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IMPACT OF SOCIOECONOMIC STATUS ON IRON DEFICIENCY ANAEMIA AMONG ADOLESCENCE GIRLS IN DROUGHT PRONE VAIJAPUR TALUKA

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AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

More than two billion people worldwide having low level of haemoglobin and majority peoples belongs to developing country like India and other Asian country. It is very serious health problem among all age peoples. Women's are more prone to this deficiency due to lot of reasons; one of them is heavy bleeding during menstrual discharge. Along with this issue female from rural area do not having awareness about balanced diet and due to insufficient intake of minerals and other nutritive substances diet never fulfil the body nutritional requirement and female become anaemic. Globally, iron deficiency is known to be the most common nutritional disorder. About 30% of the world's population are iron deficient (ID).

In our investigation, Haemoglobin testing of 175 adolescence college girls, coming from various places of Vaijapur taluka, are carried out in special 'Free Haemoglobin Check-up Camp' in Vinayakrao Patil Mahavidyalaya Vaijapur Dist. Aurangabad M.S. India. From the entire participant, we fill up one survey form to identify the socioeconomic background of this entire participant. Our study showed that, 21.14% respondents were normal, 57.71% respondents having mild anaemia, 17.14% respondents having moderate anaemia and 4 % respondents were shows severe anaemia. In our study 42% female respondent facing menstrual irregularities and stress or anxiety which is one of the cause of anaemia.

Keywords: Hemoglobin; iron deficiency; anaemia; college girls.

1. INTRODUCTION

Hidden hunger also known as 'micronutrient deficiency' which impose a significance burden on the affected person and societies. There are lots of evidences that the hidden hunger (micronutrient deficiency) all over the rural India. Anemia is one of the serious 'micronutrient deficiencies, among female population of rural as well as semi-rural India.

Women under reproductive age group are most vulnerable when it comes to IDA. This further gets exacerbated during pregnancy, which is likely to influence maternal, fatal, and newborn health. The prevalence of anaemia amongst pregnant women has been consistently remained around 50% since over last four decades [1].

After the independence India launch various schemes to combat with anaemia like Integrated Child

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Development Scheme (ICDS), National Nutritional Anaemia Control Program (NNACP), Weekly Iron and Folic Acid Supplementation (WIFS), National Iron Plus Initiative (NIPI), etc. But, till date, no marked improvement seen in reduction of anaemia. 'Anaemia Mukt Bharat' was launched in September 2018 for combating anaemia. The Anaemia Mukt Bharat focuses on reducing anaemia amongst pregnant women from 50% in 2016 to 32% by 2022.

It is a microcytic and hypochromic anaemia found when body iron supply is lower than the requirement for the physiological production of haemoglobin. Haemoglobin plays an important role in the internal respiration and cell as well as tissue development. Haemoglobin level indicates the amount of circulating Hb proteins in RBCs. It is a kind of nutritional deficiency across the world and found in those individual whose iron intake insufficient or there is complications in the absorption of iron from diet.

It is kinds of haematological disorder characterized by an insufficient number or malfunctioning of an individual's erythrocytes, or RBCs, caused due to lack of iron rich foods in the diet. Anaemia is defined by its cause and particular pathology. For example, vitamin-deficiency anaemia, or pernicious anaemia, occurs when an individual is lacking adequate amounts of folic acid or vitamin B12 due to insufficient intake or faulty absorption in the gastrointestinal tract. Sickle cell anaemia and haemolytic anaemia were both appropriately named, as RBCs are sickle-shaped in the first condition and excessively destroyed in the latter.IDA is most common form of anaemia and frequently found in acute care settings and communities worldwide. Various populations were susceptible to IDA, such as women of childbearing age, pregnant women, lactating women, college girls, patients with significant blood loss, low socioeconomic classes, individuals with nutritionally-poor diets, and alcoholics. IDA is depends on the iron storage in the body due to various intrinsic and extrinsic factors, which means the volume of RBCs, or mean corpuscular volume (MCV), is pg.

According to NARP Maharashtra State is divided in 9 Agro climatic zones (ACZ). Total Area of Aurangabad District comes under western Maharashtra dry zone and central Maharashtra Plateau zone. According to rainfall, topography, soil type etc, Aurangabad district is divided into 5 Agro Ecological Situations. Vaijapur is comes under Low rainfall, Medium Soil, Scarcity Zone. So peoples belongs to this zone majorly comes under poverty line [2].

2. MATERIALS AND METHODS

Haemoglobin testing of 175 adolescence college girls coming from various places of Vaijapur taluka, were carried out in special 'Free Haemoglobin Check-up Camp' in Vinayakrao Patil Mahavidyalaya Vaijapur Dist. Aurangabad M.S. India. From the entire participant, we fill up one survey form to identify the socioeconomic background of this entire participant. By trained investigators and by using digital Accu Sure Hb testing system and Accu Sure Hb test strips haemoglobin level of college girls was measured. This system used drop of blood from finger prick within 10 second the Hb concentration is display on the machine screen.

All the data analysed on the basis of international standards for haemoglobin level among female from rural background. Haemoglobin levels: haemoglobin level less than 12.0 g/dl is considered as anaemia.

1. Normal:- > 12.0 g/dl
2. Mild anaemia:-10-11.9 g/dl
3. Moderate anaemia:- 7-9.9 g/dl
4. Severe anaemia:- < 7.0 g/dl

3. RESULTS

Environment of the respondent is also responsible for her or his health consciousness. Our 86.28% respondent belongs from rural area. Very less respondent i.e. 13.71 % belongs from urban and semi urban area.

Table 2 shows that age wise classification of respondents, 84% respondents belong to 16-20 age group likewise 4%(21-25), 4% (26-30) and 14% (30 to Onward).

Out of 175 respondent 92% belongs to Hindu religion and 8% from Buddhist.

In category wise classification of respondents, Out of 175 respondent, 64.57 % from Open category, followed by 13.71% (OBC and SC), 4.57 (NT/DNT), and 1.71 (ST and Other)

Table 1. Habitat area of respondents

Sr. No.	Characteristics	Frequency	Percentage
1	Rural	151	86.28
2	Urban	24	13.71
Total		175	100%

Table 2. Age wise classification of respondents

Sr. No.	Characteristics	Frequency	Percentage
1	16-20	147	84
2	21-25	7	4
3	26-30	7	4
4	30 to Onward	14	8
	Total	175	100%

Table 3. Religion wise classification of respondents

Sr. No.	Characteristics	Frequency	Percentage
1	Hindu	161	92
2	Buddhist	14	8
3	Islam	0	0
4	Christian	0	0
5	Jain	0	0
6	Shikh	0	0
	Total	175	100%

Table 4. Category wise classification of respondents

Sr. No.	Characteristics	Frequency	Percentage
1	OPEN	113	64.57
2	OBC	24	13.71
3	SC	24	13.71
4	ST	3	1.71
5	NT/DNT	8	4.57
6	Other	3	1.71
	Total	175	100%

Table 5. Mother's education level

Sr. No.	Characteristics	Frequency	Percentage
1	Primary	110	62.85
2	Secondary/ Higher Secondary	60	34.28
3	Graduate	2	1.14
4	Post-Graduate	3	1.71
	Total	175	100%

Table 6. Father's education level

Sr. No.	Characteristics	Frequency	Percentage
1	Primary	52	29.71
2	Secondary/ Higher Secondary	104	59.42
3	Graduate	19	10.85
4	Post-Graduate	0	0
	Total	175	100%

Table 7. Nature of family

Sr. No.	Characteristics	Frequency	Percentage
1	Joint Family	84	48
2	Nuclear Family	91	52
	Total	175	100%

Educated family is very conscious about the health awareness, so in this survey we found that 62.85% mother parent had completed only primary education. 34.28% completed Secondary/ Higher Secondary level where as very less ie.1.14% to 1.17 % mother is completed higher education.

Father is the backbone of family and well educated father always be serious about his family health. In our survey we found that 29.71% completed primary education, 59.42% father Completed Secondary/ Higher Secondary and only 10.85% were completed up to graduate level.

Majority families (52%) are nuclear and 48% were from joint family.

Majority of respondent from rural background and the income source is only farming of 81.14% respondents followed by 8% Service, 6.28% Wages/ Labour, and 4.57%Small scale occupation.

Above table shows that, HB recorded from respondents of various faculty are as follows; 9,13,6,3,and 6 numbers of respondents from B.A., B.Sc., B.Com., BBA/BCA/BCS, MA/ M.Com./M.SC respectively having normal Hb (> 12.0 g/dl) and the percentage prevalence are being 21.14%. Likewise 57.71% respondents were shows that mild anaemia (13, 35, 25, 12 and 16 numbers of respondents from B.A., B.Sc., B.Com. BBA/BCA/BCS, MA/ M.Com./M.SC respectively). 17.14% respondents were having moderate anaemia (5, 9,10,4 and 2numbers of respondents from B.A., B.Sc., and B.Com. BBA/BCA/BCS, MA/ M.Com./M.SC respectively). 4 % respondents were shows that severe anaemia.

The Table 10 showed that, pattern of feeding habit whether respondent is vegetarian or non vegetarian. Maximum number of respondent is purely vegetarian (85.71%) and very few respondents (14%) taking non veg sometime in their diet. According to JY Kim et al (2014) consumption of red meat, egg, pork, fish increase the iron and vitamin c in the body and the Hb prevalence is high in those individual [3]. But in our study very few take such non-veg food in their diet so the prevalence of IDA is higher in our study area. Priyanka Pareek et al. (2022) also reported an inadequate intake of dietary iron and concurrent inadequate intake of dietary micronutrients appear to be primary factors responsible for anemia and iron deficiency in adolescence girls [4].

People having good health are not suffering from the diseases and vice versa. In female body, menstrual irregularities, hemorrhagic disease, stress or anxiety, dengue and malaria create complications in body physiology. Menstrual irregularities, Hemorrhagic disease are responsible for heavy blood loss which causes destruction of RBCs and leads to deficiency of haemoglobin in blood and female become anaemic. Stress or anxiety, malaria, and some blood helminths also damage RBCs which cause anaemia in female. In our study 42% female respondent facing menstrual irregularities and stress or anxiety which is one of the cause of anaemia.

Table 8. Source of income

Sr. No.	Characteristics	Frequency	Percentage
1	Farming	142	81.14
2	Service	14	8
3	Wages/ Labour	11	6.28
4	Small scale occupation	8	4.57
	Total	175	100%

Table 9. Showing Hb % among respondents

Sr. No.	No. of respondent	Normal:- > 12.0 g/dl	Mild anaemia:- 10-11.9 g/dl	Moderate anaemia:- 7-9.9 g/dl	Severe anaemia:- < 7.0 g/dl
BA	29	9	13	5	2
B.Sc.	59	13	35	9	2
B.Com	42	6	25	10	1
BBA/BCA/BCS	20	3	12	4	1
MA/ M.Com./M.SC	25	6	16	2	1
	175	37 (21.14%)	101(57.71%)	30 (17.14%)	7 (4%)

Source: Field survey

Table 10. Components included in daily diet

	Feeding habit		
	Daily	**Some time**	**Never**
Chapati	174	1	0
Bread	52	122	1
Rice	33	134	8
Vegetable	126	49	0
Dal	57	116	2
Milk	75	73	27
Fruit	52	120	3
Pulses	50	120	5
dry fruit	7	133	35
Beer	00	1	174
Chicken	3	24	148
Fish	0	5	170
Egg	3	38	134
Meat/Mutton	1	24	150
Other	0	15	160

Table 11. Chart showing health/disease history of respondents

Sr. No.	Characteristics	Frequency	%
1	Malaria	2	3.5
2	Dengue	4	7
3	Menstrual irregularities	24	42
4	Stress or anxiety	24	42
5	Hemorrhagic disease	7	12.25
6	None of above	114	65.14
	Total	175	100

4. DISCUSSION

The socioeconomic status is plays an important role in the health status of every individual. The socioeconomic status of rural people is quite differ than the urban people is different way like educational status, income source, living standard, health and hygiene awareness, family size and so on.

In our survey, out of 175 respondents, 86.28% belongs from rural area and agricultural background. 84% respondents belong to 16-20 age groups and 92% belongs to Hindu religion and 8% from Buddhist. In category wise analysis, majority respondent (64.57%) from open category. In case of parental education level 62.85% mother parent had completed only primary education and 34.28% completed Secondary/ Higher Secondary level, where as very less ie.1.14% to 1.17 % mother is completed higher education. In case of male parent 59.42% father Completed Secondary/ Higher Secondary and only 10.85% were completed up to graduate level.

This result shows that due to low educational status parental awareness towards health and hygiene is lacking behind. So, they cannot percolate perfect knowledge regarding health and hygiene towards her daughter. Majority families (52%) are nuclear as well as due to low educational level and they are engaged in farming they cannot taking that much care of their ward. Vaijapur taluka coming under low rain fall zone and main income source is only farming. About 81.14% respondents income source is farming which is very negligible due to continue drought. Due to such condition majority farmers becomes landless and comes under below poverty line.

All above factors impact on health of the respondent through various ways. Nutritional deficiency is major issue in this area, due to lacking of balanced diet, nutritional deficiency leads to malnutrition and anaemia in adolescence [5].

Across the globe, one-fourth of the world's population suffers from anemia. One in four school-going children and four in every ten women are affected by it [6].

Our study shows that, 21.14% respondents were normal, 57.71% respondents having mild anaemia, 17.14% respondents having moderate anaemia and 4 % respondents were shows severe anaemia. This result shows correlation with results of Arun V. Pant et al. [7] showed that 63 % girls anaemic and

Abhilash S.C. [8,3]. This result indicates that, near about 79% respondent are anaemic means less haemoglobin percentage in her body. Low hemoglobin percentage leads to lots of health problems like stress and anxiety, malnutrition, leanness, and weight loss in adolescence. Dr Saiprasad Kavthekar, et al. [9] showed that, the overall prevalence of anemia in rural adolescent girls was 54.2%, highest 63.3% was in the age group of 13 to 14yrs, 30% suffered from moderate anemia. This result also shows similar near about similar prevalence of anaemia in study area. Our report also showed similarity with the report of Verma, Kamala; Baniya, Girish C.. (2022), reporting 56.32% adolescence were anaemic from rural western Rajasthan [10].

Maximum number of respondent is purely vegetarian (85.71%) and very few respondents (14%) taking non veg sometime in their diet. So the prevalence of IDA is higher in respondent. Likewise another factor is menstrual irregularities and stress or anxiety. In our study 42% female respondent facing menstrual irregularities and stress or anxiety which is one of the cause of anaemia.

5. CONCLUSION

We observe very crucial findings which cause Iron Deficiency Anaemia (IDA) among college girl students from rural background. We observed that majority of college girl students were anaemic, that might be aggravated by fasting on various religious occasions, food habits (Vegetarian), lack of proper exercise daily, lack of awareness about anaemia and so on.

This investigation suggests that, need to take lots of serious efforts from individual to government level to overcome this problem in future. Change in lifestyle and proper education of Iron Deficiency Anaemia (IDA) and other diseases causing anaemia is the immediate future need. Effective implementation of various schemes, like Anaemia Mukt Bharat to complete eradication of anaemia from female population.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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