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Effectiveness of Nutrition Education Intervention on Anaemic Adolescent Girls: A Review

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Abstract: Anemia is one of the most widespread nutritional problems among all vulnerable groups. Approximately more than 50% of the women, girl child, and adolescent girls are suffering from anemia all over the world including India. The nutritional status as well as the haemoglobin levels among adolescent girls has been very low as compared to developed countries. Low consumption of iron rich foods and faulty dietary pattern of developing countries attributes to this problem.

I. INTRODUCTION

Anemia (from the ancient Greek ἀναιμία, *anaimia*, meaning 'lack of blood') is defined as a decrease in the total amount of haemoglobin or the number of red blood cells. Iron deficiency anemia is a form of anemia due to the lack of sufficient iron to form normal red blood cells. Iron deficiency anaemia is typically caused by inadequate intake of iron, chronic blood loss, or a combination of both. Iron deficiency anaemia is the most common cause of anemia in the world. Approximately 5% and 2% of American women and men, respectively, have iron deficiency anemia. (Clark *et al.*, 2009). Anemia is a major public health problem in the worldwide with prevalence of 43% in developing countries and 9% in developed nations (Habibzadeh *et al.*, 2012). It is widespread in individuals at any stage of life, although pregnant-reproductive women and young children are most susceptible, which may increase the risk of impaired cognitive and physical development and increased mortality and morbidity rate (Khaskheli *et al.*, 2016). About 30% of the world's population are iron deficient (ID), and women seem to be more affected with iron-deficiency anemia (IDA) than men. Therefore, IDA should be regarded as a chronic progressive condition that is mostly undetected and lacks efficient treatment (Akhali *et al.*, 2013). The prevalence of anemia among women of childbearing age is 30.2%, and anemia is highly prevalent in Africa (47.5%) and in Southeast Asia (35.7%). Moreover, there is a high prevalence of anaemia in Saudi Arabia according to a World Health Organization (WHO) report that affects mainly women of childbearing age (Mane *et al.*, 2013). Researchers have studied the effects of daily and intermittent weekly iron in improving haemoglobin levels. Intermittent administration of iron has been proposed to be safer and cost-effective (Philippe *et al.*, 2006). However, most of these studies have been done among young children or pregnant women.

II. EFFECT OF NUTRITION EDUCATION INTERVENTION ON HEALTH

As seen in different researches selected groups are divided into two groups control and experimental groups. The selected adolescent group was checked for clinical symptoms of nutrient deficiencies in addition to protein, iron, calcium, vitamin C, B complex vitamins, energy, vitamin A, etc. The anthropometry measurements taken was height and weight of all subjects were taken to assess their nutritional status using Body Mass Index (BMI). Dietary intake information was collected using 3-day recall method before after the intervention in the control and experimental groups. Intervention method for four months nutritional Educational programme was given to experimental group using appropriate audiovisual aids covering information on anemia its causes and symptoms, measures to be taken to prevent anemia, iron rich foods, good cooking practices and balanced diet, and health and sanitation etc. (Rajeswari *et al.*, 2018)

It was also observed that basic nutritional knowledge was inadequate in young girls. Malhotra and Passi also showed that a large majority of Indian adolescent and young girls had inadequate knowledge of health and nutritional issues. They indicated that 93.4% of the subjects had inadequate iron intake and 93.2% of them were anemic. Iron supplementation in 16- to 20-year-old Indian college girls was associated with significant increases in body weight, body-mass index, mid-upper-arm circumference, and body fat. Although there is much evidence supporting the use of iron supplementation in vulnerable groups, findings on the effects of nutrition education without supplementation and/or food fortification are lacking, especially in regions in which both iron-rich sources (e.g., pulses) and folate- and vitamin C-rich sources (e.g., fresh fruits and vegetables) are available.

In conclusion, although this research was a pilot study with a limited number of subjects conducted in a short period of time, the results were encouraging. We suggest that the education program and materials used captured the girls' interest and stimulated their motivation to influence their health, nutrition, and diet. The potential of applying this experience through high schools and other organizations reaching young girls provides a feasible opportunity to attain the high priority health goals (Amani *et al.*, 2006).

The main objective of the trial was to determine the effectiveness of supplementation and nutrition education on the levels of Hb, ferritin and MDA in female adolescents aged 15–19 years. The effect of the intervention was assessed using the 2 dimensions of repeated measure ANOVA; firstly, the within group effect to determine whether there was a difference in the blood parameters (Hb, ferritin and MDA), and secondly, to assess the interaction of treatment and time together (Karim *et al.*, 2018).

III. IRON SUPPLEMENTATION

Iron supplementation is the most widely recognized technique right now used to control iron lack in our country. Critical enhancements are made in the eating regimens of whole populaces or food fortress is accomplished. Supplementation programs, particularly for pregnant ladies, work in created just as in non-industrial nations. It includes juvenile young ladies, who might be reached through the educational system. Accordingly, should focus on supplementation programs for ladies of childbearing age. In that case ladies should enter pregnancy with satisfactory iron stores, iron enhancements gave during pregnancy will be more proficient at improving the iron status of the mother and of the baby. Accordingly, the danger of maternal paleness at conveyance and of sickness in early earliest stages will be decreased.

IV. RECOMMENDATION

As the author (Thankachan *et al.*, 2006) reported that 39% anemia prevalence in young females in age group 18-35 years of low socioeconomic status in urban area. Iron supplementation programmes have not been effective in reducing anemia prevalence due to various causes. Overall, the majority of the above cited studies support the fact that the factors like area of residence i.e. rural or urban, socioeconomic status and level of education has effect on prevalence of anemia in the community.

A significant association of anemia with socio-economic status and parents educational status suggests a need to develop strategies for intensive adult education and to improve the socio-economic status of the population through poverty alleviation programs. This should be supported by programs for the prevention of anemia among adolescent girls through nutrition education and anemia prophylaxis (Chaudhary *et al.*, 2008).

V. CONCLUSION

High prevalence of anemia in the young female population of India is a threat to the economic development of the country. Hence, there is need of multipronged new and innovative strategies like good education, improving health and hygiene awareness and upliftment in socioeconomic status for improving the overall health and nutritional status of the young females to build young healthy India. A large comprehensive study including data on anthropometry details, biochemical profile, pattern of dietary intake in young women may give a better insight into the situation. It is seen that anemia affects the overall nutritional status of adolescent females.

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