International Journal of Trend in Scientific Research and Development (IJTSRD)
International Open Access Journal
ISSN No: 2456 - 6470 | www.ijtsrd.com | Volume - 2 | Issue – 2

Study of Prevalence of Anaemia in Adults among Rural Population of Bhagalpur District of Bihar

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ABSTRACT

The aim of the present study is to find the prevalence of anaemia in adults among the rural population of the Bhagalpur district of Bihar. Indian population. During an epidemiological survey on anaemia in the rural population of Bhagalpur district of Bihar a random sample of 246 individuals underwent blood investigations including haemoglobin estimation. The overall prevalence of anaemia in ≥ 45 years of age group was 36.19%, being 50.79% among females and 38.09% among males. Low socioeconomic status, illiteracy and lower body mass index were associated with higher prevalence of anaemia. The finding of a higher prevalence of anaemia in adult males needs further investigation and corroboration in other studies. The intervention for anemia should be directed on the community as a whole.

KEYWORDS: *Anaemia, Blood, Hb, Population, Smoking*

INTRODUCTION

One of the most prevalent medical conditions in India is anaemia (NCCNAI, 1998 & Seshadri, 1999). Anaemia is a condition that affects people's ability to carry enough oxygen to meet their body's needs. It is associated with either increased or decreased RBC levels. Iron deficiency, a component of which is found in the blood protein haemoglobin, is another highly important cause of anaemia NHM). Rural communities experience the issue significantly more than metropolitan ones. Children and women who are pregnant or nursing are at a significant risk for anaemia. Pregnant women (56%), school-aged children (53%), non-pregnant women (44%) and preschoolers (42%) are the population groups most severely impacted in developing nations. The risk of anaemia was highest in both men and women who were severely malnourished (ACC/SCN, 2000).

In various regions of India, prevalence in this subgroup has been observed to range from 50 to 90%. Nearly all local and national efforts have primarily targeted these groups. (Kumar, 1999) There are no reliable statistics on the prevalence of anaemia in the adult population, including adult males and non-pregnant females. We looked at adult anaemia prevalence as part of an epidemiological investigation on the prevalence of hypertension in rural populations.

Materials and Methods

From April 2016 to December 2016, a house-to-house survey was conducted in five villages of the Naugachhiya Subdivision in the district of Bhagalpur, Bihar state (India). The technique and research population specifics have been covered in other places.4,5 In a nutshell, 2000 people were interviewed utilising a pretested structured interview schedule out of the overall eligible population (n=2945) in the 18–70 age range. One hundred twenty-three people were found to have high blood hypertensive, and age- and sex-matched controls were chosen at random from the population for blood testing.

Hb Determination: On 246 people, haemoglobin estimate was available. The direct cyanmethhemoglobin technique was used to estimate haemoglobin. Males with haemoglobin levels less than 13 g/dl and females with haemoglobin levels less than 12 g/dl were considered anaemic.1,2 Males and females with haemoglobin levels between 10 and 12.9

g/dL and 10 to 11.9 g/dL, respectively, were considered to have mild anaemia. Males and females with haemoglobin levels between 7-9.9 g/dL were considered to have moderate anaemia (Malhotra *et al*., 2015).

BMI Calculation: As per usual procedure, the height and weight of each person were measured. Weight in kilogrammes divided by the square of height in metres is how the body mass index (BMI) is determined.

According to WHO guidelines, BMI was further divided into three categories: low (18.5 kg/m^2), normal (18.5-24.9 kg/m^2), and high (25 kg/m^2) (WHO Guideline, 1995).

Depending on their line of work, the population was divided into sedentary, moderate, and heavy activity categories. The total household income each month was used to determine socioeconomic level. Smokers were defined as those who currently use tobacco in any form as well as those who have previously smoked. Illiterate subjects were those who had not obtained any formal education. The direct standardisation approach was used to obtain the age-adjusted prevalence of anaemia (Malhotra *et al*., 2015).

Result

47.9% (103/246) of the people were detected as anaemic people. The prevalence of anaemia, corrected for age, was 46.1%. Females were more likely than males to have anaemia (45.04% vs. 36.85%, p >0.05, Table 1). In this demographic, mild anaemia was more common than moderate and severe anaemia (males 26.31%; females 35.76%). Males over 45 years of age had the highest frequency of anaemia (44.21%) and females over 45 years had also a greater prevalence of anaemia (56.02%, p >0.05).

Age Group	Number	Hb gm/dl in Male			
		≥13	10-12.9	7-9.9	≤ 7
18-30	32	19	8	5	0
31-45	21	15	4	2	0
≥ 45	42	26	13	1	2
Total	95	60 (63.15%)	25(26.31%)	8 (8.42%)	2 (2.10%)

Table A

Age Group	Number	Hb gm/dl in Female			
		≥12	10-11.9	7-9.9	≤ 7
18-30	51	29	17	5	0
31-45	37	23	12	2	0
≥ 45	63	31	25	4	3
	151	83 (54.96%)	54 (35.76%)	11 (7.28%)	3(1.98%)

Table B

Prevalence of Anaemia in Male = 36.85% in Female = 45.04%

Table 1: Age-group and sex-wise prevalence of anaemia in rural population of Bhagalpur district of Bihar.

Anaemia was more common in men and women who were uneducated, smokers, of poor socioeconomic position, and who had a low or normal body mass index (Table 2).

	Male		Female	
	Hb ≥ 13	<13	Hb ≥ 12	,<12
SEC				
Low	52.6 %	47.4 %	46.9 %	53.1 %
Middle	66.2	33.8 %	56.1%	43.9 %
High	79.0	21.0%	76.4 %	23.6 %
Physical Activity				
Sedentary	50%	50%	49%	51%
Moderate	57.2 %	42.8 %	53.6 %	46.4 %
High	79.8 %	20.2 %		

Body Mass				
Low	48.3 %	51.7 %	42.9 %	57.1 %
Normal	79.2 %	20.8 %	74.6 %	25.4 %
High	58.1 %	41.9 %	59.3 %	40.7 %
Smoking				
Yes	58.6 %	41.4 %	51.6 %	48.4 %
No	77.2 %	22.8 %	77.0 %	23 %
Illiteracy				
Yes	74.5 %	25.5 %	69.3 %	30.7 %
No	80.2	19.8%	75.4 %	24.6%

SES =Socioeconomic status.

Table 2: Characteristics of the study population with and without anaemia in the rural population of Bhagalpur district of Bihar.

Anaemia was more common in men and women who were uneducated, smokers, of poor socioeconomic position, and who had a low or normal body mass index (Table 2). Compared to men who were sedentary or involved in moderate or light occupation-related labour activity, men who were heavily employed had a reduced prevalence of anaemia. No female was observed performing strenuous work-related activity.

Discussion

According to the current study, anaemia is quite prevalent in north Indian rural residents of the ages of equal or greater than 45 years.

Males had a 36.85% prevalence of anaemia compared to females' 45.04%. If anaemia is more common than 40% in a community, it is regarded as a concern of large magnitude by the WHO (Seshadri, 1999). This study consequently highlights the fact that the issue of anaemia affects a larger population than the conventionally recognised groups of children and pregnant and nursing women. Male adults in general are similarly vulnerable. It is impossible to remark on the causes of the high frequency of anaemia in males because the prevalence of different parasitic infestations and other chronic disorders was not examined in this survey. Additionally, no peripheral blood film was taken, which would have revealed the type of anaemia present in this cohort. This study also emphasises the fact that anaemia was more common among low socioeconomic level persons, as well as those who were illiterate and had low body mass indices. Although specific food patterns were not examined, it is likely that members of these populations consume diets that are nutritionally lacking and are more prone to parasite infestations and other chronic diseases. Males who engaged in a lot of occupation-related work activity had reduced anaemia prevalence. This may be because people are eating nutrient-rich diets, which support them as they perform their strenuous work activities.

However, more research is required to confirm or refute this finding. The smokers in this study exhibited a higher prevalence of anaemia than the data at hand. People with low socioeconomic position and illiterate people were found to smoke more frequently than other groups. It's probable that, rather than smoking, the higher prevalence of anaemia in our study is due to socioeconomic position.

Although the current study was not expressly intended to examine all the risk factors for anaemia in this demographic, the dearth of information on adults and the high frequency of anaemia in adult males drove us to publish our results. A thorough investigation is required to determine the prevalence of anaemia in the population, among both males and females, as well as its causes. Additionally, these data imply that every member of the community should receive an anaemia intervention.

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