

**THE PREVALENCE OF IRON DEFICIENCY IN
PRIMARY SCHOOL CHILDREN AND ITS
EFFECT ON THEIR COGNITIVE
DEVELOPMENT**

THESIS

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List of Abbreviations

Abbrev.	Meaning
ARAS	Ascending reticular activating system.
ATP	Adenosine tri-phosphate.
BMI	Body mass index.
bpm	beat per minute.
C.C.	Chronic conditions.
CNS	Central Nervous System.
Cog.	Cognitive functions.
Cog.Ass.	Cognitive functions Assessment.
DMT1	Divalent metal transporter 1.
D.I.	Drug intake.
Dias. BP	Diastolic blood pressure.
Fe²⁺	Ferrous form of iron.
Fe³⁺	Ferric form of iron.
FEP	Free erythrocyte protoporphyrin.
Ferrop	Ferroportin.
Ft	Serum Ferritin.
GV	Growth Velocity.
Hb	Hemoglobin.
Hct	Hematocrit.
IDA	Iron deficiency anaemia.
IDNA	Iron deficiency non anemia.
IgG	Immunoglobulin G.
IgM	Immunoglobulin M.

IQ	Intelligence quotient.
IQR	Inter quartile range.
Maxi.	Maximum.
MCH	Mean corpuscular hemoglobin.
MCHC	Mean corpuscular hemoglobin concentration.
MCV	Mean Corpuscular Volume.
MIDA	Moderate iron deficiency anemia.
Mini.	Minimum.
N	Number.
NID	Non-iron deficient.
P	Predictive value.
RB	Reagent Blank.
RBCs	Red blood cells.
RDW	Red blood cell distribution width.
S	Standard.
SD	Standard deviation.
SI	Serum iron.
SIDA	Severe iron deficiency anemia.
Sig.	Significance.
Sys. BP.	Systolic blood pressure.
Tf	Serum Transferrin.
Tf rec.	Transferrin receptors.
TIBC	Total iron binding capacity.
TLC	Total leukocytic count.
U	Unknown.
UIBC	Unsaturated Iron-binding capacity.
WHO	World Health Organisation.

Introduction

Iron deficiency is the most common cause of anemia in the world (*Scott, 2007*). It is a worldwide nutritional problem, affecting all age groups and all socio-economic levels of society (*Leug and Chan, 2001*). It is a common disease in Egypt, with a very high prevalence rate (*El-Sahn, 2000*).

It is a major public health concern in preschool children and pregnant women in the developing world. While many studies have examined these two at-risk groups, there is a paucity of data on anemia in school children living in developing countries (*Leenstra et al., 2004*).

Iron deficiency is an important cause of decreased attention span, alertness and learning ability, so it can worsen scholastic performance (*Ayala et al., 2008*).

Anemia due to iron deficiency is still a widespread problem (*Kurniawan et al., 2006*). Iron deficiency anemia in children has been associated with retardation in growth and the cognitive development (*Bandhu et al., 2003*).

Although research on cognitive function in iron deficient children is diverse, it suggests that there may be alterations in attentional process, learning ability, memory and cognitive test performance in children associated with iron deficiency (*Stacky, 2005*).

Aim of the work

The aim of this work was to assess the prevalence of iron deficiency in school children in EL-Kassasin district, its propable causes and its effect on general growth and cognitive development.