



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 5.2  
IJAR 2017; 3(10): 337-339  
www.allresearchjournal.com  
Received: 20-08-2017  
Accepted: 21-09-2017

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## Prevalence of anemia among adults in Koverapalem a rural area of Nellore

**Katari Kantha and Arumugam Indira**

### Abstract

**Background:** Anemia is a major public health problem in India. Although nearly three quarters of the Indian population live in rural areas, the epidemiology of anemia in rural settings is not well known. The purpose of this study was to determine the prevalence of anemia among adults in selected rural areas of Nellore.

**Objective:** The objective was to assess the prevalence of anemia among rural adults.

**Methods:** The participants in this cross-sectional study came from Koverapalem rural area of Nellore. A total of 393 adults were conveniently selected. Trained investigators administered a standard questionnaire to each participant during a face-to face interview and carried out Haemoglobin testing by the haemometer (Sahil's method).

**Results:** The results show that, out of 393 adults with regard to the category of the Anemia 329 (83.72%) had Normal (>11 gm/dl) Haemoglobin, 50 (12.72%) had Mild Anemia (9- 11 gm/dl), 10 (2.54%) had Moderate Anemia (7- 9 gm/dl) and 4 (1.02%) had Severe Anemia.

**Keywords:** Adults, anemia, prevalence, rural area, Nellore

### 1. Introduction

According to the World Health Organization (WHO), there are two billion people with anemia in the world and half of the anemia is due to iron deficiency<sup>[1]</sup>. Anemia is a late indicator of iron deficiency, so it is estimated that the prevalence of iron deficiency is 2.5 times that of anemia. Anemia and iron deficiency lead to substantial physical productivity losses in adults<sup>[2]</sup>. Iron deficiency during pregnancy is associated with maternal mortality, preterm labor, low birth-weight, and infant mortality<sup>[2]</sup>. In children, iron deficiency affects cognitive and motor development and increases susceptibility to infections<sup>[3]</sup>.

Anemia is a major health problem in India. In the 2005- 2006 National Family Health Survey (NFHS-3), a household survey aimed at having national and state representative data on population health and nutrition; the prevalence of anemia was 70% in children aged 6-59 months, 55% in females aged 15-49 years, and 24% in males aged 15-49 years<sup>[4]</sup>. Although the NFHS-3 showed that the prevalence of anemia was higher in rural areas, there is a paucity of data about the epidemiology of anemia in rural settings<sup>[5]</sup>. The aim of this study is to describe the prevalence of anemia among adults in Koverapalem, a rural area of Nellore in Andhra Pradesh, India.

Surveillance of anemia is challenging, requiring simultaneous understanding of the epidemiology of its underlying causes. Focusing only on total anemia invites misinterpretation of trends because changes in severity may be missed. Estimates in high-risk populations suggest that total anemia prevalence may be as high as 50% to 80%, with as many as 10% to 20% having moderate to severe anemia. Prevalence is consistently higher in people with low socioeconomic status, low body weight, and in females who have recently given birth.

The research of Dr. Indira. A *et al.*<sup>[6]</sup> and other studies<sup>[7-9]</sup> shows the nutritional status of various categories of people of Nellore.

The aim of this study was to assess the prevalence of anemia among rural adults.

### 2. Detailed Research Plan

#### 2.1 Research Approach: Quantitative Approach.

**2.2 Research Design:** Descriptive design.

**2.3 Research Setting:** The study was conducted at Dakkilavaripalem rural area of Nellore.

**2.4 Sampling Technique:** Convenience sampling technique.

**2.5 Sample Size:** A total of 422 samples were included in this study.

**3. Results and discussion**

**Table 1**

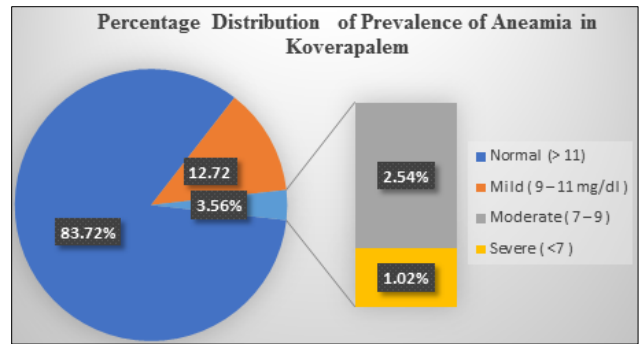
So. No	Demographic variable	Frequency	Percentage
1.	<b>Age</b>		
	a. 20-30 years	169	40.0%
	b. 31-40 years	54	12.8%
	c. 41-50 years	54	12.8%
	d. 51-60 years	145	34.4%
2.	<b>Gender</b>		
	a. Male	206	48.8%
	b. Female	216	51.2%
3.	<b>Education</b>		
	a. Illiterate	192	45.5%
	b. Inter/SSLC	194	46.0%
	c. Under Graduate	19	4.5%
	d. Post Graduate	17	4.0%
4.	<b>Family</b>		
	a. Extended Family	284	67.3%
	b. Joint Family	109	25.8%
	c. Nuclear Family	29	6.9%
5.	<b>Occupation</b>		
	a. Farmer	43	10.2%
	b. Coolie	37	8.8%
	c. Managerial job	120	28.4%
	d. Teaching job	8	1.9%
	e. Others	214	50.7%
6.	<b>Income</b>		
	a. Rs. 2000 – 4000/-	161	38.2%
	b. Rs. 4001 – 6000/-	105	24.9%
	c. Rs. 6001 – 8000/-	156	37.0%
7.	<b>Food Pattern</b>		
	a. Vegetarian	111	26.3%
	b. Non – vegetarian	244	57.8%
	c. Mixed	67	15.9%

The study included 393 determinations of haemoglobin from 422 adults, of which 206 (48.8%) were male and 216 (51.2%) were female. Out of 422 adults 169 (40.0%) belongs to 20-30 years, 54 (12.8%) belongs to 31-40 years, 54 (12.8%) belongs to 41-50 years, 145 (34.4%) belongs to 51-60 yrs. Regarding food pattern, Out of 422 adults 111 (26.3%) was vegetarian, 244 (57.8%) were non-vegetarian and 67 (15.9%) were having mixed dietary practices.

The previous studies show that Spirulina was thought to be the best food for correcting the anemia [10].

**Table 2:** Frequency and Percentage Distribution of Prevalence of Aneamia in Koverapalem. N=393 Out of 422 sample H.B report was taken for 393 samples.

Classification	frequency	Percentage
Normal (> 11)	329	83.72%
Mild (9 – 11 mg/dl)	50	12.72%
Moderate (7 – 9)	10	2.54%
Severe (<7)	4	1.02%



**Fig 1:** Percentage Distribution of Prevalence of Aneamia in Koverapalem

The above figure illustrates the anemia distribution in Koverapalem. Out of 393 adults with regard to the category of the Anemia 329 (83.72%) had Normal (>11 gm/dl) Haemoglobin, 50 (12.72%) had Mild Anemia (9- 11 gm/dl), 10 (2.54%) had Moderate Anemia (7- 9 gm/dl) and 4 (1.02%) had Severe Anemia.

Haemoglobin testing was not done to 29(6.8%) adults due to unavailability of subjects on three repeated visits.

In this study, we observed that majority 329 (83.72%) adults are having normal haemoglobin. Necessary actions need to be taken to correct the anemia for 64 (16.28%).

The present study results are consistent with the findings of the previous studies conducted in Nellore region [11-15].

**Conclusion**

The results of this study can be used by public health programme to design target interventions aimed at reducing the burden of anemia in Koverapalem rural area of Nellore. Further studies are needed to clarify the etiology of anemia among adults. This in turn might shed light on the preventive and intervention strategies that might be effective in this community.

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