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## Higher Prevalence of Iron Deficiency as Strong Predictor of Attention Deficit Hyperactivity Disorder in Children

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**Aim:** The aim of this study was to determine the association between Iron deficiency and ADHD and the impact and role of iron deficiency on the development of ADHD in children.

**Methods and subjects:** Case-Control design based on 630 ADHD and 630 healthy children and conducted at the School Health and Primary Health care Clinics . The health status of the subjects was assessed by ascertaining clinical presentations and symptoms, family history, BMI, iron deficiency, ferritin, serum 25(OH) vitamin D, calcium, magnesium, and phosphorus levels. Descriptive, univariate and multivariate statistical analysis were performed.

**Results:** Mean age ( $\pm$  SD, in years) for ADHD and control children were  $11.54\pm 3.83$  vs.  $11.50\pm 3.62$ . There were statistically significant differences between ADHD and healthy children control subjects with respect to paternal education level ( $p<0.001$ ), occupation of father ( $p<0.002$ ), educational level of mother ( $p<0.010$ ), monthly income ( $p=0.034$ ), consanguineous marriages of parent ( $p=0.019$ ) and BMI in percentiles ( $p<0.001$ ), child behaviour ( $p<0.001$ ), and school performance ( $p=0.031$ ). There were statistically significant differences between ADHD versus control children for vitamin D, serum iron ,ferritin ( $36.26\pm 5.93$  vs  $38.19\pm 5.61$  ng/ml), hemoglobin ( $12.02\pm 2.13$  vs  $12.89\pm 2.02$  g/dL) magnesium, serum calcium level and phosphorous. Multivariate logistic regression analysis revealed that serum vitamin D level, serum iron, ferritin, serum calcium level, physical activity, nervous behaviour, consanguinity, BMI and child order were considered as the main factors associated with the ADHD after adjusting for age, gender and other variables.

**Conclusion:** The study indicates that low serum iron, ferritin levels and vitamin D deficiency may be associated with ADHD. .