

Iodine deficiency disorders and intellectual performance of school children aged 8-10 years old: a case study in Malang district, East Java

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Abstrak

ABSTRACT

A study on Iodine Deficiency Disorders (IDD) and intellectual performance of the school-children has been done in Malang District, East Java, in December 1994. This study covered 11 villages within 5 sub districts, three of which have volcanic soil and two have limestone soil. Totally 544 school-children aged 8- 10 years old, from 22 public primary schools were measured. Villages selection was done with the aim to describe the overall extent and severity of IDD among school-children by using different methods of assessment. Methods of assessment were palpation, ultrasonography, urinary iodine excretion (UIE) and the serum thyroid stimulating hormone (TSH) level. Culture Fair Intelligence Test were used to assess the intelligence quotient (IQ) points. The Total Goiter Rate (TGR) for the whole survey area as indicated both by palpation and ultrasound measurement were revealed 35.7 % and 54.8 % respectively.

According to WHO criteria, the survey area categorized as "Severe" ($TGR \geq 30\%$) as indicated by either palpation or ultrasound measurement. In contrast, the survey area categorized as "Mild" based on both UIE and TSH level (Median UIE = 5.50 $\mu\text{g/dl}$, $TSH > 5 \text{ mU/l} = 3.4 \%$) Goiter, either determined by palpation or USG, was significantly associated with IQ points of the subjects ($p < 0.001$ and $p < 0.01$ respectively). The association between median of UIE and IQ points of the subjects were also significant ($p < 0.001$). TSH level was not necessarily associated with either IQ points of the subjects or another IDD indicators. It is concluded that two of the IDD indicators (goiter and UIE) were significantly associated with the level of intelligence of the school-children, which reflected the quality of life of the people. Therefore, the intervention is urgently needed.