

# A Study Of Nutritional Disorders: With Special Reference To Sabarkantha District, Gujarat, India

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**Abstract:** Malnutrition is a one of the biggest problem in India, as well as in the world. It is also one of the main factors for growing of nutritional anaemia, Maternal Mortality Rate (MMR) and also Infant Mortality Rate (IMR) in developing countries in the world including India. According to the National Family Health Survey – VI (2015-16), more than 53 % of women in India were malnourished, and more than 50 % of below 6 yrs children were suffering with malnutrition. Furthermore micronutrient deficiencies particularly, vitamin A, zinc, iodine, and iron deficiencies, are estimated to affect more than 2 billion people in worldwide. The consequences due to these deficiencies are premature death and other deprived health conditions, loss of eye sight, stunting, reduced cognitive improvement, and low productive capacity. This article highlights about the assessment of malnutrition and other nutritional disorders. The author also discusses the causes of malnutrition in the society, and how they affect to maternal health. The present paper attempts to pull together information, relevant to malnutrition and nutritional anaemia, and it provides useful insights to policy makers.

**Key words:** malnutrition, deficiency, mortality, bio- cultural factors, anaemia.

## 1 INTRODUCTION

The simple meaning of malnutrition is “illness in the human body due to low intake of food”, and to the malnutrition is a root cause to nutritional anaemia, it's like a cause and effect relationship. For example low intake of food (calories) is cause for malnutrition and malnutrition is a cause for nutritional anaemia. According to the cultural anthropology the definition of food is a wide range; one side food is culturally defined. It means what is eatable in culture, in other side food means once food is consumed then it becomes a part of nutrition. It is useful for body functions, health and growth. But here food means all types of foods such as micro nutrients, carbohydrates, minerals, proteins, and etc. According to the United Nations International Children's Emergency Fund (UNICEF) 2015's report, in 2013, at least 161.5 million children experienced stunted growth and 50.8 million suffered from acute malnutrition [4]. Globally, approximately 13 percent of women were estimated to be undernourished, and 38 percent of all pregnant women suffered from anaemia. Moreover micronutrient deficiencies, especially vitamin A, zinc, iodine, and iron – are approximately to have an effect on more than 2 billion people around the world, through adverse effects that includes premature death, deprived health, blindness, malnourished, reduced cognitive improvement, and low productive capability [1]. The general meaning of anaemia is the lack of haemoglobin in the blood. According to medical text books “anaemia is a medical condition in which the red blood cell count or percentage of haemoglobin is less than normal in the human blood”. The good average percentage of haemoglobin in men is 13.5grams/dl. If any men have below 13.5gms/dl of haemoglobin then we have to call, he is an anaemic patient. In the same way the healthy women have 12gms/dl haemoglobin means, 12gms/dl in her blood, if any women have below 12gms/dl of haemoglobin in her blood, than they became anaemic patients. The general anaemia is usually detected or confirmed by a Complete Blood Count – (CBC) test.

A CBC test may be ordered by a physician as a part of routine general checkups and screening or based on clinical signs and symptoms that may suggest anaemia or other blood abnormalities. There are several Types of anaemia is affected to the people due to their conditions. They are mainly seven types of anaemia's are infected to people. Such as “Iron Deficiency Anaemia (Nutritional anaemia), Thalassemia, Aplastic Anaemia, Haemolytic Anaemia, Sickle Cell Anaemia, Pernicious Anaemia, Fanconic Anaemia”. Beyond that more than 400 types of anaemia's have been identified. Anaemia is not a restricted to humans, and it can also effects on the cats and dogs. The nutritional anaemia is also called as an “Iron Deficiency Anaemia”. It is a common condition that results from a lack of iron in the body, it happens due to malnutrition, and lack of folate or folic acid and vitamin B<sub>12</sub> also cause to the nutritional anaemia. According to the World Health Organisation (W H O) “The iron deficiency anaemia is the most common and widespread deficiency in the world. And it is the one of the top 10 contributors to the global burden of diseases”. The symptoms of nutritional anaemia and malnutrition are as follows “pale skin, fatigue and lack of energy, shortness of breath, heart palpitations or irregular heartbeats, hair loss, depression, sores or ulcers at the corner of the month, sore tongue, headache, tinnitus and so forth”<sup>[2]</sup>

## 2. PRESENT SITUATION OF MALNUTRITION AND NUTRITIONAL ANAEMIA IN INDIA

As per National Family Health Survey – IV (NFHS), in India's 22.9 percent of women under the age of 15-49 years, were suffered with malnutrition. According to NFHS, in India 58.4 percent of children below 5 years of age were suffering with anaemia. NFHS – IV reveals that 53 percent of Indian women suffering with anaemia. Mean while 59.8 percent of vulnerable community women suffered with anaemia. According to NFHS-IV, in India 53 percent of women was suffering with general anaemia, and 12.4 percent of women suffered with moderate anaemia, 1 percent women suffered with severe anaemia. As per NFHS – IV, dadra & nagar haveli has highest percentage of women anaemia. That is 58.4 percentages of women suffers with moderate anaemia, and 1.1 percent of women suffered with severe anaemia. The Andaman – Nicobar Islands has highest moderate and severe anaemia rate that is 22.5 percent of women has moderate anaemia. And 1.2 percent of women are severe anaemia in Andaman – Nicobar Islands. Whereas Mizoram state has lowest women anaemia

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patients, which is 20.4 percent of women are suffering with general anaemia and 4.2 percent of women have moderate anaemia and 0.2 percent of Mizoram women have severe anaemia [6].

### 2.1. How to Analyze the Malnutrition and Nutritional Anaemia:

The nutritional scientists and doctors are mainly focus on biological and clinical causes for malnutrition. But bio-cultural scientists or medical anthropologists only explain the biological and cultural factors of malnutrition and nutritional anaemia, and its preventions and controlling measures. According to the anthropologists the assessment of nutritional status can be done in two ways, which is both physical anthropology and socio cultural anthropology methods. They are as follows:

physical anthropological method	Socio – cultural methods
A – anthropometrics method B – bio chemistry method C - clinical method D - Dietary method	Traditional fieldwork  Data on cultural practices  Observation on food patterns  Quantitative & Qualitative interviews with house holders and key informants  Study of Socio-cultural process evolution  Analysis Food taboos, beliefs, and practices etc...
Source: [5, 12]	

### 2.2. Methodology and Objective:

The methodology of this study is mixed method research; it means both quantitative and qualitative method. This study consists of primary and secondary data sources; the primary data was collected with the help of semi structured interview questionnaires and interview guides. The authors have used the following Qualitative tools, such as participant observation in community and In Depth Interview's (IDI's) with informants. The researcher has done a quantitative data collection through simple random sampling of the informants to the primary data collection with the help of semi structured questionnaires. The respondents are mainly maternal woman in the society. The researcher took some of the secondary data resources from official and non official organizations, such as NFHS-IV and World Health Organisation (W.H.O), United Nations International Children's Emergency Fund (UNICEF) and others. The main objectivities of this paper are explaining how to find out the malnutrition and nutritional anaemia. Another objective of study is to analyze the impacts of malnutrition and allied disorders on maternal health. Further objective of the study is to understand the socio – cultural factors of malnutrition and allied disorders.

### 3. MAJOR FINDINGS & DISCUSSION:

The present research area is Kedva and Kheroj, Derol phc area in khedbhrama block and Mudeti, Jaswanth Garh, phc area in Idar block in Sabarkantha district in Gujarat, India. The Gujarat state is located in western part of India; this state has well cultural diversity and integrity. The rural and tribal part of Gujarat is very backward and isolated from rest of the state. The researchers choose the Sabarkantha district, which is

coming under tribal region and far most area of the state capital. The above said villages and blocks are very near to Rajasthan and they are coming under the tribal belt of Gujarat state, it is very backward and full of mountains.

Table. No 1: Socio – Economic Details Of Informants

No. of Informants	Age group of Informants	Educational level of informants		Economic status of informant s	Name of the District
		Literates	Illiterates		
28	15 – 25	10	18	BPL	Sabarkantha, Gujarat
25	26 - 35	06	19	BPL	Sabarkantha, Gujarat
17	36 – 45	03	14	BPL	Sabarkantha, Gujarat
15	46 – 55	02	13	BPL	Sabarkantha, Gujarat
15	56 - 65	03	12	BPL	Sabarkantha, Gujarat
Tot=100		Tot=24	Tot=76		

The interviews are conducted in the Kedva and Kheroj, Derol villages in khedbhrama block and Mudeti, Jaswanth Gadh; villages in Idar block in Sabarkantha district in Gujarat, India. 20 samples collected from each village. The primary data is collected from December 2015 to February 2016. The total number of respondents is 100, those are between the ages of 15 to 65 yrs, and among them 85% have more than three children. Some women had more than 6 children. Out of the 100 samples 80 samples collected on Quantitative method and remaining 20 samples collected through qualitative method, such as In Depth Interviews (IDI). At the time interviews the researchers are take consent of informants. Some of the major problems identified by researchers through informant's information from above mentioned areas. The problems are as follows, low income groups of population, preference given to male child birth, lack of medical facilities, short birth intervals, women illiteracy, and improper breast feeding to children. Discrimination of women child, lack of basic amenities, food taboos at puberty and pregnancy time, drought prone region, and so on. Introduction to maternal nutrition is also an important factor at the time of delivery. Consumption of inadequate food is harmful to reproductive health. It affects the nutritious supplements while pregnancy, which improves birth weight and the transfer of nutrition via materno-fetal and labour spontaneity, is affected. The women, who have experienced the iodine deficiency during foetal development, suffer with vitamins and other important foods which are used during developmental and early childhood. They are faced a lot of health issues on later stage, because for the growth of foetus and later stage of growing child, iodine, vitamins, minerals are essentially needed. There is growing evidence about the relationship between foetal nutritional exposure and adult health nutrition, during childhood it plays a significant role for growth and development of the babies. In some communities people believed that, the eating of fish during the pregnancy, is to gives a pain to the pregnant women and it also caused to a late delivery. Further studies describes that, they are believes that the boiler chicken is injures to baby health. The researchers describes that the women in above

area are suffering with anaemia and diabetes. So the intervention efforts for diabetes in the offspring's are very important. Most of the times the women suffering from anaemia but at the same time they are living in a disease prevalent community. In some cases they are suffering with malaria parasites in their blood, on that time it is very crucial to save the both mother and child. Even on that stage also people are following the certain cultural beliefs and food taboos. According to bio-cultural scientists, and anthropologists the Socio-cultural, ecological, biological factors for malnutrition among maternal woman health, is as follows.

### **3.1. Socio Cultural and Ecological Factors for Malnutrition and Nutritional Disorders:**

Food taboos at pregnancy time, Modern dressing patterns, Food taboos at puberty time, Male domination society, Late weaning of girls, Cultural practices at home level, Food aversions and food cravings, Income disparities, Maternal illiteracy, Social class and hierarchy system. Availability of nutritional food is major problem in tribes and vulnerable communities. Migration patterns, Agricultural uncertainty due to climate change and other global warming conditions, large family size, discarding cooking water from cereals.

### **3.2. Biological factors For Nutritional Disorders on Woman health:**

Low intake of calories, lack of vitamins and minerals in diet, poor dietary habits, failure to recognize the relationship between food and health, low interval periods between the children, psychological stress, lactation problems in mothers due to psychological stress and other reasons, abnormalities at the time of delivery, more bleeding on menstrual periods, Genetic disorders, Modern artificial foods, pre – mature termination of breast feeding, delaying of supplementary feeding, use of over – diluted cow's and buffalo's milk etc..

### **3.3. Nutritional Deficiencies Impacts and its Diseases:**

Kwashiorkor, Marasmus, Nutritional anaemia, Iodine deficiency (goitre), Colour blindness, Pellagra, Beriberi, Scurvy, Rickets, Austio – porosis, Flaking Skin, De – Pigmentation of Hair and Skin, Weight Loss, Sunken Eyes, Pale Face, Bit tote Spots, Red Tongue, Knock Knees, and so forth. It is also increasing of maternal mortality rate (M.M.R), and infant mortality rate (I.M.R) in the developing countries. The nutritional deficiencies are leads to cardio vascular diseases, diabetes, obesity, cancer, etc.

## **4. HOW DOES NUTRITION IMPACTS ON MATERNAL MORTALITY:**

Most favourable maternal diet is an important contributor to the survival of both the mother and child and promotes women's overall health, efficiency, and well-being. Existing facts shows that there are two crucial pathways throughout which women's nutrition affects survival outcomes; they are anaemia and calcium deficiency. The strongest evidence is around anaemia, is reduced the person's red blood cells or haemoglobin in the blood, it is effected to transport oxygen to cells in the body. And maternal anaemia is main cause to more than 20% of maternal deaths around the world [1]. The severe anaemia, comes when haemoglobin levels are less than 7.0 g/dl, presents a significant risk of mortality for women of reproductive age, whether or not they are pregnant. Pregnancy increases the risk of maternal anaemia (specifically

iron deficiency anaemia) as there is an strengthen the maternal iron requirements then, it's to support both maternal and foetal needs, the risks associated with anaemia increase as haemoglobin levels declined. Particularly severe anaemia can lead to heart failure and death from shock. In one research study said that, the women of reproductive age with severe anaemia were eight times more likely to die than those with higher haemoglobin levels [3]. Interventions that increase iron uptake and stores, reduce blood loss and infection, and address other micronutrient deficiencies could prevent at least half of all anaemia cases. Due to risk factors, the development of iron content in women body is very important, that is useful to both during and before to pregnancy also, so the mother's iron stores are sufficient before in her body is subjected to the additional demands of pregnancy. Iron supplementation is a very efficient intervention for reducing the risk of anaemia in women, both pregnant and non-pregnant, the epidemiological studies have showed that low calcium intake to gestational hypertension. According to the black and other authors, due to the hyper tension in pregnancy, is leads to the pre-eclampsia and eclampsia, and these two factors are the second major cause of maternal mortality worldwide. Supplementation reduces pre-eclampsia risk by 55 percent and preterm birth risk by 24 percent as well as dipping the risk of foetal development restriction. the entire pregnancy period the requirements for iron, is difficult to get with diet alone, so W.H.O recommends that women should receive 6 months of daily iron supplementation during pregnancy. And develop regular eating of iron-rich foods and food sources, nutritional diversity, are also important interventions for maintaining iron levels entire the life cycle [2]. The Maternal under nutrition is the major factor for the intrauterine growth retardation (IUGR). With the identifying mothers at risk, and supplementing them with calories and nutrients we can control the prevalence of low birth weight. Nutritionally high risk factors are maternal weight is below 40kg, weight gain of below 6 kg during whole of pregnancy, haemoglobin is less than 9gms, maternal age is below 18 years or above 35 years, and earlier history of still birth and abortions. After screening, such mothers can be supplemented with proteins and calories. Still maternal obesity is a major risk for congenital malformations, correction of anaemia with proper iron and folic acid tablets can trim down the prevalence of complications associated to anaemia. Nutrition education concerning the importance of balanced diets which can be attain from the traditional Indian diets and locally existing foods can go a long way in development of the nutritional status of the mother and the child During early infancy exclusive breastfeeding is found to be protective against malnutrition as milk from well nourished mother is a complete food to a great extent. Subsequently, quantum of breastfeed decides the growth, potential to resist disease, psychological development and survival. However in a malnourished mother still now the output of milk is adequate, after three months her infant's may have growth is faltering. Such infants might be need the multi vitamin and mineral supplementation besides with exclusive breast feeding [1].

## **5. APPROACHES TO PREVENT MALNUTRITION AND IMPROVE NUTRITION IN INDIA:**

There are two major approaches to deal with the malnutrition. Such as Nutritional planning, direct nutrition and health development. The Nutritional plan absorbs creation of nutrition guidelines along with long term goals to develop production

and supplies of food, its make sure that fair distribution and programs to boost up the purchasing power of the people. Such as, land reforms in rural areas, giving scientific suggestions to farmers to get better crops from their lands, develop the proper marketing facilities and storage facilities of farm produces and better marketing supportive prices and so on, another side to developing the non agricultural people's income generation activities, through MGNREGA, PMGSY, SKILL INDIA, DWACRA, micro finance through SHG'S and so on. It is increasing the people's purchasing power capacity, so it's give a capability to poor people to buy nutritious food on sufficient quantity, strengthening of public distribution system is also one of govt plan to reduce the price burdens on poor and rural people, and many more programmes are implementing by the govt to reducing of malnutrition and under nutrition in India. Quality health care system that provides the immunization, oral rehydration, periodic deworming, early diagnosis and proper treatment of general illnesses can go a long way in controlling the malnutrition in the society. It gives a nutritional education, early detection of malnutrition, and explaining the best nutrition supplementation.

### 5.1 Nutrition Education and Supplementation

The nutritional education includes that; the people can be sophisticated on the nutritional quality of common foods, locally available, culturally accepted low cost foods, and so on. Exclusive breastfeeding is important for first six months of the baby, along with the some semi liquid food after six months to two years is compulsory. Damage is caused with the traditional beliefs and cultural practices to feeding Recipes, for preparing proper weaning foods, and good supplementary food, locally accessible low cost foods. Importance giving to milk, eggs, meat or pulses in sufficient quantities in the diet to enhance the net dietary protein value, importance of feeding children and adults during illness, importance and advantages of growing a kitchen garden, consequence of immunizing their children and following proper sanitation in their day to day life. Nutrition supplementation is one of the strategic plans for controlling of nutritional disorders. Biologically vulnerable groups like pregnant women, infants, and preschool and primary school children are targeted with different welfare measures taken by the government. Calories, proteins and micronutrients like iron, vitamin A and zinc can be supplemented. The objective of nutrition supplementation among maternal women and infants and children is as follows. Objectives of supplementing pregnant and lactating women include are supplementation of infants and children includes that the Preventing anaemia in the mother thus improving her health and the results of pregnancy. The growth of calorie intake, controlling low birth weight (LBW) baby, therefore is breaking the brutal cycle of intergenerational cycle of growth failure. Supplementing calcium to prevent osteoporosis etc... To treat and recuperate severely malnourished subjects, develop the general health and wellbeing of children, increase the resistance to infectious illnesses and there by decrease morbidity, Accelerate the physical growth and mental development of children improve the academic performance and learning abilities of children.

### 5.2 Nutritional Programmes in India:

In India the nutritional programmes are implemented by various dept. and ministries by both state govt and central govt. in that central govt was played a major role. Some major

nutritional programmes in entire India, is as follows.

#### 5.2.1 Applied Nutritional Programme:

It is one of the earliest nutritional programmes after the independence India; it is started in 1963 by Orissa govt. in 1973 it is extended to all over India through central govt support. Basically it is a nutritional supplement programme to under 5 year's children and pregnant and lactating women.

#### 5.2.2 Balwadi nutrition program:

It is started in 1970, by govt of India; it is for under 5 yrs children and special focus on under nutrition and malnutrition children. At the time of starting of the programme it is implemented 270 days in a year now it is 365days. It is merged on I .C.D.S programme.

#### 5.2.3 Midday Meal Programme:

It is started in 1962 -63 in Tamil nadu state, after that the govt of India is adopted this programme and it is 75 to 90% funded by govt of India. And it is implemented in all over India from 1995-96. It is the one of the biggest programme in the world. In 11th plan the govt of India allocated 385 billion rupees for this program. In 12<sup>th</sup> plan the allocated funds is 902 billion rupees, in India nearly 20 crores children were benefited by this programme, it is implemented through SHG'S, NGO'S, GOVT.STAFF, in south India from 2014 onwards this program is implemented by akshayapata foundation .and ISCKON foundation.

#### 5.2.4. I.C.D.S PROGRAMME:

It is started in 1976, but it is stopped in 1978, and again it is restarted in 2002.it is also one of the biggest welfare programme in the world. It is fully funded by govt of India. In the ICDS programme the beneficiaries are below 6 years children, pregnant woman and lactating women, adolescent girls, anaemic women patients, women in reproductive age group of 15 - 44 years,

#### 5.2.5. Some other major nutritional programmes in India are as follows:

Special nutrition programme Nutrition programme for adolescent girls National Vitamin A deficiency control programme National Iodine deficiency control programme National nutritional anaemia control programme Annapurna scheme Anthyodaya Anna yojana (AAY). National Food security programme

#### 5.2.6. UNICEF Role in India:

According to the UNICEF (United Nations International Children's Emergency Fund) is supports the Government, and its objectives to reduce and prevent malnutrition, and to improve the development of children under five-years-old, especially those in marginalized groups. UNICEF is supporting the government to further expand and development of the quality of ICDS in various ways, such as training is giving to anganwadi workers for better performance on their job like communication skills to approaching the mothers in rural and tribal areas, and developing the supervising skills and reporting systems, arrange the important provisions; and also develop the community awareness programmes for early deducting of childcare interventions. UNICEF also supports iron and folic acid supplementation for teenage girls and Vitamin A supplementation for children. It promotes the using

of iodised salt through educating the general population. UNICEF's programmes are give a more efforts to reducing hunger and malnutrition rates in India and other developing countries, especially to the most vulnerable groups of children (0-60 months old) [4].

## 6. SUGGESTIONS:

Optimization of foetal development requires the achievement of ample nutritional status of the mother, before the conception. And interventions to reduce chronic disease risk in future generations should address to nutritional and standard of living, 19 changes in infancy and adolescence, to make sure sufficient nutrition throughout adolescent and reproductive years and in order to growing of women's reproductive health. Governments should give the awareness to people, for concerning the advantages of nutritional supplement and disadvantages of food taboo systems in local languages. Adding the more fruits and vegetables and proteins like fish and meat in everyday diet, giving importance to seasonal fruits and vegetables and encourage the low cost weaning foods. Maintains the growth charts of children and maternal women in schools and health centres. Immunization and development of supplementary feeding programmes during epidemics. Food fortification Increasing of food grains production with the help of newly advanced technologies, it is reduce the malnutrition. Promotion of breastfeeding, particularly 10 times in a day for 0-6 months children. Encourage the family planning and birth spacing between the children, promotion and awareness of immunization to children. Governments should provide nutritional food with subsidized rates to the low income people and pregnant women and children up to 14 years of age.

Menstrual hygiene and sanitation is very important to women from at the age of 14 to up to menopause, it reduces the risk of anaemia in women. Strategies that promote protect and support exclusive breastfeeding for around the first six months of an infant's life should be enhanced, and should recognize the benefits for long-term health. Further research is needed, mainly in interventions on malnutrition, and on nutritional anthropology or allied studies, it is necessary to understand the problem in wide range then only it is easy to draft a solution to malnutrition and related problems, it is also useful to maternal and children health.

## 7. Conclusion

Controlling the major nutritional problems is essential to prevent the maternal and child deaths. Integrate the nutrition related interventions into maternal and child health programs is giving best results. At the same time most favourable practice is maternal and child nutrition from day 1 to 1000 days is ensuring healthy mothers and neonates, it is also gives development for 0-60 month's children. It also decreases vulnerability to infectious diseases and the negative cycle of disease, the life course approach of nutritional supplementation is giving complete nutritional protection to child and mother day 1 onwards. It is a one of the best method for prevention of malnutrition in child and as well as in the mothers. Along with periodic surveillance, early diagnosis and treatment of any infections and diseases, development of programmes for early rehydration of child with diarrhoea, nutritional rehabilitation services and follow up of cases are very needed, However, it is essential for social scientists, biological scientists and doctors and even to policy-Makers to examine the way these factors (and indeed others) interact in

specific processes of prevention of malnutrition and under nutrition, in order to achieve more balanced and realistic policies. Such analysis need to take in to account of certain crucial aspects of malnutrition and nutritional anaemia. Funding: None Conflicts of interests: None Acknowledgments Grate full thanks to the anganwadi workers of the Mudeti, Jaswanth Gadh, Kedva, Kheroj and Derol villages, for their cooperation to collecting data. Sincere thanks to the publishers for acceptance and publishing of the paper

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