

HUBUNGAN ASUPAN ENERGI, PROTEIN, ZAT BESI, ASAM FOLAT DAN LAMA MENSTRUASI DENGAN KADAR HEMOGLOBIN ATLET WANITA DI SMA NEGERI OLAKHRAGA (SMANOR) SIDOARJO JAWA TIMUR

INTISARI

Latar Belakang: Atlet khususnya remaja putri merupakan kelompok yang rentan mengalami masalah gizi, salah satunya anemia defisiensi besi. Anemia defisiensi besi dapat mempengaruhi kapasitas aerobik dan penurunan performa atlet. Pada remaja, anemia dapat disebabkan oleh *iron loss*, asupan zat gizi yang inadekuat, dan pada remaja putri resiko anemia menjadi lebih tinggi karena adanya proses menstruasi.

Tujuan Penelitian: Mengetahui apakah terdapat hubungan antara asupan energi, protein, zat besi, dan asam folat serta lama menstruasi terhadap kadar hemoglobin pada atlet remaja putri di SMAN Olahraga Jawa Timur.

Metode: Penelitian ini menggunakan desain penelitian *cross-sectional* pada 48 subjek penelitian berusia 15 – 18 tahun dari berbagai cabang olahraga. Kadar hemoglobin diukur menggunakan GCUHb, pemenuhan asupan gizi dinilai menggunakan *Quantitative Food Frequency Questionnaire* (SQ-FFQ) dan data lama menstruasi diperoleh menggunakan kuesioner menstruasi.

Hasil: Hasil uji statistik menunjukkan tidak terdapat hubungan yang bermakna ($p > 0,05$) antara asupan energi dengan kadar hemoglobin ($p = 0,465$; $r = 0,014$), asupan protein dengan kadar hemoglobin ($p = 0,811$; $r = -0,065$), dan asupan asam folat dengan kadar hemoglobin ($p = 0,487$; $r = -0,069$). Demikian juga tidak terdapat hubungan signifikan antara lama menstruasi dengan kadar hemoglobin ($p = 1,000$; $r = -0,035$). Tidak dilakukan uji *Chi-Square* untuk melihat hubungan antara asupan zat besi dengan kadar hemoglobin dikarenakan tidak memenuhi syarat uji, namun berdasarkan hasil analisis korelasi spearman didapatkan nilai $r = 0,129$.

Kesimpulan: Tidak terdapat hubungan signifikan secara statistik antara asupan energi, protein, zat besi, dan asam folat, serta lama menstruasi dengan kadar hemoglobin atlet remaja putri, namun dapat diketahui pola hubungan tiap variabel dengan kadar hemoglobin. Diperlukan penelitian lebih lanjut dengan sampel yang lebih besar dan beragam untuk mengidentifikasi faktor-faktor yang dapat mempengaruhi kadar hemoglobin atlet remaja putri.

Kata Kunci: Kadar hemoglobin, anemia, atlet remaja putri, asupan gizi, lama menstruasi

**THE RELATIONSHIP BETWEEN INTAKE OF ENERGY, PROTEIN, IRON,
FOLIC ACID, AND LENGTH OF MENSTRUATION WITH HEMOGLOBIN
LEVELS AMONG FEMALE ATHLETES IN SIDOARJO STATE SCHOOL OF
SPORTS (SMANOR)**

ABSTRACT

Background: Athletes, especially young women, are a group that is vulnerable to nutritional problems, one of which is iron deficiency anemia. Iron deficiency anemia can affect aerobic capacity and decrease athlete's performance. In adolescents, anemia can be caused by iron loss, inadequate intake of nutrients, and in young women the risk of anemia is higher due to the menstrual process.

Objective: This study aims to determine whether there is a relationship between intake of energy, protein, iron, and folic acid and the duration of menstruation on hemoglobin levels in female athlete athletes at SMANOR Sidoarjo.

Methods: This study used a cross-sectional study design on 48 research subjects aged 15-18 years from various sports. Hemoglobin level was measured using GCUHb. Data on energy, protein, iron, and folic acid intake were obtained using the Semi Quantitative Food Frequency Questionnaire (SQ-FFQ) method and data on menstrual duration were obtained using a menstrual questionnaire.

Result: Statistical test results showed that there was no significant relationship ($p>0.05$) between intake of energy ($p=0,465$; $r= 0,014$), protein ($p=0,811$; $r= -0,065$), and folic acid ($p=0,487$; $r= -0,069$) with hemoglobin levels. Likewise, there was no significant relationship between menstrual duration and hemoglobin level ($p=1,000$). Iron intake with hemoglobin levels cannot be analyzed using Chi-Square because it does not meet the test requirements. However, based on the results of the Spearman correlation analysis, the value of $r= 0,129$ is obtained.

Conclusion: There was no statistically significant relationship between intake of energy, protein, iron, and folic acid, and the length of menstruation with the hemoglobin level. However, it can be seen the relationship pattern of each variable with hemoglobin levels. Further research is needed with a larger and more diverse sample to identify factors that can affect the hemoglobin level.

Keywords: Hemoglobin level, anemia, female athlete, nutritional intake, menstrual duration