

PATH ANALYSIS: THE EFFECT OF BIOLOGICAL, SOCIAL, ECONOMIC, AND NUTRITIONAL FACTORS ON LOW BIRTH WEIGHT IN MADIUN GENERAL HOSPITAL

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ABSTRACT

Background: Low birth weight (LBW) remains a major cause of death and illness in infants. This study aimed to analyze the effects of biological, social, economic, and nutritional factors on LBW at Madiun General Hospital, East Java. **Subjects and Method:** This was an analytic observational study with a case-control design. The study was conducted at Madiun General Hospital, East Java, from January to December 2017. A sample of 200 newborn babies were selected for this study using fixed disease sampling, consisting of 50 babies with low birth weight and 150 control infants with normal birth weight. The dependent variable was birth weight. The independent variables were maternal age, education, parity, maternal nutritional status, maternal employment, family income, anemia, and birth space. Clinical data were taken from medical record. The data of other variables were collected by questionnaire. Path analysis was employed for data analysis.

Results: The risk of LBW increased with anemia ($b = 1.09$; CI 95% = 0.27 to 1.91; $p = 0.009$), multiparity ($b = 1.73$; CI 95% = 0.28 to 2.06; $p = 0.010$), and age <20 or >35 years ($b = 1.41$; CI 95% = 0.24 to 2.57; $p = 0.018$). The risk of LBW decreased with good maternal nutritional status ($b = -1.49$; CI 95% = -2.32 to -0.65; $p < 0.001$), maternal education \geq high school ($b = -1.05$; CI 95% = -1.88 to -0.21; $p = 0.014$), and wide birth space ($b = -1.06$; CI 95% = -2.24 to 0.11 $p = 0.076$). Maternal employment and family income had indirect effect on the risk of LBW.

Conclusion: The risk of LBW is affected by anemia, parity, maternal age <20 years and ≥ 35 years, poor maternal nutritional status, low maternal education, and narrow birth space.

Keywords: low birth weight, biological factor, social factor, economic factor

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