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Shesagiri Taminana, Lalitha Bhaskari D

Andhra University College of Engineering (A), Andhra University, Visakhapatnam, India

Page No: 66-80

DOI:20.18001.JOT.2023.V11I12.23.2960

8. Prevalence of Anaemia among selected school children under noon meal programme in Madurai

D.Mouna, Dr. S. Sumayaa, K.M.Buvaneswari

Thassim Beevi Abdul Kader College for Women, Kilakarai, (Affiliated to Alagappa University, Karaikudi.) Ramanathapuram District, Tamil Nadu, India.

Page No: 81-90

DOI:20.18001.JOT.2023.V11I12.23.2961

9. Evaluation of Antioxidant activity of Ethanolic Extract of Grape and Papaya Seeds

K.M.Buvaneswari, Dr.S.Sumaya, R.Lakshmi Shree, J.R.Shiny Joe, M.Shifana Fathima

Thassim Beevi Abdul Kader College for Women, Kilakarai (Affiliated to AlagappaUniversity,Karaikudi) Ramanathapuram district, Tamilnadu, India

Page No: 91-99

DOI:20.18001.JOT.2023.V11I12.23.2962

10. Assessment Of Impact Of Sabla Scheme On Beneficiary Adolescent Girls

Prevalence of Anaemia among selected school children under noon meal programme in Madurai

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Abstract

Anaemia is a global problem affecting all countries. Resource-poor areas are often more heavily affected because of the prevalence of infectious diseases. Malaria, HIV/AIDS, hookworm infestation, schistosomiasis and other infections such as tuberculosis contribute to the high prevalence of anaemia in some areas. The main risk factors for iron-deficiency anaemia include a low dietary intake of iron or poor absorption of iron from diets rich in phytates or phenolic compounds. Population groups with greater iron requirements, such as growing children and pregnant women, are particularly at risk. Nutritional status evaluation can be termed as subjective global assessment which encompasses historical, symptomatic and physical parameters (Gibney et al., 2005). This will enable the determination of various malnutrition and their severity, type and distribution in a particular region. Nutritional Status is the health condition of a person that is influenced by the intake and utilisation of nutrients. The assessment of nutritional status involves two methods- direct or indirect methods. These methods include Anthropometric measurements, Biochemical estimation, Clinical examination, Dietary survey, (ABCD) utilizing all these to assess the nutritional status gives an overall picture of an individual's nutritional status. Haemoglobin assessment is an indicator of iron status in individuals by analyzing the level of haemoglobin in blood, one can diagnose whether the individual is anaemic or not. A total of 800 school going children between the age group of 6-13 years from primary schools, middle schools, high schools and higher secondary schools were selected for the study by random sampling method. Out of 800 school children, 400 children who participated in noon meal programme were considered as beneficiaries and other 400 children who did not participate in noon meal programme were considered as non-beneficiaries. Biochemical tests cannot be applied on a large scale in the nutritional assessment of a whole community. They are often carried out on a sub– sample of population (Park, 2007).

So, haemoglobin level of blood was estimated for two hundred subjects include both beneficiaries and non-beneficiaries using Cyanmethaemoglobin method with the help of well-trained Biochemist to assess the prevalence of anaemia among the subjects. The data which was obtained from the analysis were compared with the reference value to check the level anaemia. From the data analysis, Comparison between beneficiary and non-beneficiary of selected children showed that, the mean haemoglobin level of beneficiaries were better than non-beneficiaries. It might be due to regular intake of noon-meal in the school. But even for the beneficiaries, the haemoglobin level was lesser than WHO standards. So, Children require a quantitatively, qualitatively and nutritionally balanced diet in order to meet the nutrient demands and also to improve the health & nutritional status.

Key words: Anaemia, school children, noon meal, haemoglobin, nutrient intake, nutritional status

Introduction

Anaemia is a serious health concern that affects many people in the world, both in developed and developing countries. According to the World Health Organization (WHO), 1 in 3 women in the reproductive age of 15-49 years are suffering from anaemia, almost 40% of pregnant women are diagnosed with anaemia, and 40% of children less than 5 years have anaemia.

Anaemia is a condition in which there are not enough RBCs in the blood to transport oxygen. This is indicated by the RBC count, or haemoglobin concentration, in the blood. The normal range for haemoglobin concentration or RBC count varies from person to person based on age, gender, if the woman is pregnant or not, and if the person is having any other health problem. Oxygen is transported to all cells and tissues in the body through the blood, more specifically by the red blood cells (RBC) in the blood.

Bio chemical evaluation has the potential of being objective and quantitative indicators of nutritional status (Barassi, 1999). Iron deficiency is considered to be one of the most prevalent forms of malnutrition. It is a useful index of the overall state of nutrition irrespective of its significance in anaemia. RBC count and haematocrit determination are also valuable (Srilakshmi, 2014).

Nutritional assessment is an in-depth evaluation of both objective and subjective data related to an individual's food and nutrient intake, life style, and medical history.Biochemical evaluation has the potential of being objective and quantitative indicators of nutritional status. Once the data on an individual is collected and organised, the investigator can assess and evaluate the nutritional status of the selected samples. The assessment leads to plan of care, or intervention, designed to help the individual either maintain the assessed status or attain a healthier status. Biochemical analysis which is made chiefly on blood and urine is an accurate record of food intake over a specific period time. Biochemical evaluation has the potential of being objective and quantitative indicators of nutritional status. Over all, the most vulnerable, poorest and least educated groups are disproportionately affected by iron-deficiency anaemia. Thus, the aim of the present study was to analyze the haemoglobin level in blood and to find