

# Prevention of Nutritional Anaemias in India

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## ABSTRACT

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Nutritional anaemias attributable to iron, B12 and folic acid deficiency in the Indian context is more often due to decreased consumption rather than due to all the other causes put together. In developed countries these deficiencies often are due to physiologically increased need for these micronutrients or pathological situations of malabsorption or increased loss, which are our concern too. Besides B12, iron and folic acid, regular consumption of a complete protein (containing all essential amino acids) is also absolutely essential for haemoglobin syntheses and even that is compromised in Indian scenario. Therefore nutritional anaemias in the Indian subcontinent is not an issue of iron deficiency alone, but it represents the tip of the iceberg of clinical and subclinical malnutrition. There are several myths and wrong ideas on nutrition and balanced diet which need to be changed and people should be empowered to consume proper diet. To make a beginning, we need to work for creating awareness on proper balanced diet and to remove all false beliefs and wrong practices, regarding food items, which are rooted in cultural, religious, regional factors and influence of consumerist forces using good primary education and well trained primary care doctors. Equally important is to empower the people by social, economic, and agricultural reforms, and policy changes, for consuming a balanced diet, for a sustainable solution to nutritional anaemias besides other nutritional deficiencies/disorders. The concept of balanced diet has to be taught in primary schools with school health programs, using the health team in PHCs, coordinated by dedicated primary care doctors. The practical tips and pitfalls of practising healthy eating and lifestyle habits are to be given through the PHCs by the primary care doctors. Besides that policy changes are needed to promote decentralised integrated farming to make available all the components of a balanced diet locally and afresh. The social aspects of malnutrition, including poor management of resources, wrong influences on the people by advertisements and the growing fast food culture all need to be addressed to achieve anaemia free India.

**Keywords:** Anaemia, Nutrition, Social Health, Health Policy, Primary Care, Family Doctors

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## INTRODUCTION

Despite all control programs, nutritional anaemias are on the increase only in India as per the family health surveys FHS.<sup>1,2,5</sup> It is unwise to follow the guidelines or policies made in developed countries for social problems like nutritional disorders, the causes of which are entirely different and have issues unique to our situation.<sup>3</sup> We need to look at iron deficiency or B12 folic acid deficiency in India, as primarily due to decreased consumption as compared to western scenario, where nutritional deficiencies occur mostly when there is an increased loss, or a physiological or pathologically increased need or malabsorption of these nutrients. Because of their refined dietary habits, people in the western countries always consume a complete protein containing all the essential amino acids, and they have sufficient stores of iron and B12 in the body, since

the food they consume is rich in iron, B12, folic acid and good quality proteins. This is because, in most of the developed world, the dietary practices, which got refined over the years due to the influence of scientific modern medicine, allowed their people to have access to all the components of a balanced diet, more often than the people in developing countries like India. Therefore, dietary practices allowed their people to come in contact with all essential items needed for haemoglobin synthesis, which is not the case in India at the moment. The western world had empowered people by social reforms that have ensured safe drinking water through public taps, clean environment and shelter for all, and access to balanced diet. To cut it short, they as a society has utilized all the benefits of scientific modern medicine and addressed all their public health issues decades back and hence, they could reduce disease burden and prevalence nutritional deficiency resulting

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from reduced consumption. Social awareness, good primary health care and social empowerment is the primary step and the key movement in addressing nutritional anaemias and other nutritional disorders.<sup>3</sup>

### The unique Scenario in India

In our scenario majority are not even aware of the components of a balanced diet.<sup>4</sup> Even if people know about proper diet, that they have no access to balanced diet due to issues of marginalization, and lack of empowerment and hence all the items of a balanced diet are not available simultaneously for consumption. The lack of awareness on balanced diet is so high that even some five-star hotels, do not provide all the essential items of a balanced diet (**Figure 1**). Millions of Indians are at risk of B12 deficiency and folic acid deficiency, besides the most common iron deficiency which is as high as 54% in the Indian subcontinent.<sup>5,9</sup> Even if B12 is available from food, it will not work unless there is folic acid, iron and a source of complete protein simultaneously each time we eat. Complete protein is available only if people use pulses and cereals together, simultaneously, each time they eat or they should consume a source of complete protein like curd, fish, egg or meat, which has the added benefit of giving Vitamin D as well. Along with that regular consumption of raw vegetables and fresh whole seasonal fruits simultaneously is essential to provide folic acid, which almost never happens in Indian scenario. Leafy vegetables and meat are the primary and practical sources of B12 and iron in the diet, which is less often consumed in the Indian scenario. National programs must be designed based on our own problems and priorities, and not based on western guidelines where they may try to fortify food with one missing item alone to help those with an increased demand for one specific nutrient.

We keep forgetting the basic fact that hemoglobin synthesis needs dietary protein containing all essential amino acids, along with B12, folic acid and iron, simultaneously each time we eat. In tackling nutritional anemias, the focus was always on iron deficiency alone or sometimes only mentioned folic acid, but B12 deficiency, which is far more common than folic acid or iron deficiency, is overlooked in India. Though iron deficiency is still very common, B12 and folic acid deficiencies are more rampant, and we failed to recognize the gravity of the situation due to undue dependence on clinical practice guidelines and evidences from outside. Depending on the laboratory only for recognizing and confirming nutritional deficiencies was another disaster, even when we can easily predict or identify these with fine-tuned clinical skill and simple common



Figure 1. One time meal-plate showing the proportions at each meal<sup>8</sup>

laboratory tests.<sup>9</sup> Laboratory oriented diagnosis became the practice in western world because these deficiencies are less common and not often nutritional, and for them B12 deficiency, is either malabsorption or an autoimmune disorder which is not the case in India. India and the developing or underdeveloped world has a host of other nutritional deficiencies, and the causes of nutritional anemia are always multifactorial, most important of which is lack of a proper balanced diet on their dining table. Among the nutrients needed for Hb synthesis, only B12 and iron are stored in the body and may be utilized when we do not consume them, but the other nutrients are not stored at all, and hence has to be consumed every time we eat. Along with iron and folic acid deficiencies, the most serious unrecognized problem is that of B12 deficiency in India. Equally important or even more important is the issue of missing the good quality proteins, which could also give Vitamin D, in the diet.<sup>6</sup> Scientific knowledge and wisdom were not utilized properly in tackling malnutrition and public health problems in India, due to neglect of primary care, undue focus on specializations and due to the continued undue influence of traditional practices on the people. Because of the wrong focus on tertiary care and AYUSH alone, after neglecting primary care, we forgot to build a good health system, which is effective, suitable, sustainable and meant for the people, as a result the concerns on social issues among existing doctors too have dwindled.<sup>3</sup>

### Nutritional disorders and Nutritional Anemias

Nutritional disorders should not be looked at or evaluated in isolation. One deficiency, if noticed, is always the tip of the iceberg with several other deficien-

cies at its bottom. Nutritional deficiencies can never be addressed adequately by vitamin supplementation alone or food fortification alone, as is being practiced in the western world. There is no point supplementing iron, B12, or folic acid or vitamin D alone to a person who does not consume adequate proteins in the diet, because it will not be able function in the absence of other components. Proteins anyway cannot be supplemented by any means to the masses, and there are easier and cheaper options by promoting proper dietary practices. Therefore, the only sustainable solution is to educate the people on the concept of a balanced diet and to empower the people to consume a balanced diet as often as possible throughout life.<sup>3</sup>

Nutrition influences all body functions, prevents several diseases, influences recovery from all diseases and modifies the course of all disease. Now at least there is renewed interest with recognition of its importance in mental health.<sup>7</sup> The same trend must happen in management and prevention of all diseases. People should be educated on the need and the principles of a properly balanced diet, which is possible only by deploying large numbers of properly trained family doctors who would be encountering them in an appropriate environment for health education.<sup>3</sup>

In the context of nutritional disorders, it is worthwhile reviewing the most important discoveries in modern medicine, like the painstaking researches, which gave us the insight into anatomy and physiology of the body, the discovery of circulation, the structure and functions of the gastrointestinal tract, liver, pancreas, kidneys, brain, lungs, bone, skin, the endocrine tissues and bone marrow, to name a few- they formed the basis of all our understanding and practice of Modern Medicine. All these evolved over centuries of accumulated knowledge from numerous sources from all over the world, not just from any one country or region. After these basic discoveries on the bodily functions, the most brilliant discoveries in modern medicine were the identification of structure and functions of all the vitamins, the numerous micronutrients, their natural sources and the symptoms of their deficiencies and of excesses. Equally important were the research and the understanding on metabolic pathways of carbohydrate, fat and protein, the understating on water metabolism, electrolytes, Ca, Mg and acid-base balances which were all advances in modern medicine mostly came from the western world. These huge volume of knowledge and wisdom is not tapped properly here in preventing diseases and promoting health and we use them, if at all partially only, when someone becomes a patient.<sup>3</sup>

With enough and more scientific knowledge and understanding we forgot to provide the benefits of this wisdom to public and our focus got shifted to application of technology in treatments and shortcuts in dealing with nutritional disorders. Now we estimate serum folic acid or serum B12 levels to diagnose their deficiencies even in those patients who may not be consuming any food item containing these vitamins. Genuinely what the people need is a properly balanced diet, containing all the essential components, as depicted in the diagram indicating the proportions between the components in a one-time meal (**Figure 1**).<sup>8</sup>

Even with a low disease burden, the western world gave priority to set up organised primary health care and a referral system to avoid accumulation of patients in tertiary care centres. We ignored all these social determinants of health, including diet, and then allowed diseases to multiply, but hurriedly increased the number of tertiary care centres, and the number of specialist doctors, with hardly any trained family practitioners, and used technology at par with western world to diagnose and treat. We ignored the cheaper and more efficient methods of diagnosing and manging diseases using fine-tuned clinical skills, with trained family doctors in the community setting and internal medicine doctors in the hospital setting. To ensure that all the benefits of modern medicine reach the grassroots of the society we need to improve our primary health care with trained family doctors.<sup>3</sup> To make matters worse, we allowed all unscientific primitive practices to proliferate in the huge vacuum generated by missing family doctors with the resultant total chaos in medical practice now. With the changed perceptions of modern medicine, focusing only on treatment in hospitals, high end repair works and genetic modifications and gene therapies, many doctors stopped genuine nutrition management and even stopped prescribing vitamin supplements. The habit of not prescribing vitamins to people with poor dietary intake happens when all patients have malnutrition in one form or other and when we are lagging behind the developed world in making available the social determinants of health, including proper diet.<sup>3</sup> We tend to forget that modern medicine evolved over centuries of painstaking research, drawing inspiration from scientific sources from all over the world and using inputs from all traditional systems too and it still continues to do so. Therefore what the people and country needs is not going back to traditional systems, but there is a need to redefine the modern medical practice to make it genuinely more scientific and people friendly.<sup>3</sup>

Traditional practices used to prepare and prescribe health tonics and medicines without any scientific understating on any of these vitamins or of metabolic pathways. There was no standardisation of their practices and they still continue to do the same thing, but now with a revived and renewed interest, even as modern medical practitioners hesitate to prescribe the vitamin supplements, all these wrong trends are due to absence of good primary care doctors in modern medicine. It is true, some of the traditional products may be giving a few essential vitamins and might be influencing some unknown metabolic pathways to the advantage in some, but in the large majority, it may be acting only as a placebo. But surprisingly these traditional practitioners are using the valuable scientific information in modern medicine to justify use of their unscientific products, without studying or knowing the effects or side effects of those products.

## CONCLUSIONS

In tackling nutritional anaemias or any other nutritional disorder, the authorities should focus on creating awareness on the principles of balanced diet and social empowerment of the people to consume all the components of it every time they eat. By default all the items needed must be reaching their dining table, wherever and whenever they eat. Food is the primary medicine and the fuel for human health and activities. To create awareness on individual and social aspects of wellness, every individual and every family should have access to trained and competent family doctors. They should be deployed in all the primary care/first contact clinics, to identify the nutritional deficiencies early and to prevent them in their families, or when they come as patients. There is no point in institutionalising and centralising medical diagnosis and treatment with large numbers of tertiary care centres alone. Similar is the case with the phenomenal waste of promoting all the traditional

practices without a scientific basis, in the huge vacuum created by missing family doctors. The focus should be on scientific primary care, using trained family doctors and on providing social determinants of health to solve the issue of nutritional anaemias, other deficiency disorders and all the lifestyle diseases.

## END NOTE

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