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Background: Docosahexaenoic acid (DHA) plays various roles in human brain, such as modulating signal transduction pathways, neurotransmission, myelination, synaptic plasticity, neuroinflammation, membrane receptor function and integrity, which affects cognitive function and learning ability [1,2]. However, research found that 8 out of 10 Indonesian school-aged children's intake are lack of DHA referred to WHO standards [3]. The aim of this research is to analyze the relationship of DHA serum level with academic performance in elementary school students.

Method: This was a case control study performed in 3 different elementary schools in Semarang, Indonesia. The subjects were 75 healthy students aged 9 – 11 years old, who fulfilled the inclusion and exclusion criterias, which then classified into poor academic performance group as case, and excellent academic performance group as control. We investigate their DHA serum levels and various confounding factors like sosiodemographic characteristics, cognitive function by Wechsler Intelligence Scale for Children (WISC) test, hemoglobin level and their relationship with academic performance.

Result: The mean DHA serum level in case group was 116,59 ug/mL, while that in control group was 128,24 ug/mL. Thus, there was significant relationship between DHA serum level and academic performance in elementary school students ($p = 0,048$). There were also significant relationship between cognitive function (IQ score by WISC test) and hemoglobin level with the academic performance ($p = 0,008$; $p = 0,006$). Nonetheless, there was no significant relationship between age, sex, nutrition status, and socioeconomic status with academic performance in elementary school students ($p = 0,447$; $p = 0,165$; $p = 0,067$; $p = 0,210$).

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Biography: Christien is a neurology resident studying in Medical Faculty of Diponegoro University, Semarang, Indonesia, in which the flagship program is developing social neuroscience. Her interest in social neuroscience and pediatric neurology encourages her to conduct this research, hoping it would contribute to improve Indonesian children's future.

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