

**Original research article**

## **A Burden of Anemia in Females of Tribal Area of Kutch, Bhuj of Gujarat research article**

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### **ABSTRACT**

**Introduction** - As per National Family Health survey, more than half of women in India (55%) have anemia. Presence of anemia in women may lead to increased risk of low birth weight and premature births, insufficient iron storage for the newborn, increased risk of maternal mortality and morbidity and decreased physical activity and mental concentration.

**Methods** - This was a prospective observational study of primary data, in which 500 females of 20 – 49 years of age, of lower socio economic class, in tribal area were screened for presence of anemia depending on their Hbconcentration, MCV, MCHC.

**Observation and results** –Prevalence of anemia was found to be high among women of reproductive age group.About271 out of 500 female patients were diagnosed to be suffering from anemia.

**Conclusion** - Around 54.20% of females, of and around reproductive age, of lower socioeconomic tribal area of Kutch, Bhuj, Gujarat, suffer from anemia. New program strategies are required so as to improve the overall nutritional status of women of and around reproductive ages.

**Keywords** - anemia, tribal, socioeconomic, Prevalence

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### **INTRODUCTION**

Anemia is defined as the reduction in the oxygen carrying capacity of blood, due to either decrease in total RBC count or decrease in hemoglobin concentration or both, as per the age and sex of an individual (1).WHO defines anemia as a condition in which theHemoglobin (Hb) content of blood is lower than normal as a result of deficiency of one or more essential nutrients, regardless of the cause of such deficiencies (2). As per National Family Health survey, more than half of women in India (55%) have anemia, including 39% with mild anemia, 15% with

moderate anemia and 2% with severe anemia. (3). According to WHO in the developing countries, about 50-60 % of young children and pregnant females and 20-30 % non-pregnant females were affected by iron deficiency anemia (4). Nearly 50 per cent of women of reproductive age and 26 per cent of men in the age group of 15-59 years are anemic(5). India has among the highest number of cases of anemia in the world, according to the NFHS-III undertaken in 2005-2006 (6).Presence of anemia in women may lead to increased risk of low birth weight and premature births, insufficient iron storage for the

newborn, increased risk of maternal mortality and morbidity and decreased physical activity and mental concentration. Women with even mild anemia may suffer easy fatigue and have reduced working capacity (7). However, nobody is immune to have an anemia and worldwide, anemia is caused by innumerable factors, like hemorrhages acute as well as chronic, dietary deficiencies, abnormal hemopoiesis and increased hemolysis, and affects women more often than men (8). So the present study was planned and carried out with the aim, to study the incidence and prevalence anemia in females of and around reproductive age group, residing in a rural tribal area of Kutch region, to be aware of the burden of severity and magnitude of the problem in this part of the state.

#### **MATERIALS AND METHODS**

The present study of evaluation of percentage distribution of anemia in females was conducted in the Department of Physiology, Gujarat Adani Institute of Medical Sciences, Bhuj, Gujarat. The anthropometric measurements were carried out in all the subjects. History taking and medical examination was carried out. The nature of the test was explained to the subjects.

**Inclusion criteria** – Total 500 volunteer female subjects / patients, of and around the reproductive age group, i.e. 20 to 49 years of age, not having any major illness or chronic addiction, were selected for the study from among those visiting the OPD of G K General Hospital, Bhuj, Gujarat.

Detailed history was taken from each patient, including history of present illness, past illness, anemia among other members of the family, socio-economic history, history of blood loss, ingestion of drugs, menstrual, gynecological and obstetrical history in females, history of diarrhea, dysphagia,

malaria, eating habits, quality and quantity of food consumed, history of blood transfusion or donation and worm infestation.

**Exclusion criteria** - Subjects less than 20 and more than 49 years of age, suffering from any major illness and with chronic addiction were excluded from the study. Data comprising of clinical history regarding name, age, sex, occupation were obtained and recorded from all the subjects. Special emphasis was given in history for finding out any symptoms suggestive of anemia.

A thorough physical examination was carried out on each subject with special emphasis given to signs suggestive of anemia like pallor, koilonychia, lymphadenopathy, hepatomegaly, splenomegaly, purpura, bruises, jaundice and symptoms like weakness, fatigue, poor concentration and dyspnea.

Following history and examination, preliminary blood tests were performed on 3ml venous blood, including complete blood counts (CBC) by automated method. A clinical diagnosis of presence of anemia was made on the basis of history, examination and blood tests carried out on each subject. The special emphasis was given to the clinical parameters in the subjects like Hb concentration and red cell indices i.e. MCV, MCHC.

The presence and grading of anemia was confirmed on each subject on the basis of hemoglobin concentration as – mild (12-8 gm/dl), moderate (8-5 gm/dl) and severe (<5 gm/dl)(9).

#### **OBSERVATIONS AND RESULT**

Around 500 female subjects/ patients were evaluated during the period of August 2015 to January 2016, over a period of about 6 months, during their visits to outpatient department of GK General Hospital, Bhuj, Gujarat and about 271 (54.20%) out of 500 subjects

evaluated, were found to be suffering from anemia. It was observed in the study that -  
 47 subjects out of 91 evaluated had anemia, in August 2016  
 39 subjects out of 82 evaluated had anemia, in September 2016  
 55 subjects out of 79 evaluated had anemia, in October 2016  
 38 subjects out of 82 evaluated had anemia, in November 2016  
 41 subjects out of 90 evaluated had anemia, in December 2016  
 51 subjects out of 76 evaluated had anemia, in January 2017

**Table-1: Distribution of Anemia cases during August 2015 to January 2016**

Serial Number	Month and Year	Sample tested	Diagnosed with anemia
1.	August 2015	91	47
2.	September 2015	82	39
3.	October 2015	79	55
4.	November 2015	82	38
5.	December 2015	90	41
6.	January 2016	76	51
	<b>Total</b>	<b>500</b>	<b>271 (54.20%)</b>

## DISCUSSION

Work done over the past few years gives us an indication of higher percentage distribution anemia in both males and females, with much higher prevalence in females of reproductive age group, especially in tribal population of lower socioeconomic class. The data on this aspect was lacking in this part of the country, so we evaluated the percentage distribution of anemia in females of and around the reproductive age group, residing in the tribal are of the Kutch, Bhuj, Gujarat. According to WHO if the prevalence of anemia at community levels is more than 40%, it is considered as problem of high magnitude (10). The problem of anemia is related to wider population than the traditionally considered groups of the pregnant and lactating females and children. With the onset of menstruation and associated blood loss, there is a further rise in prevalence and severity of anaemia in

adolescent girls (11). Ideally, prevalence studies should be based on a representative sample composed of every segment of population but when this is not feasible, the prevalence in high-risk group could be a valid indication for the magnitude of the problem (12). G K General Hospital is the only largest hospitals in Kutch, Bhuj region where patients come from rural tribal as well as urban side, so we decided to evaluate as many female patients as possible attending OPD over a period of six months, to find the percentage distribution of anemia. We found that about 54.20% of the females suffering from anemia. The high prevalence in India; is due to poor socio-economic condition, lack of proper health education and inadequate health facilities in the rural and tribal areas of the developing countries, further aggravating the severity of the problem. Screening for anemia, treatment of anemic women, and availability of food

fortification (wheat flour with iron and folic acid), milk sugar and salt with iron to build long term iron stores remains the key to reduce anemia. Even cooking in cast iron utensils improves iron content in diet (13). Most of the earlier research on anemia in different parts of the world including India was mainly focused upon females. By conducting this study, efforts were made to address the severity and magnitude of this problem in females of the tribal population of our society. The anemia control programme needs to be implemented more efficiently in these parts of the country.

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## CONCLUSION

To conclude, the incidence and prevalence of anemia is around 54.20% in females of 20 to 49 years of age, of lower socioeconomic status of the tribal area of Kutch, Bhuj. However further studies are needed to clarify the cause and type of anemia, before starting the treatment. The high prevalence of anemia among the women in India is a burden for them, for their families and for the economic development and the productivity of the state and hence of the country.