# **Original Research Article**

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# An epidemiological study of anaemia in the women of reproductive age group (15-49 years) residing in field practice area of a medical college, Udaipur (Rajasthan)

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#### **ABSTRACT**

**Background:** Anaemia is one of the most important public health problem that persist worldwide, affecting the infants, young children, adolescents, elderly and child bearing women of developing countries. Among the women of reproductive age group the adolescence period is crucial and dynamic for young females as they begin to develop their capacity for empathy, abstract thinking for physical and mental induration with future time perspective of growth and development. The objectives of the study were to assess the prevalence of anaemia in women of reproductive age group; to study the socio-demographic factors among the study subjects

**Methods:** A cross- sectional purposive study was conducted on 436 females of reproductive age group, residing in the field practice area of urban health training centre of department of community medicine, Geetanjali medical college and hospital, Udaipur. Study period was from May 2015 to April 2016.

**Results:** The prevalence of anaemia among the age group below 18 years were (71.2%), educated (72.4%), nuclear family (73.3%), married (87.1%), socio-economic status group V (79.9%), menarche (75.15%), and severe anaemia was observed in (3.2%) subjects.

**Conclusions:** Nutritional anaemia is one of the most common micronutrient deficiency observed in the world and is the highest in the adolescent females. The study revealed the statistically significant association of anaemia with various socio-demographic factors.

**Keywords:** Adolescent girls, Haemoglobin, Iron deficiency, Socio-economic status

#### INTRODUCTION

Several diseases affect the man, causes of which may be infectious, metabolic, genetic, or nutritious. Out of all these causes, the nutritional cause is the commonest one throughout the world, primarily due to poverty and ignorance particularly in the under developed and developing countries. The term nutritional anaemia comprises all pathological conditions in which the blood haemoglobin concentration drops to an abnormally low

level due to a deficiency in one or several nutrients, mainly includes iron, folate and B12 deficiencies. The most common cause of anaemia is the iron deficiency that in most time it is not clear with early signs and symptoms. According to world health organization (WHO), the global prevalence of anaemia is 24.8%, which means about 1.62 billion people world-wide are suffering with anaemia. It is noted that highest prevalence is in preschool age children (47.4%), while the lowest prevalence in men is (12.7%). According to the data of

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NFHS-3, 58% of women in reproductive age group are anaemic in India while the figure of Rajasthan is 53%. Anaemia is the common cause of high morbidity and mortality in the women of reproductive age group in India. Nutritional anaemia is the cause of about 20% of maternal mortality. Realising the importance, WHO had rightly chosen the theme for WHO day in 1985 "Healthy youth our best resources" in an endeavour to focus the attention.

#### Objectives of the study

- To assess the prevalence of anaemia in women of reproductive age group.
- To study the socio-demographic factors among the study subjects.

#### **METHODS**

The present cross sectional community based study was conducted on females of reproductive age group, residing in urban field practice area of the department of community medicine, Geetanjali Medical College and Hospital, Udaipur.

Population proportion 33% was used to arrive for the required sample size of 436 females. Randomly the 1st house by lottery method was selected and thereafter every alternate house was selected till the required sample size was covered.

The study instrument used was a preformat, pretested semi structured questionnaire. Haemoglobin estimation was done by electric impedance method. The purpose of the study was explained to the study subjects and the written consent was obtained. The study was conducted during May 2015 to April 2016.

#### **RESULTS**

Among all study subjects major fraction (25.5%) were in the age group of 16-20 years, followed by (18.1%) in 21-25 years of age group (Table 1).

Table 1: Distribution of females of reproductive age group (15-49) according to their age (n=436).

Age (in years)	Frequency	Percentage (%)
11-15	36	8.3
16-20	111	25.5
21-25	79	18.1
26-30	31	7.1
31-35	50	11.5
36-40	26	5.9
41-45	37	8.5
46-50	46	10.5
Total	436	100

The prevalence of anaemia among age group above 18 years was more (73.8%), among Hindus (82.6%), more in nuclear families (73.3%), high in educated females (72.4%) and married (87.1%). Majority of subjects with anaemia were from socio-economic group V (79.9%) (Table 2).

Table 2: The socio-demographic characteristics of the study subjects (n=436).

Demographic factors	Anaemic No. (%)	Non- anaemic No. (%)	Total No (%)			
Age in years	Age in years					
Below 18	210 (71.2)	85 (28.8)	295 (100)			
Above 18	104 (73.8)	37 (26.2)	141 (100)			
Pearson Chi square test	χ2=0.313	p=0.576	Non- significant			
Religion						
Hindu	176 (82.6)	37 (17.4)	213 (100)			
Muslim	160 (80.8)	38 (19.2)	198 (100)			
Christian	16 (64.0)	9 (36.0)	25 (100)			
Pearson Chi square test	χ2=4.993	p=0.0823	Non- significant			
Family compos	sition					
Nuclear	200 (73.3)	73 (26.7)	273 (100)			
Joint	114(69.9)	49(30.0)	163(100)			
Pearson Chi square test	χ2=0.0461	p=0.455	Non- significant			
Education						
Educated	286 (72.4)	109 (25.6)	395 (100)			
Illiterate	28 (68.2)	13 (31.8)	41 (100)			
Pearson Chi square test	χ2=0.3117	p=0.5766	Non- significant			
Marital status						
Married	27 (87.1)	4 (12.9)	31 (100)			
Unmarried	287 (70.9)	118 (29.1)	405 (100)			
Pearson Chi square test	χ2=3.76	p=0.052	Significant			
Socio-economic status						
I	Nil	Nil	Nil			
II	0	5(100)	5(100)			
III	57 (67.9)	27 (32.1)	84 (100)			
IV	142 (70.0)	61 (30.0)	203 (100)			
V	115 (79.9)	29 (20.1)	144 (100)			
Pearson Chi square test	$\chi 2 = 18.42$	p= 0.0003	Significant			
Total	314 (72)	122 (28)	436 (100)			

Out of 314 anaemic females, (68.5%) were moderately anaemic, and (3.2%) severely anaemic (Table 3).

The prevalence of anaemia was high (75.1%) among females who had attained menarche (Table 4).

Table 3: Distribution of females in relation to severity of anaemia (n=314).

Severity of anaemia	Number	Percent (%)
Mild anaemia (11 to 11.9 gm %)	89	28.3
Moderate anaemia (8 to 10.9 gm %)	215	68.5
Severe anaemia ( < 8 gm %)	10	3.2
Total	314	100

Table 4: Distribution of females in relation to anaemia and menstruation (n=436).

Menstruation	Anaemic (%)	Non- anaemic (%)	Total (%)
Menarche attained	200 (75.1)	67 (24.9)	267 (100)
Not attained	114 (67.1)	55 (32.9)	169 (100)
Total	314 (72.0)	122 (28.0)	436 (100)
Pearson Chi square test	$\chi 2 = 2.851$	p= 0.2404	Non- significant

#### **DISCUSSION**

## Anaemia prevalence

Anaemia is particularly prominent in South East Asia. India contributes up to (88%) of pregnant and (74%) non-pregnant women. In present study out of 436 females, 314 (72%) had anaemia. Studies done by Toteja et al in 16 district of India, showed (90.1%) study by Kulkarni PA et al stated (89.9%), which are high compared to our study. Studies done by Premlatha et al from Chennai had prevalence (78.75%), nearly similar to our findings, whereas study by Dutta et al showed 61.0%, less than our findings. 4,5

#### The socio-demographic characteristics

#### Anaemia and age group

In our study the prevalence of anaemia above 18 years (late) was (73.8%), and below 18 (early) (71.2%), while in a study done by Kaur et al, higher prevalence of anaemia was observed in late adolescents (64%) as compared to early adolescent (58%), similarly study by Biradar et al in rural area of Belgaum showed higher prevalence in late adolescent (60%) as compared to early adolescent 38.9%.<sup>6,7</sup>

#### Religion

Our study shows prevalence of anaemia among Hindus was more (82.6%), compared to Muslims (80.8%), Sachan et al also shows more in Hindu (59.2%) and Muslims (37.5%).<sup>8</sup> A study by Bilkish et al on 416

females in rural area of Maharastra observed Hindu (53.6%) and Muslims (47.92%).

#### Family composition

Our study shows the prevalence of anaemia was more (73.3%) in nuclear families, compared to joint families (69.9%). In contrast to our results Rawat et al studied 504 females in rural area of Daurala PHC, observed prevalence in joint family was higher (45.2%), than nuclear families (28.3%), Bilkish et al observed nuclear families more prevalence (51.79%) and joint (52.08%).

#### Education

In present study prevalence of anaemia was more among educated (72.4%) compared to illiterate (68.2%), this is supported by Bhanushali et al<sup>11</sup> in their study among 387 females observed 104 were anaemic, among them (55.8%) were literate, in contrast to our study Kaur et al observed, as education increases prevalence of anaemia decreases, among illiterate (66.7%).<sup>6</sup> Bilkish et al observed (71.32%) in illiterate and only (20.25%) in literate females.<sup>9</sup>

#### Marital status

Our study shows more prevalence of anaemia among married females (87.1%) compared to unmarried (70.9%). NFHS-3, Rajasthan also shows the prevalence of anaemia more in married (54.3%) compared to unmarried (49.9%). <sup>1</sup>

### Socio-economic status

In present study it is observed that as socio-economic status increases prevalence of anaemia decreases, highest among class V (79.9%) and lowest among class III (67.9%). No female of class I was observed. Similar results were also observed by Kaur et al class V (73.4%), class II (54.3%), class I (41.7%).<sup>6</sup> Rawat et al, among class V (50%) and class I (27.3%).<sup>10</sup> Biradar et al reported anaemia among females of class III was (4.1%) where as it was (43.1%) in class IV and (100%) in class V. Our results are also supported by study of Bilkish et al who observed prevalence of anaemia among class IV and V (61.42%) and class I, II, III (56.62%).

# Severity of anaemia

In the present study (68.5%) females were moderately anaemic, (28.3%) mild anaemic and (3.2%) were severely anaemic. Study done by Siddharam S M et al<sup>12</sup> had more prevalence of mild (54.9%), moderate (45.2%), and (4.92%) severe. Sharma et al observed similar results moderate (72%), mild (16.5%), and severe (11.5%), and the study of Toteja et al observed moderate, mild, and severe (50.9%), (29.2%), (7.1%) respectively.<sup>2,13</sup>

#### Anaemia and menstruation

In present study prevalence of anaemia was high (75.1%) among females who attended menarche, and (67.1%) among not attended, similar results were also observed by Kaur et al <sup>(60.4%)</sup> and (56.2%) respectively. Rajaratnam et al observed (40.7%) in pre menarche females as compared to (45.2%) in post menarche females. <sup>14</sup>

#### CONCLUSION

The study was carried out to understand the current prevalence pattern of anaemia among child bearing females. This study revealed the association of various factors with anaemia like religion, education, nuclear families, and menarche status and statistically significant association with marital and low socio-economic status. A compressive education and information programme has to be organized by health system with involvement of other community infrastructures regarding enhancement of the awareness among women for the factors responsible for anaemia. Literacy level of women should be increased for the prevention of anaemia.

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