

**HUBUNGAN ANTARA ANEMIA DENGAN GANGGUAN KOGNITIF PADA
SISWA SEKOLAH DASAR DI DESA DONOKERTO, KECAMATAN TURI,
KABUPATEN SLEMAN, DAERAH ISTIMEWA YOGYAKARTA**
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ABSTRAK

Latar belakang: Anemia merupakan masalah kesehatan global, terutama di Negara berkembang, dan rentan berisiko pada anak-anak. Anemia memiliki dampak buruk pada perkembangan anak, dan juga mempengaruhi fungsi kognitif anak. Penelitian ini bertujuan untuk mengetahui adanya hubungan anemia dengan gangguan kognitif pada siswa Sekolah Dasar.

Metode: Penelitian analitik observasional dengan metode *cross sectional* dilakukan pada siswa sekolah dasar di Donokerto dengan teknik *cluster random sampling*. Pengukuran kadar hemoglobin menggunakan alat tes cepat, sedangkan status kognitif dinilai menggunakan kuesioner MMMSEC-Ina. Analisis multivariat dan regresi linier digunakan untuk mengetahui hubungan anemia dengan gangguan kognitif.

Hasil: Sebanyak 308 siswa kelas 4-6 dari lima SD di Donokerto dengan rentang usia 9-12 tahun diikutsertakan dalam penelitian. Siswa anemia secara signifikan memiliki skor MMSEC-Ina yang lebih rendah 31.97 ± 3.33 berbanding 33.91 ± 2.99 , $p = 0.00$. Pada analisis multivariat menunjukkan siswa dengan anemia memiliki kecenderungan gangguan kognitif 2.89 kali, OR = 2.89 (1.61-5.16), dengan nilai $p < 0.001$. Pada uji korelasi didapatkan, peningkatan kadar Hb berkorelasi positif dengan domain kognitif: orientasi ($r = 0.188$), atensi/kalkulasi ($r = 0.157$), bahasa ($r = 0.133$) dan skor total MMMSEC-Ina ($r = 0.211$).

Kesimpulan: Anemia terbukti berhubungan dengan kejadian gangguan kognitif siswa Sekolah Dasar di Donokerto. Peningkatan Hb meningkatkan skor kognitif terutama pada domain orientasi, atensi/kalkulasi, bahasa dan skor total MMMSEC-Ina.

Kata Kunci: Anemia, Gangguan Kognitif, MMMSEC-Ina, Anak, Sekolah Dasar

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**THE RELATIONSHIP BETWEEN ANEMIA AND THE COGNITIVE
DISORDERS IN OF ELEMENTARY SCHOOL STUDENTS IN
DONOKERTO VILLAGE, TURI DISTRICT, SLEMAN REGENCY,
SPECIAL REGION OF YOGYAKARTA**

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ABSTRACT

Background: Anemia is a global health issue, particularly in developing countries, and children are especially vulnerable. Anemia has adverse effects on child development and also impacts cognitive function. This study aims to determine the relationship between anemia and cognitive impairment in elementary school students.

Methods: This observational analytical study used a cross-sectional method conducted on elementary school students in Donokerto through cluster random sampling. Hemoglobin levels were measured using a rapid test device, while cognitive status was assessed using the MMMSEC-Ina questionnaire. Multivariate analysis and linear regression were used to examine the relationship between anemia and cognitive impairment.

Results: A total of 308 students from grades 4-6 across five elementary schools in Donokerto, aged 9-12 years, participated in this study. Students with anemia had significantly lower MMSEC-Ina scores (31.97 ± 3.33 vs. 33.91 ± 2.99 , $p = 0.00$). Multivariate analysis showed that students with anemia were 2.89 times more likely to experience cognitive impairment, OR = 2.89 (1.61-5.16), with $p < 0.001$. Correlation test indicated that an increase in hemoglobin levels positively correlated with cognitive domains, including orientation ($r = 0.188$), attention/calculation ($r = 0.157$), language ($r = 0.133$), and total MMMSEC-Ina score ($r = 0.211$).

Conclusion: Anemia is proven to be associated with cognitive impairment in elementary school students in Donokerto. Increase in Hb improves cognitive scores, particularly in the domains of orientation, attention/calculation, language, and the total MMMSEC-Ina score.

Keywords: Anemia, Cognitive Impairment, MMMSEC-Ina, Children, Elementary School

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