

The Relationship between Protein and Vitamin C Intake and Hemoglobin Levels in Female Adolescents of Sukorambi State Middle School in Sukorambi District

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ABSTRACT

Hemoglobin is the main component of red blood cells that transport oxygen and carbon dioxide in the body. If a person has a lower than normal number of red blood cells or low hemoglobin levels, the cells in the body do not receive enough oxygen. Anemia is a health problem that often occurs in adolescent girls and can be caused by low hemoglobin levels in the blood. One factor that affects hemoglobin levels is nutritional intake, especially protein and vitamin C, which play a role in the formation and absorption of iron in the body. This study aims to determine the relationship between protein and vitamin C intake and hemoglobin levels in adolescent girls at Sukorambi State Junior High School, Sukorambi District. This study is a quantitative, observational, analytical study with a cross-sectional design. The study sample consisted of 53 respondents selected using a purposive sampling technique from female students in grades VII-IX who met the inclusion criteria. Data on protein and vitamin C intake were obtained using the Semi Quantitative Food Frequency Questionnaire (SQ-FFQ) and analyzed using the Nutrisurvey 2007 application. Hemoglobin levels were examined by taking blood through a vein and measured using the cyanmethemoglobin method. Data analysis was performed using univariate and bivariate analysis using Spearman correlation test. The results showed a median protein intake of 39.40 g/day (12.10-95.40 g/day), a median vitamin C intake of 63.20 mg/day (1-673 mg/day), and a median hemoglobin level of 12.20 g/dL (6.80-15.30 g/dL). The bivariate test results showed that there was no significant relationship between protein intake and hemoglobin levels ($p=0.679$; $r=0.058$). However, there was a significant relationship between vitamin C intake and hemoglobin levels ($p=0.049$; $r=0.272$) with a weak relationship strength. The conclusion of this study is that vitamin C intake has a significant relationship with hemoglobin levels in adolescent girls, while protein intake does not show a significant relationship with hemoglobin levels.

Keywords: protein, vitamin C, hemoglobin levels