obtain a more comprehensive understanding of neonatal jaundice determinants.

CONCLUSION

Based on the analysis conducted at Bunda Hospital, Palembang City, in 2026, there is an overall significant relationship between gestational age, birth weight, and mode of delivery with the incidence of neonatal jaundice. More specifically, the Chi-Square test showed a significant relationship between gestational age and the incidence of neonatal jaundice, with a p-value = 0.000 (<0.05). In addition, the analysis also demonstrated a significant relationship between infant birth weight and the incidence of neonatal jaundice, indicated by a p-value = 0.000 (<0.05). A similar finding was confirmed for the mode of delivery variable, where the statistical test showed a p-value = 0.014 (<0.05), so it can be concluded that these three factors play an important role in the incidence of neonatal jaundice at the hospital.

This study provides empirical evidence that contributes to the theoretical understanding of neonatal physiological adaptation, specifically reinforcing the concept that liver immaturity (associated with premature gestational age and low birth weight) and postnatal adaptation challenges (associated with cesarean deliveries) are significant determinants of neonatal jaundice. Practically, the findings contribute localized, evidence-based insights relevant to the field of maternal and child health management, particularly for Bunda Hospital Palembang. By demonstrating the exceptionally high risk associated with low birth weight (OR=60.375) and premature birth (OR=32.741), this research serves as a concrete basis for healthcare practitioners to design and implement targeted early detection protocols and more rigorous clinical monitoring specifically tailored for highly vulnerable neonates during the immediate postpartum period.

Based on the methodological limitations of relying on cross-sectional secondary medical record data from a single institution, several recommendations are proposed to advance scholarly inquiry. Future studies are encouraged to expand the research population to a multi-center context involving various types of healthcare facilities, which would significantly enhance the generalizability of the findings. Methodologically, future research should consider employing a prospective longitudinal design to dynamically track the progression of bilirubin levels from birth, providing a clearer understanding of the onset and duration of jaundice. Furthermore, subsequent studies should integrate primary data collection methods to test and analyze additional relevant external variables not captured in this study such as maternal nutritional status, the exact timing of early breastfeeding initiation, and daily breastfeeding frequency to obtain a more comprehensive and holistic analytical model of neonatal jaundice determinants.

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