

RELATIONSHIP BETWEEN MATERNAL AGE AND PARITY WITH THE INCIDENCE OF LOW BIRTH WEIGHT (LBW) BABIES AT MEDAN HAJI HOSPITAL

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ABSTRACT

Background: The neonatal period is a critical period in a baby's life, lasting from birth to 28 days, during which the baby must adapt to the external environment and make physiological adjustments to survive. Women's reproductive age ranges from less than 20 to more than 35 years. Based on reproductive health guidelines, the safe age for pregnancy and childbirth is 20-35 years, while those under 20 or over 35 years are considered high-risk. Methods: This study used a cross-sectional design with a quantitative epidemiological approach. Data collected previously were used. This cross-sectional study design measures the relationship between risk factors or exposures and disease simultaneously. Results: The study found that five respondents (33.3%) experienced low birth weight (LBW) among primiparous mothers, 10 (66.7%) among multiparous mothers, and 10 (66.7%) among primiparous mothers, with four (23.5%) among multiparous mothers. Based on the chi-square test results in the Table above, the p-value was 0.014 (< 0.05); thus, H_a was accepted, and H_o was rejected. This indicates a significant relationship between age and the incidence of low birth weight (LBW) among pregnant women at RSU Haji Kota Medan in 2025.

Keywords: Age, Maternal Parity, LBW (Low Birth Weight), Women, Reproductive

Introduction

Infant Mortality Rate (IMR) in Indonesia in 2023 still reached 15 deaths per 1,000 live births (Central Statistics Agency 2024). However, this figure has not yet reached the Sustainable Development Goals (SDGs) target set by the United Nations (UN), which is a maximum of 12 infant deaths per 1,000 live births by 2030 (BPS, 2024).

The World Health Organization (WHO) defines low birth weight (LBW) as a baby weighing less than 2,500 grams. According to a World Health Organization (WHO) report, more than 20 million LBW

babies are born each year, with over 96% of these occurring in developing countries. (WHO, 2023). Furthermore, Indonesia ranks fifth in the world for prematurity rates and LBW prevalence at 7.1%. Countries in the Southeast Asian region, including Indonesia, contribute approximately 27% of all Low Birth Weight (LBW) cases worldwide. In Indonesia, factors influencing the incidence of LBW include: maternal characteristics, parity (first pregnancy or fifth or more), maternal age (less than 20 years or more than 35 years), maternal medical history, placental and fetal factors, multiple pregnancies, vascular disease, and

congenital abnormalities. These factors significantly increase the risk of LBW.

Efforts to care for LBW babies supported by complete facilities and infrastructure and trained human resources can reduce neonatal rates. Under certain circumstances and indications, LBW babies really need incubators, but care in an incubator is relatively expensive, in addition, the use of incubators is considered to hinder contact between mother and baby, resulting in mothers lacking confidence and skill in caring for their babies. To reduce the barrier of eye contact between mother and baby so that mothers can be confident and skilled in caring for LBW babies, one way is to use the Kangaroo Care Method. (Metode et al., 2020)

Asphyxia is a condition in which a baby fails to breathe spontaneously and regularly immediately after birth. This prevents the baby from taking in oxygen and carbon dioxide from its body. (S. U. Tahun et al., 2025)

According to WHO estimates, there were 5 million neonatal deaths and 4.5 million infant deaths worldwide in 2020, with 7.5% of these deaths occurring in the first year of life. (Damanik et al., 2024) The incidence of LBW globally is 15.5% with a range of 10-50%. Since 2012, there has been a decrease in the number of newborns with low birth weight (LBW) by 29% to 30%, and efforts are being made to reduce the number of LBW babies by 30% by 2025. (Damanik et al., 2024)

Based on research by Gourount et al with 133 research subjects with a gestational age of 9-37 weeks, it was shown that anxiety occurred in 50% of women in the first trimester, 71.4% in the second trimester and 80% in the third trimester. (M. Tahun et al., 2022).

In the postpartum period, hypertension

is also a serious concern because maternal deaths are characterized by occurring during the postpartum period (up to 42 days), especially due to direct obstetric causes, such as hypertension, with emphasis on eclampsia, and hemorrhage (Zulkarnain Batubara, Imran Surbakti, 2024).

Research Method

This study employed a cross-sectional, quantitative design with an epidemiological perspective. Data collected previously is used. In this cross-sectional design, measurements or observations are made simultaneously between risk factors or exposures and the disease.

A population is a generalizable set of objects or subjects with specific qualities and characteristics that the researcher determines to be the subject of study, from which conclusions are drawn. The population in this study comprised all mothers who gave birth to low-birth-weight (LBW) infants at Medan Haji Hospital and were documented in medical records during 2022-2024, totaling 32 participants.

The sample in this study comprises the entire population; thus, the sample size is 32 participants for the 2022-2024 period.

Sampling techniques are used to determine the sample in research. A sample is a portion of the total population's characteristics. In this study, purposive sampling was employed based on the researcher's own criteria, using inclusion and exclusion criteria.

Result

Univariate Analysis

The results of the univariate analysis were conducted to obtain the frequency distribution (Maternal Age and Parity), with the dependent variable being the

incidence of Low Birth Weight (LBW).
The results of this analysis can be seen in

Table 1 below:

Table 1. Frequency Distribution

Category	Frequency (n)	Percentage (%)
Age		
At Risk	20	62.5
Not at Risk	12	37.5
Total	32	100
Parity		
Primiparous	15	46.9
Multiparous	17	53.1
Total	32	100

Based on Table 4.1, the study included 32 participants: 62.5% (20 participants) were classified as at risk, and 37.5% (12 participants) as not at risk. In terms of parity, the distribution was relatively balanced, with multiparous women comprising 53.1% (17 participants) and primiparous women 46.9% (15

participants). This is consistent with Retno Dkk's research, which emphasizes that mentoring and the implementation of Kangaroo Mother Care (KMC) classes are highly effective in increasing the body weight of dysmature LBW infants and enhancing mothers' postnatal care skills. (Retno Wahyuni, 2020).

Table 2. Relationship between Maternal Age and Parity and the Incidence of Low Birth Weight (LBW) at RSU Haji Kota Medan in 2025

Variable	LBW (n=18) n (%)	Normal (n=14) n (%)	Total (n=32) n (%)	P-Value
Maternal Age				
At Risk	15 (75)	5 (25)	20(100)	0.006
Not at Risk	3 (25)	9 (75)	12(100)	
Parity				
Primiparous	5 (33.3)	10(66.7)	15(100)	0.014
Multiparous	13(76.5)	4 (23.5)	17(100)	

Based on Table 2, the bivariate analysis indicates that both maternal age and parity are significantly associated with the incidence of Low Birth Weight (LBW) at RSU Haji Kota Medan in 2025. Data reveal that mothers in the at-risk age group had a significantly higher prevalence of LBW (75.0%) compared to those not at risk (25.0%), supported by a p-value of 0.006. Similarly, multiparous mothers experienced a higher rate of LBW infants

(76.5%) than primiparous mothers (33.3%), with a statistical significance of $p = 0.014$. Since both p-values are below the 0.05 threshold, it can be concluded that there is a statistically significant association between maternal age, parity, and LBW in this study

Discussion

Relationship between Age and Low Birth Weight (LBW)

Based on the chi-square analysis results in the Table above, the p-value was 0.006 ($0.006 < 0.05$). This indicates a significant relationship between age and the incidence of low birth weight (LBW) at RSU Haji Kota Medan in 2025. This study aligns with research by Wardani et al. (2025), which showed a significant association between maternal age and the incidence of low-birth-weight infants. Low birth weight (LBW) ($p = 0.000$). Pregnant women in high-risk age groups were more likely to give birth to babies with LBW compared to pregnant women in non-risk age groups. This finding is also supported by (Hotna Rohdearni Saragih, 2023), who identified a significant relationship between maternal age and complications such as premature labor at the Adam Malik Hajj Center General Hospital.

This study also aligns with research that found the highest incidence of LBW was in the 20-35 age group, with 33.2% of LBW cases, while in those aged <20 and >35 years, 3.7% and 10.2%, respectively. The Spearman Rank test showed no correlation between maternal age and LBW incidence across categories ($p > \alpha = 0.05$), indicating that H_0 was supported and H_1 was rejected.

Parity refers to a woman's condition in relation to the number of children she has given birth to. Parity for the second and third child is considered the safest from a maternal mortality perspective. The first birth, or more than three births, can negatively affect the health of both mother and baby. After three births, mothers are at risk of having babies with disabilities or low birth weight. At high parity levels, i.e., more than three, there is an increased risk of maternal death. As noted by Sinaga SN, the role of the midwife as an implementer is crucial in handling '4T' risks (Too young, Too old, Too frequent, and Too many births), which are the primary

maternal characteristics contributing to complications like LBW. (Sinaga, 2022).

In general, the number of low birth weight babies and perinatal deaths increases with the number of pregnancies a mother has had, especially if she has had more than three pregnancies. High parity often leads to damage to the uterine blood vessels, which can disrupt the blood flow that carries oxygen and nutrients from the mother to the fetus, potentially impairing fetal growth and Development. It can lead to low birth weight or stillbirth.

Conclusion

- a. The frequency of pregnant women based on maternal age was 20 respondents (62.5%) at-risk ($<20-35$) years, and 12 respondents (37.5%) at-risk ($>20-35$) years.
- b. The frequency of pregnant women based on parity was 15 respondents (46.9%) primiparous, and 17 respondents (53.1%) multiparous.
- c. There was a significant relationship between maternal age and the incidence of Low Birth Weight (LBW) at the Medan City Hajj Hospital (RSU Haji), with a P-value of $0.006 < 0.05$.
- d. There was a significant relationship between maternal parity and the incidence of Low Birth Weight (LBW) at the Medan City Hajj Hospital (RSU Haji), with a P-value of $0.014 < 0.05$.

Suggestions

- a. For Researchers

The data and information from this study are expected to be useful as motivation for health workers to improve services related to the relationship between maternal age and parity and the incidence of Low Birth Weight (LBW) births at Medan Haji General Hospital in 2025. This will

enable comprehensive midwifery care to address health issues.

- b. For Mitra Husada Health College:
This research is expected to provide additional information to health students, particularly midwifery students, to improve their skills and knowledge in the workplace, thereby reducing the association between maternal age and parity with low birth weight (LBW) at Medan Haji General Hospital by 2025.
- c. For Research Subjects
As additional information and knowledge that can be utilized by staff to improve health services at Medan Haji Hospital regarding the Relationship between Maternal Age and Parity with Low Birth Weight (LBW) at Medan Haji Hospital in 2025.

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