

THE CORRELATION BETWEEN LEAD LEVEL, SOCIO-DEMOGRAPHIC FACTORS, NUTRITIONAL STATUS, NUTRITION INTAKE, AND HEMOGLOBIN LEVEL IN ELEMENTARY STUDENTS IN BOGOR, WEST JAVA

Nissa Noor Annashr¹⁾, I Made Djaja²⁾, Kusharisupeni²⁾

¹⁾Study Program of Public Health, School of Health Polytechnics
Kuningan, West Java

²⁾Faculty of Public Health, Universitas Indonesia

ABSTRACT

Background: Anemia is a major health problem in infants and children in developing countries such as Indonesia. The problem is often related to the declined levels of some micronutrients in the body such as iron, zinc, and copper. It may be also associated with increased absorption of heavy metals such as lead. According to MOH, in 2013 the prevalence of anemia in children aged 5-14 years was 26.4%. This study aimed to determine the correlation between lead level, socio-demographic factors, nutritional status, nutrition intake, and hemoglobin level in elementary students in, Bogor, West Java.

Subjects and Method: This was an analytic observational study with a cross-sectional design. The study was conducted in four elementary schools in Cinangka, Bogor city, West Java, from May to June 2014. A sample of 103 elementary school students grade 4 to 6 was selected for this study by random sampling. The dependent variable was hemoglobin level. The independent variables were protein intake, iron intake, calcium intake, blood lead level, nutritional status, education, and parental income. Blood specimen was taken to measure blood lead and hemoglobin levels. Nutritional status was measured in body mass index converted to Z-score. Other variables were collected by questionnaire. The data were analyzed by a multiple logistic regression.

Results: Multiple logistic regression showed that hemoglobin level increased with protein intake (OR= 4.18; 95% CI= 1.06 to 16.49; p= 0.030) and iron intake (OR= 5.40; 95% CI= 1.41 to 20.72; p= 0.008). Blood lead level, nutritional status, education, parental income, and calcium intake did not show significant association with hemoglobin level.

Conclusion: Hemoglobin level increases with protein intake and iron intake.

Keywords: hemoglobin level, lead level, iron intake, protein intake

Correspondence:

Nissa Noor Annashr. Study Program of Public Health, School of Health Polytechnics Kuningan, West Java. Email: annashr.nissa46@gmail.com.
Mobile: 087830449634.