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The Relationship Between Postpartum Mothers' Knowledge About Jaundice and the Incidence of Neonatal Jaundice in Mrs. T's Midwifery Practice, Karangtengah District, Cianjur Regency, Indonesia

Suci Saftari Apriani*, Tri Handayani and Winda R Anisa

Midwifery Study Program, Sekolah Tinggi Ilmu Kesehatan Cianjur, Cianjur 43215, Indonesia

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***Correspondence:**
Suci Saftari Apriani
Address: STIKes Cianjur Jl. KH Abdullah Bin Nuh No 103, Cianjur 43215, Indonesia.
Email: sucishyddiq@gmail.com

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ABSTRACT

Background: Neonatal jaundice is a condition that appears on the second and third days of life without any pathological cause, resulting from the rapid breakdown of red blood cells, while some newborns' organs are not yet fully functional in processing bilirubin. After a few days, the liver matures, allowing the bilirubin elimination process to proceed effectively. This research aims to explore the correlation between postpartum mothers' understanding of jaundice and the prevalence of neonatal jaundice at Mrs. T Midwife's Practic in the Karangtengah District of Cianjur Regency in 2024. **Methods:** The methodology employed in this research is a quantitative approach utilizing analytical survey methods with a cross-sectional design. The total sample for this study consists of 30 individuals, selected through total sampling. The research tools implemented include questionnaire forms and observation sheets that were validated for reliability, as developed by researcher Dina Yuliarti in 2020. The analysis conducted was both univariate and bivariate. **Results:** Study findings revealing that a significant number of respondents, totaling 19 people (63.3%), possessed adequate knowledge regarding jaundice, while the majority of respondents who had babies without jaundice numbered 20 (66.7%). Among the mothers with sufficient knowledge, 15 individuals (78.9%) had babies who did not exhibit jaundice. **Conclusion:** A significant relationship was found between maternal knowledge of jaundice and the occurrence of jaundice in newborns, with a p-value of 0.034, which is less than 0.05.

Keywords: Knowledge; postpartum mothers; incidence; neonatal jaundice

1. INTRODUCTION

According to World Health Organization (WHO) statistics from 2017, the global Infant Mortality Rate (IMR) was 59 per 1,000 live births. Meanwhile, the Indonesia Health Profile from 2018 reported a reduction in IMR in Indonesia to 25.23 per 1,000 live births, indicating that it is close to achieving the 2017 MDGs target of 25 per 1,000 live births. Despite this decrease from the previous year, the figure remains relatively high. The effects of jaundice are particularly significant in developing nations, notably in South Asia and sub-Saharan Africa, with South Asia alone accounting for 39% of hyperbilirubinemia cases.[1] In Indonesia, the Infant Mortality Rate, as reported by the 2017 Indonesia Survey

Data (SDKI), stands at 24 per 1,000 live births. The leading causes of neonatal mortality include asphyxia (37%), low birth weight and prematurity (34%), sepsis (12%), hypothermia (7%), neonatal jaundice (6%), post-maturity (3%), and congenital abnormalities, which contribute 1% to 1,000 live births.[2] In Indonesia, 85% of healthy newborns have bilirubin levels of ≥ 5 mg/dL, and 23.8% have levels ≥ 13 mg/dL. Jaundice is characterized by a yellowing of the skin and mucous membranes due to an accumulation of bilirubin. Jaundice becomes noticeable when serum bilirubin levels reach ≥ 5 mg/dL.[3]

Jaundice is a major factor in infant morbidity in Indonesia, leading to issues such as weakness, reduced willingness to feed, increased muscle tone, neck stiffness, muscle spasms, seizures, sensory disturbances, cognitive issues, disabilities, and even fatalities. According to the Central Statistics Agency, over the last 50 years, the Infant Mortality Rate in West Java has decreased by 90 percent. The AKB has notably reduced from 26 per 1,000 live births to 13.56 per 1,000 live births in the past decade, which is lower than the national AKB average.[4]

The Infant Mortality Rate (IMR) is determined by the number of infant deaths occurring before the age of one year for every 1,000 live births. In 2020, the AKB for Cianjur Regency was recorded at 5.44 per 1,000 live births, showing an increase from the 2019 figure of 3.6 per 1,000 live births.[5]

Jaundice is a clinical condition frequently observed in newborns, resulting from elevated erythrocyte levels, a shorter lifespan of erythrocytes, and immature liver function. Perinatal deaths during the first week are often linked to complications arising from pregnancy and childbirth, with neonatal jaundice being responsible for 73% of worldwide newborn fatalities due to excessive bilirubin production.[6]

Newborns can experience hyperbilirubinemia, affecting 25-50% of full-term infants, with higher incidences in preterm babies. Maternal factors, such as the frequency of breastfeeding and delays in initiating breastfeeding, contribute to excess bilirubin in neonates who miss out on colostrum, causing jaundice shortly after birth. Additionally, infants who receive breast milk may have elevated bilirubin levels due to insufficient milk intake, exacerbated by dehydration and low calorie consumption. Knowledge is information obtained through experience or learning. Knowledge will arise when a person uses his ability to recognize certain objects or events, there are several factors that affect knowledge including education, sources of information, socio-cultural and economic, environment, experience and the age of the individual.[7]

The puerperium period is the postpartum period that starts from 2 hours after the birth of the placenta until it ends when the uterus returns to its original state before pregnancy, which lasts for 6 weeks or ± 42 days. A certain starting time after giving birth to a child, in Latin is called puerperium. Etymologically, pure means baby and parous means giving birth.[8]

Physiological jaundice is jaundice that occurs on the second and third days that have no pathological basis, the level does not exceed dangerous levels or has the potential to become a jaundice and does not cause a morbidity in the baby and will disappear on the 10th day.[9]

Physiological jaundice occurs due to an immature liver in infants or the rapid breakdown of red blood cells; some newborns' organs are not yet functioning optimally to excrete bilirubin. The liver matures over a few days, allowing for effective bilirubin elimination. The timing of this "maturation" can vary among infants, but typically by the seventh day, liver function improves. This situation arises because neonates have a higher number of erythrocytes with a shorter lifespan. Many newborns fall into the small baby category (birth weight <2500 grams or gestational age <37 weeks).[10]

To manage jaundice at home, mothers are encouraged to provide ample breast milk, around 8-12 times daily, and expose their babies to sunlight, as this helps to degrade bilirubin, making it easier for the liver to handle. This can be done by placing the baby near an open window to receive sunlight between 7-8 am, ensuring the baby's face is not directly facing the sun. The recommended exposure is for 30 minutes, with 15 minutes on the back and 15 minutes on the stomach. If jaundice persists for over 3 weeks, it's essential to seek immediate medical attention.[11]

A study conducted by Dewi et al. in 2023, indicates a link between postpartum mothers' understanding of jaundice and the occurrence of neonatal jaundice.[12] The findings suggest that most postpartum mothers possess adequate knowledge about jaundice, although there is a general lack of information regarding the condition or its management. The study also reports that the majority of respondents, 20 individuals, did not experience jaundice, while 10

did. Jaundice generally appears on the second or third day without any pathological concerns, with levels not exceeding what would be considered dangerous, and it does not lead to morbidity in the infant, typically resolving by the tenth day.

With this background in mind, the author decided to undertake a final project report titled "The Relationship of Postpartum Mother's Knowledge About Jaundice with the Incidence of Neonatal Jaundice in Mrs. T Midwife's Practice, Karangtengah District, Cianjur Regency, Indonesia."

2. METHODS

2.1 Study Design

This study employed a quantitative research design to investigate the underlying causes of specific health issues and analyze the relationship between risk factors (factors that influence an outcome) and effect factors (factors influenced by risk factors).

2.2 Data Collection

The research data consisted of primary data obtained directly from field research using research instruments, specifically questionnaires (Sugiyono, 2019). The research process was divided into two main stages: preparation and implementation. In the preparation stage, the research problem was identified, followed by determining the report title, selecting the study location, preparing the research proposal, seeking guidance, and conducting a proposal seminar.

In the implementation stage, a research permit was obtained, and informed consent was secured from respondents before data collection. The study involved observing respondents and gathering data through direct observation, after which data analysis was performed to draw conclusions. This study was conducted following ethical approval, as confirmed by the ethical clearance letter from the Cianjur Health Sciences College (No. 380/KEP-STIKES/V/2024).

The research instruments used for data collection included questionnaire sheets and observation sheets. A structured questionnaire was designed to assess maternal knowledge of jaundice, using a closed-ended format where respondents answered "YES" or "NO" to specific statements. The study population comprised 30 postpartum mothers at Mrs. T's Midwife Practice in Karangtengah District, Cianjur Regency, as of June 2024.[13] A total sampling method was employed, meaning the entire population was included as the sample, consisting of all 30 postpartum mothers from the same midwife practice in 2024.

3. RESULTS

3.1 Overview of Postpartum Mother's Knowledge of Neonatal Jaundice

Based on the category of knowledge of postpartum mothers from the results of the analysis, it was found that most of the respondents had sufficient knowledge about jaundice as many as 19 people (63.3%) and a small part of the respondents who had insufficient knowledge about jaundice as many as 9 people (30.0%).

Table 1. Frequency distribution of postpartum mothers' knowledge about jaundice and the occurrence of neonatal jaundice in Mrs. T Midwife's Practic, Karangtengah, Cianjur

Knowledge	Frequency	%
Good	2	6.7
Sufficient	19	63.3
Insufficient	9	30.0
Total	30	100

3.2 Overview of the Incidence of Neonatorum Jaundice

Based on the results of the analysis found that most of the respondents who did not experience jaundice were 20 babies (66.7%) and a small part of the respondents who had jaundice as many as 10 babies (33.3%). According to (Risa, 2016) Jaundice occurs when there is an accumulation of bilirubin in the blood, so that the skin (especially) and or the baby's sclera (neonate) appear yellowish. In most cases. neonates, jaundice will be found in the first week of life. It was stated that the incidence of jaundice was found in 60% of curly infants and 30% of premature infants.

Table 2. Frequency distribution of neonatal jaundice in Mrs. T Midwife's Practic Karangtengah District, Cianjur Regency

Jaundice	Frequency	%
Had jaundice	10	33.3
Did not experience jaundice	20	66.7
Total	30	100

3.3 Correlation of Postpartum Mothers' Knowledge of Jaundice with the Incidence of Neonatorum Jaundice

Based on the results from Table 3, the analysis of the relationship between maternal knowledge and the incidence of jaundice, it was found that there were 2 mothers who had good knowledge and babies did not experience jaundice, namely 2 people (100%), mothers who had sufficient knowledge and babies experienced jaundice as many as 4 people (21.1%), mothers who had enough knowledge and babies did not experience jaundice, which was as many as 15 people (78.9%), then mothers who have less knowledge and babies who have jaundice are 6 people (66.7%), then mothers who have less knowledge but their babies do not have jaundice, there are 3 people (33.3%).

The results of the chi square test showed a meaningful relationship with the value of p = 0.034 < 0.05. Thus, Ho was rejected, which means that there is a relationship between postpartum mothers' knowledge of jaundice and the incidence of neonatal jaundice at Mrs. T Midwife's Practic, Karangtengah District, Cianjur Regency Indonesia.

Table 3. Correlation of Postpartum Mothers' Knowledge of Jaundice with the Incidence of Neonatorum Jaundice

Increased knowledge	Jaundice incidence						p-value
	Jaundice		No jaundice		Total		
	N	%	N	%	n	%	
Good	0	0.0	2	100	2	100	0.034
Enough	4	21.1	15	78.9	19	100	
Less	6	66.7	3	33.3	9	100	
Total	10	33.3	20	66.7	30	100	

4. DISCUSSION

Based on the category of knowledge of postpartum mothers from the results of the analysis, it was found that most of the respondents had sufficient knowledge about jaundice as many as 19 people (63.3%) and a small part of the respondents who had insufficient knowledge about jaundice as many as 9 people (30.0%).

Knowledge is information obtained through experience or learning. Knowledge will arise when a person uses his ability to recognize certain objects or events, there are several factors that affect knowledge including education, experience, and individual age. As explained by (Notoatmodjo, 2021),[14] the knowledge covered in the cognitive domain has 6 levels such as know, comprehension, application, analysis, synthesis, and evaluation.

Knowledge refers to the information acquired through experiences or learning. It emerges when an individual utilizes their ability to identify specific objects or events. Several factors influence knowledge, including education, personal experiences, and age. Jaundice occurs in newborns due to an immature liver or the rapid breakdown of red blood cells; some newborns' organs may not function effectively during maturation, affecting the bilirubin elimination process. The liver's maturation period varies among individuals. This condition can arise because neonates typically have a higher number of erythrocytes and a shorter lifespan. Many newborns fall into the category of low birth weight (those weighing less than 2500 grams or born before 37 weeks of gestation). The findings of this study align with research examining the correlation between a mother's knowledge level and the incidence of epilepsy in infants, which revealed that fewer than half of the participants (49.1%) had experienced epilepsy at the General Hospital of Major General H.A Thalib, located in Kerinei Regency. Similarly, another study indicated that among 38 respondents, 20 (52.6%) did not have jaundice, whereas 18 (47.4%) were diagnosed with neonatal jaundice. Based on the phenomenon researched found in the field, it was found that the incidence of neonatal jaundice was categorized as most of the respondents who did not experience jaundice in 20 babies (66.7%) and a small part of the respondents who experienced jaundice in 10 babies (33.3%).

The incidence of jaundice was observed in as many as 4 individuals (21.1%), while mothers who possessed adequate knowledge had 15 infants (78.9%) who did not develop jaundice. Conversely, among mothers with limited knowledge, 6 infants (66.7%) exhibited jaundice, whereas 3 infants (33.3%) from the same group did not.

Jaundice occurs because a newborn's liver is not fully developed or due to the rapid breakdown of red blood cells. Some newborns' organs may not function optimally as they mature, causing the process of removing bilirubin to be less effective. The "maturation" timeline of the liver varies among individuals. This condition arises because neonates have a higher number of red blood cells and a shorter lifespan for these cells. Many newborns fall into the category of low birth weight, defined as those weighing less than 2500 grams or born before 37 weeks of gestation.[15]

The chi-square test results indicated a significant relationship, yielding a p-value of 0.034, which is below the 0.05 threshold. Consequently, the null hypothesis (Ho) was rejected, demonstrating a link between postpartum mothers' knowledge regarding jaundice and the occurrence of neonatal jaundice at Mrs. T's Midwife Practice in Karangtengah District, Cianjur Regency Indenesia

During baby examinations pertinent to jaundice cases, it was found that 10 infants presented with jaundice, characterized by observations from the sheet indicating 1 part of the head and neck area and 2 degrees of area 1 plus the upper body. Out of 20 observed individuals, some did not show any signs of jaundice.

This supports the another research which concluded that there is a connection between knowledge levels and the incidence of jaundice.[16] Knowledge is derived from awareness, which occurs after an individual perceives a particular object. Based on research experience, it is evident that knowledge-based behaviors are more enduring compared to those lacking a knowledge foundation. This is evident as respondents with limited knowledge were unaware of initial treatments to administer when an infant presents with jaundice.

5. CONCLUSION

Most of the respondents in the maternal knowledge category Puerperium has sufficient knowledge of jaundice as many as 19 people (63.3%). Most of the respondents who do not experience jaundice as many as 20 babies (66.7%). The relationship between maternal knowledge and the incidence of jaundice is obtained that mothers who have good knowledge and babies do not experience jaundice, namely 2 people (100%), mothers who have enough knowledge and babies have jaundice as many as 4 people (21.1%), mothers who have enough knowledge and babies who do not have jaundice, which is as many as 15 people (78.9%), then mothers who have less knowledge and babies who have jaundice are 6 people (66.7%), Then there are mothers who lack knowledge but their babies do not experience jaundice, namely 3 people (33.3%). There is a relationship between postpartum mothers' knowledge of jaundice and the incidence of neonatal jaundice with a p value of 0.034 < 0.05.

Ethics Approval

This study was conducted following ethical approval, as confirmed by the ethical clearance letter from the Cianjur Health Sciences College (No. 380/KEP-STIKES/V/2024).

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Competing Interests

All the authors declare that there are no conflicts of interest.

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Underlying Data

Derived data supporting the findings of this study are available from the corresponding author on request.

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