HOW MUCH DOES VILLAGE ENVIRONMENT AFFECT THE RISK OF PNEUMONIA IN CHILDREN UNDER FIVE? A MULTILEVEL EVIDENCE FROM KLATEN, CENTRAL JAVA, INDONESIA

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ABSTRACT

Background: Pneumonia is the leading infectious disease killer of children worldwide. It kills 2,500 children each day. More children died of pneumonia than malaria, TB, measles, and AIDS combined. Imbalance between host, agent, and environment, can cause the incidence of pneumonia. This study aimed to estimate the contextual effect of village environment on the risk of pneumonia in children under five, after controlling for the effects of biological and social economic factors.
Subjects and Method: This was a case control study conducted in Klaten District, Central Java, from October to November 2017. A total sample of 200 children under five was selected for this study by fixed disease sampling. The dependent variable was pneumonia. The independent variables were birth weight, exclusive breastfeeding, nutritional status, immunization status, maternal education, family income, quality of house, indoor smoke exposure, and cigarette smoke exposure. The data were collected by questionnaire and checklist. The data were analyzed by multilevel logistic regression analysis.
Results: Birth weight ≥2,500 g (OR= 0.13; 95% CI= 0.02 to 0.77; p= 0.025), exclusive breastfeeding (OR= 0.15; 95% CI= 0.02 to 0.89; p= 0.037), good nutritional status (OR= 0.20; 95% CI= 0.04 to 0.91; p= 0.038), immunizational status (OR= 0.12; 95% CI= 0.02 to 0.67; p= 0.015), maternal educational status (OR=0.18; 95% CI= 0.03 to 0.83; p= 0.028), high family income (OR= 0.25; 95% CI= 0.07 to 0.87; p= 0.030), and good quality of house (OR=0.21; 95% CI= 0.05 to 0.91; p= 0.037) were associated with decreased risk of pneumonia. High indoor smoke exposure (OR= 8.29; 95% CI= 1.49 to 46.03; p= 0.016) and high cigarette smoke exposure (OR= 6.37; 95% CI= 1.27 to 32.01; p= 0.024) were associated with increased risk of pneumonia. ICC= 36.10% indicating sizeable of village as a contextual factor. LR Test p= 0.036 indicating the importance of multilevel model in this logistic regression analysis.
Conclusion: The multilevel logistic regression has provided evidence that the village environment has a sizeable contextual effect on the risk of pneumonia in children under five, after controlling for the effects of biological and social economic factors.

Keywords: pneumonia, biological, social economic, environmental factor, children under five

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