THE ASSOCIATION OF THE IRON STATUS WITH EDUCATIONAL PERFORMANCE AND INTELLIGENCE AMONG ADOLESCENTS IN THE DISTRICT OF KANDY

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Unavailability of data on the relationship between the iron status and the cognitive functions in a Sri Lankan population led to this study. A cross sectional comparative study was carried out among 13 – 15 year old students selected from 14 schools in the Kandy district. The haemoglobin and the serum ferritin levels were assessed to determine the iron status. The educational performance and the intelligence were compared between iron deficient and iron sufficient groups (n = 188). Each selected iron deficient student was matched with an iron sufficient student from the same school, same class and of same sex. The educational performance was assessed based on the marks obtained for mathematics, science, social science and Sinhala language. The Raven's Standard Progressive Matrices was used to measure the intelligence. An interviewer administered questionnaire was used to collect details on factors that could be effect modifiers or confounders to the relationship of the iron status with educational performance and the intelligence. Serum zinc level and the free thyroxine level were determined in 25 % of the sample. Home visits were carried out in a randomly selected sub-sample to check the quality of data and to observe the home environment. Neither the educational performance nor the intelligence showed a significant association with the iron status of adolescents in the univariate analysis. However, 23 co-variables and 8 co-variables were significantly associated with the educational performance and the intelligence respectively. The iron status did not show a significant relationship with the educational performance or with the intelligence even when the effects of all these variables were controlled in a multivariate analysis. Following a linear regression analysis; the intelligence, enthusiasm of the student towards learning, ambition, household possessions, problems at home and private tuition for mathematics were the key factors identified as predictors of educational performance. The educational level of the mother and the height for age of the student were the most important factors influencing the intelligence. Further, the home visits revealed that the adolescents experiencing unsatisfactory home conditions had a significantly less educational performance.

Zinc deficiency and thyroxine deficiency were commoner among iron deficient students than among iron sufficient students. However, according to the findings, it is unlikely that these deficiencies would have been confounders to the association between the iron status and cognitive functions among these adolescents. According to the findings, the iron status does not play a major role in educational performance and the intelligence of school going adolescents in the district of Kandy. There is no reason why it should not be applicable for school going adolescents in Sri Lanka in general.