

## Prevalence and Socio-Demographic Correlates of Anaemia among G.C.E (A/L) Students in Jaffna Zonal Schools

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**Abstract:** Anaemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. This study assessed the prevalence of anaemia and the socio-demographic correlates among G.C.E (A/L) adolescent students in Jaffna zonal schools. A cross sectional study was carried out and 191 male (48.2%) and 205 female (51.8%) students aged 15 to 18 years from twenty schools (four National schools) out of twenty seven schools in Jaffna educational zone were interviewed and examined. Blood was collected to determine hemoglobin (Hb) and albumin levels. The mean ( $\pm$ SD) Hb levels of males and females were 13.97 ( $\pm$ 1.26) and 12.23 ( $\pm$ 1.34) g/dL respectively and male students had higher Hb level than female students ( $p < 0.001$ ). The mean Hb level was significantly higher for students from the families with less than or equal to 5 members [13.12 ( $\pm$ 1.57) g/dL when compared with students from families with more than 5 members [12.85 ( $\pm$ 1.53) g/dL, ( $p < 0.05$ )]. Prevalence of anaemia was 32.6% and was more pronounced in females (43.9%) than in male students (20.4%) ( $p < 0.001$ ). The prevalence of mild, moderate and severe anaemia was 26.8, 5.6 and 0.3%, respectively. The trend of anaemia was not changed with age [the prevalence of anaemia among students aged 16, 17 and 18 years was 36.8, 29.4 and 36.1% respectively (Pearson's chi-squared trend  $p > 0.05$ )]. Prevalence of anaemia among students from urban and rural areas was 35.7 and 29.9% respectively. Almost half of the females from urban areas (49.5%) were anemic while it was 39.5% among the females from rural. Prevalence of anaemia was significantly high among students studying in schools in Jaffna District Secretariat (DS) division [Jaffna - 43.8%, Kopay - 30.3% and Nallur - 24.4% ( $p < 0.01$ )]. Prevalence of anaemia among students from National schools was 30.5% while it was 33.9% from Provincial schools. In this study population, the mean ( $\pm$ SD) albumin concentration was 3.73 ( $\pm$ 0.3) g/dL (in males-3.81; in females-3.67; gender difference  $p < 0.001$ ). Serum albumin level was increased with increasing Hb level (Pearson Correlation=0.125;  $p = 0.014$ ). In conclusion, the household size and gender were significantly associated with Hb level ( $p < 0.05$ ) while gender, DS division of the school and distance from the school were significantly associated with anaemia ( $p < 0.05$ ). This study indicated that prevalence of anaemia was high in adolescent students in Jaffna Zonal Schools and the anaemia is a severe public health problem among G.C.E. (A/L) students in Jaffna zone. The female students and students from urban areas are more anaemic. The prevalence of anaemia was influenced by gender, sector and household size in this region.

**Keywords:** Anaemia, Gender, Albumin, Urban and Rural sector.

## I. BACKGROUND AND OBJECTIVE

Anaemia is a condition characterized by a decrease in the concentration of hemoglobin in blood. Hemoglobin is necessary for transporting oxygen to tissues and organs in the body to prevent hypoxic condition. The reduction in oxygen availability to organs and tissues when hemoglobin levels are low is responsible for many of the symptoms experienced by anemic people. The consequences of anaemia in adolescents include general body weakness, frequent tiredness, and lowered resistance to disease. Furthermore, Anaemia is a global public health problem affecting both developing and developed countries with major consequences for human health as well as social and economic development. It occurs at all stages of the life cycle, but is more prevalent in pregnant women and young children [1]. Very few studies have been carried out in Jaffna on adolescents, even though approximately one fifth (17%) of the population fall into this group, as defined by World Health Organization [12].

Anaemia is classified as mild, moderate or severe based on the concentrations of hemoglobin in the blood (Table 1). The threshold depends mainly on age, gender, physiological status of the person. Severity of anaemia in terms of public health significance in an area is classified as mild, moderate and severe public health significance based on the WHO criteria (Table 2) [12].

Table 1: Thresholds of stages of anaemia

Stages of Anaemia	Anaemia measured by hemoglobin (g/dL)	
	Male	Female
Severe Anaemia	<9.0	<7.0
Moderate Anaemia	9.0-11.9	7.0-9.9
Mild Anaemia	12-12.9	10-11.9

Source: [13]

Table 2: Public health significance of anaemia

Prevalence of Anaemia (%)	Category of Public Health Significance
≤4.9	No public health problem
5.0-19.9	Mild public health problem
20.0-39.9	Moderate public health problem
≥40.0	Severe public health problem

Source: [12]

Nutritional Anaemia caused predominantly by iron-deficiency and anaemia is inextricably linked with people's nutritional status and hunger. Vitamin A, B Vitamins, folic acids, copper, zinc and selenium has their interactions in etiology anaemia [8].

The G.C.E. (A/L) students among the adolescent group are at a phase of highly demanding and competitive educational program. Their performance at this period will decide their future life and majority are under emotional stress, which is then coupled with unbalanced diets resulting in poor nutrition and health. Health is strongly associated with educational achievement [9]. Furthermore adolescents are considered to be a nutritionally vulnerable segment of the population. A rapid growth rate combined with a marginal nutrient intake increases the risk of nutritional deficiencies in this population [5]. The prevention and correction of micronutrient deficiencies among adolescents have become critical goals because of their negative consequences, which include decreased immunity, increased morbidity and impaired cognitive performance. It is important to

